

https://dspace.org/

Interdependency of knowledge management and learning : the case of higher education institutions in Uganda

Turyasingura, Wilberforce

2011-12-13
http://hdl.handle.net/10539/10895

Downloaded from a DSpace repository. https://dspace.org/

Interdependency of Knowledge Management and Organisational Learning: The Case of Higher Education Institutions in Uganda

Wilberforce Turyasingura

Submitted in fulfilment of the requirements for the award of the degree of Doctor of Philosophy in Management

University of the Witwatersrand

Graduate School of Business Administration

Supervisors:

Professor Louise Whittaker, PhD

Professor Anthony Stacey PhD

Johannesburg

March 2011

DECLARATION

I declare that this thesis is my own unaided work. It is submitted for the degree of Doctor of Philosophy in the University of Witwatersrand, Johannesburg. It has not been submitted for any degree or examination at any other university, nor has it been prepared with the assistance of any other body or institution, group, or person outside the University of the Witwatersrand, Johannesburg.

Wilberforce Turyasingura

Student Number: 0617455V

Date…….

DEDICATION

This thesis is dedicated to the memory of Tibaheba Joy, my late mother, who, unfortunately, did not live to see the fruits of her efforts in raising me.

ACKNOWLEDGEMENTS

During the process of conducting research and writing this thesis, I have had an opportunity both to interact with, and to benefit from, many people who have contributed to the completion of this study in one way or another. Some of these people have directly read through the drafts and made valuable comments, whereas others have listened patiently and have responded with alacrity to my, no doubt, seemingly endless enquiries regarding my research. I am therefore taking this opportunity to thank them all from the bottom of my heart. Although it may not be possible to mention all their names individually, I will forever be indebted to their valuable contribution. However, there are some individuals whose names, I feel, must be mentioned.

First and foremost, I want to express my heartfelt gratitude to my supervision team, composed of Professor Louise Whittaker, PhD and Professor Anthony Stacey PhD for their ongoing guidance and support during the course of this study. Their continuous feedback and encouragement have given me both the confidence and the courage to continue with my studies.

I want to thank the management of Uganda Management Institute for not only financially supporting my studies, but for also granting me study leave whenever I was required to travel to South Africa. In particular, I want to thank Dr Kiyaga-Nsubuga, the former Director General, for arousing my initial interest in undertaking such advanced studies. Many of my colleagues at Uganda Management Institute had a significant role to play in my studies. Notable among them are Dr D.K.W Ssonko, who not only mentored me in many ways, but who also inspired me throughout my research. I am also indebted to Dr M. Muhenda, Dr R. Namara and Mr J.D Byamugisha for the sense of confidence with which they inspired me, which greatly boosted my belief in my capacity to complete my studies successfully. Dr Basheka deserves specific mention for his willingness to share his understanding of various aspects of the topic with me whenever I approached him in this regard. I am also thankful to Mss S. Mukalukundo and C. Nabatanzi for providing secretarial support. Special acknowledgement goes to Mr A Kitunzi-Mutunzi for his friendship during our many hours of work together, during which he provided much stimulating conversation to lighten some contentious moments, as well as provided constructive criticism during informal chats and discussions. To my Research Assistant, Mr Benedict Twino, and all the respondents to this study from Makerere University, Kyambogo University, the Islamic University in Uganda, the Uganda Martyrs University, and the Uganda Management Institute, I shall forever be indebted to you all.

Perhaps most of all, I wish to acknowledge the support of, as well as the sacrifices undergone by, my family during my studies. Due to my preoccupation with my studies, my wife Isabella and children Ritah, Louisa and Malcom had often to manage without me, which required that they all take on additional responsibilities. I thank you all for being part of such a daunting, yet worthwhile, journey, which has culminated in the achievement of this milestone, which we shall all forever cherish as a defining experience of our close-knit family.

TABLE OF CONTENTS

Declaration ... ii
Dedication ... iii
Acknowledgements ... iv
Table of contents ... v
List of tables ... x
List of figures ... xii
List of acronyms ... xiii
Abstract ... xiv
CHAPTER ONE: INTRODUCTION ... 1
1.1 Introduction to the study ... 1
1.2 Background to the study ... 2
1.3 Problem statement ... 5
1.4 Research purpose ... 6
1.5 Research objectives ... 7
1.6 Research questions ... 7
1.7 Delimitations of the study ... 7
1.8 Assumptions of the study ... 8
1.9 Significance of the study ... 8
1.10 Justification for the study ... 9
1.11 The state of higher education in Uganda ... 11
1.12 Organisation of the thesis ... 14
CHAPTER TWO: LITERATURE REVIEW ... 16
2. 1 Introduction ... 16
2.2 The nature of knowledge ... 17
2.3 Knowledge categories ... 20
2.4 Knowledge as a resource: The social capital and intellectual capital perspective ... 23
2.5 Knowledge Management (KM) ... 29
2.6 Origins of the concept of 'knowledge management' ... 32
2.7 Factors for successful knowledge management implementation ... 34
2.8 Review of knowledge management models ... 37
2.8.1 Nonaka and Takeuchi's (1995) 'SECI' model of knowledge conversion ... 38
2.8.2 Socially constructed model of knowledge management processes ... 40
2.9 The concept of Knowledge content in higher education institutions ... 453

2.10 Knowledge management in higher education institutions 45
2.11 Organisational Learning (OL) 47
2.12 Organisational learning models and frameworks 52
2.12.1 The four-process organisational learning framework 52
2.12.2 Technical view of organisational learning 53
2.12.3 The social process perspective of organisational learning 54
2.13 'Organisational learning' versus the 'learning organisation' 56
2.14 Organisational learning in higher education institutions 60
2.15 Knowledge management and organisational learning 63
2.16 Nature of the interrelationship between knowledge management and organisational learning 66
2.16.1 Knowledge transfer and organisational learning 69
2.16.2 Knowledge documentation and organisational learning 70
2.16.3 Knowledge creation and organisational learning 71
2.16.4 Knowledge acquisition and organisational learning 72
2.16.5 Knowledge application and organisational learning 72
2.17 Interdependence between knowledge management and organisational learning 73
2.18 Linking KM to OL: A theoretical perspective 760
2.19 Conceptual framework 79
2.20 Summary 79
CHAPTER THREE: RESEARCH METHODOLOGY 83
3.1 Introduction 83
3.2 Philosophy of research 83
3.2.1 Positivism and interpretivism research paradigms 84
3.2.2 The middle of the road: The post-positivist paradigm 86
3.2.3 Selection of the post-positivist paradigm for the current study 87
3.3 Research design and strategies 87
3.3.1 The mixed methodology design 88
3.4 Population of the study 90
3.5 Sample size and Sampling procedure 91
3.6 Instrumentation and measurement of variables 94
3.6.1 Knowledge Management Scale 95
3.6.2 Organisational Learning Scale 96
3.7. Procedure for data collection and handling 98

3.7.1 Administration of the questionnaire 98
3.7.2 Coding and data entry 100
3.8 Key informant interviews 101
3.9 Reliability and validity of quantitative data 103
3.9.1 Reliability 103
3.9.2 Validity 105
3.10 Establishing validity in the qualitative phase of the study 1036
3.11 Ethical considerations 1039
3.12 Data analysis procedures 109
3.12.1 Factor analysis 110
3.12.2 Correlation analysis 111
3.12.3 Regression analysis 111
3.12.4 Canonical correlation analysis 112
3.13 Summary 114
CHAPTER FOUR: QUANTITATIVE DATA ANALYSIS AND PRESENTATION 115
4.1 Introduction 115
4.2 Response rate 115
4.2.1 Demographics of the sample 116
4.3 Data cleaning exercise 118
4.3.1 Missing value analysis 118
4.3.2 Univariate outliers test 119
4.3.3 Test of normality of data 120
4.4 Descriptive analysis 121
4.4.1 Descriptive analysis of knowledge management practices 122
4.4.2 Descriptive analysis of organisational learning dimensions 123
4.5 Construct validation using exploratory factor analysis 123
4.5.1 Factor structure of the Knowledge Management Scale 124
4.5.2 Factor structure of the Organisational Learning Scale 128
4.6 Restatement of propositions and modified research framework 142
4.7 Variability of knowledge management activities and organisational learning among the surveyed institutions 134
4.7.1 Assessment of variations of knowledge management and organizational learning responses across the six institutions 134
4.8 Summary 142
CHAPTER FIVE: RESULTS OF THE QUANTITATIVE ANALYSIS 143

5.1 Introduction 143
5.2 Proposition 1: Knowledge management practices influence institutional learning 145
5.3 Proposition 2: Knowledge management practices influence individual learning 148
5.4 Proposition 3: Knowledge management practices influence leader-driven learning... ...150
5.5 Proposition Four: An interdependent relationship exists between knowledge management practices and organisational learning in higher education institutions defined by at least one distinct dimension 152
5.6 Summary 158
CHAPTER SIX: QUALITATIVE DATA ANALYSIS 159
6.1 Introduction 159
6.2 The interview process 160
6.3 Qualitative data analysis 161
6.4 Summary 165
CHAPTER SEVEN: RESULTS OF INTERVIEWS WITH KEY INFORMANTS 166
7.1 Introduction 166
7.2 Case Study One: Management development institute – the UMI 166
7.2.1 Background information 167
7.2.2 Understanding of knowledge management 168
7.2.3 Organisational learning at UMI 179
7.2.4 Relationship of knowledge management and organisational learning 183
7.2.5 The linkage between Knowledge management and organisational learning 184
7.3 Case Study Two: University – KYU 185
7.3.1 Background information 185
7.3.2 Understanding of knowledge management 186
7.3.3 Organisational learning at KYU 193
7.3.4 The relationship between knowledge management and organisational learning 196
7.3.5 The linkage between Knowledge management and organisational learning 197
7.4 Case Study Three: Business school – MBS 198
7.4.1 Background information 198
7.4.2 Understanding of knowledge management 199
7.4.3 Organisational learning at MBS 210
7.4.4 The relationship between knowledge management and organisational learning 212
7.4.5 The linkage between knowledge management and organisational learning 214
7.5 Cross-case analysis 216
7.5.1 Knowledge management in higher education institutions, a cross-case analysis 216

7.5.2. Organisational learning in HEIs in Uganda, a cross-case analysis 220
7.6. Interdependence between knowledge management and organisational learning 223
7.7 Summary 225
CHAPTER EIGHT: DISCUSSION OF FINDINGS 227
8.1 Introduction 227
8.2 The influence of knowledge management practices on organisational learning 227
8.2.1 Knowledge management practices and institutional learning 227
8.2.3 Knowledge management practices and leader-driven learning 238
8.3 Interdependence between KM practices and OL 242
8.3.1 Exploring the first dimension of interdependence: The institutional strategic focus dimension 246
8.3.2 Exploring the second dimension of interdependence: The people dimension 248
8.4 Revisiting of the research model 250
8.5 Re-conceptualising the interdependence of knowledge management and organisational learning: The organisational knowledge sustainability perspective 253
8.5.1 Organisational knowledge sustainability and the institutional strategic orientation 255
8.5.2 Organisational knowledge sustainability and the people orientation 258
8.6 Summary 262
CHAPTER NINE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS 263
9.1 Introduction 263
9.2 Summary of findings and conclusions 263
9.2.1 The influence of knowledge management practices on Organisational learning 263
9.2.2. Dimensions of interdependency between knowledge management and organisational learning 265
9.3 Contribution made by the study 266
9.4 Recommendations for implementation in practice 267
9.5 Recommendations for future research 269
9.6 Weakneses and limitations of the study 271
9.7 Concluding remarks 271
REFERENCES 273
APPENDIX ONE: RESEARCH QUESTIONNAIRE 289
APPENDIX TWO: INTERVIEW GUIDE 293

LIST OF TABLES

Table	2.1	Epistemological and ontological dimensions of knowledge creation.....	22
Table	2.2	Sample of knowledge management definitions.....	30
Table	2.3	Tactical and strategic levels of knowledge management.....	31
Table	2.4	Comparison of knowledge management processes used in the current study with those proposed in the social construction of knowledge management processes.....	42
Table	2.5	Relevant knowledge content for higher education institutions.....	45
Table	2.6	Definitions of organisational learning according to selected authors.....	49
Table	2.7	Organisational learning frameworks.....	53
Table	2.8	Watkins and Marsick's (1993) dimensions of learning at three levels.....	59
Table	2.9	Organisational learning and knowledge management convergence.....	65
Table	3.1	Various research approaches in terms of the positivist paradigm.....	85
Table	3.2	Various research approaches in terms of interpretivism paradigm.....	85
Table	3.3	Mixed method design matrix.....	89
Table	3.4	Summary of instruments used for the questionnaire for this study.....	94
Table	3.5	Distribution of key informants.....	102
Table	4.1	The response rate for the current study.....	116
Table	4.2	Responses according to the type of the institution.....	116
Table	4.3	Responses by category of ownership.....	117
Table	4.4	Responses based on faculty.....	117
Table	4.5	Outliers from box plot observations.....	119
Table	4.6	Results of the Shapiro-Wilk (S-W) test of normality of data.....	121
Table	4.7	Descriptive Analysis of study variables.....	122
Table	4.8	Five-factor rotated structure of Knowledge Management Scale.....	125
Table	4.9	Reliability analysis of knowledge management scale……..	126
Table	4.10	Three-factor rotated structure of the organisational learning scale.....	129
Table	4.11	Reliability results of organisational learning variable……..	130
Table	4.12	Variables retained for analysis.....	131
Table	4.13	Overall knowledge management responses according to institution.....	137
Table	4.14	Overall organisational learning responses according to institution.....	138
Table	4.15	Results of ANOVA tests of knowledge management and organisational learning in the sampled institutions.....	141
Table	5.1	Pearson Correlation Coefficients between Variables……	144
Table	5.2	Results of regression analysis KM practices and Institutional learning.....	147
Table	5.3	Results of regression analysis KM practices and Individual learning……..	149
Table	5.4	Results of regression analysis KM practices and leader driven learning.....	151
Table	5.5	Canonical Correlations and their levels of significance.....	153
Table	5.6	Canonical loadings of KM and OL canonical variates.....	154
Table	6.1	Distribution of the key interview respondents.....	159
Table	6.2	Example of the contact summary form.....	161

Table 6.3 Initial codes used in the analysis..... 164
Table 7.1 Summary of knowledge management practices at UMI..... 179
Table 7.2 Summary of organisational learning practices at UMI..... 182
Table 7.3 Summary of knowledge management practices at KYU..... 193
Table 7.4 Summary of organisational learning practices at KYU..... 196
Table 7.5 Summary of knowledge management practices at MBS..... 209
Table 7.6 Summary of organisational learning practices at MBS..... 212
Table 7.7 A cross-case analysis of knowledge management practices in higher education institutions in Uganda..... 217
Table 7.8 A cross-case analysis of organisational learning practices in higher education institutions in Uganda..... 221
Table 7.9 Proposed dimensions of knowledge management and organisational learning linkage: A cross-case analysis..... 224

LIST OF FIGURES

Figure	2.1	Pyramid showing levels from data to wisdom…….....	19
Figure	2.2	Conceptual model of intellectual capital.....	26
Figure	2.3	Nonaka and Takeuchi's (1995) model of knowledge conversion.....	38
Figure	2.4	Modified version of Demarest's (1997) Knowledge management mode.....	41
Figure	2.5	Huber's Organisational learning framework.....	54
Figure	2.6	Easterby-Smith and Lyle's (2003) knowledge and learning framework.....	75
Figure	2.7	Conceptual framework.....	81
Figure	3.1	The procedure of data Collection.....	99
Figure	4.1	Modified research framework.....	133
Figure	4.2	A comparison of knowledge management practices across six institutions surveyed.....	139
Figure	4.3	A comparison of organisational learning across six institutions surveyed.....	140
Figure	5.1	Relationship between knowledge management practices and institutional lelarning.....	146
Figure	5.2	Relationship between knowledge management practices and individual learning.....	148
Figure	5.3	Relationship between knowledge management practices and leader driven learning.....	151
Figure	5.4	Schematic framework showing the relationship of variables in the CCA...	156
Figure	8.1	Revised Conceptual framework.....	252

LIST OF ACRONYMS

AAPAM	African Association of Public Administration and Management
ACCA	Association of Chartered Certified Accountants
AMDIN	African Management Development Institutes Network
ANOVA	Analysis of variance
BPR	Business Process Re-engineering
BSS	Between Sum of Squares
CCA	Canonical Correlation Analysis
CIMA	Chartered Institute of Marketing Associations
CIPS	Chartered Institute of Purchasing and Supply
CPD	Continuous Professional Development
DLOQ	Dimensions of Learning Organisation Questionnaire
DSS	Decision Support Systems
EFA	Exploratory Factor Analysis
ES	Expert Systems
FA	Factor Analysis
GRC	Graduate Research Centre
HEI	Higher Education Institution
HRD	Human Resource Development
HRM	Human Resources Management
IASIA	International Association of Schools and Institutes of Administration
ICPAU	Institute of Chartered Public Accountants of Uganda
ICSA	Institute of Chartered Secretaries
ICT	Information Communication Technology
IHS	Institute of Housing and Urban Development Studies
IS	Information Systems
IT	Information Technology
ITEK	Institute of Teacher Education
KM	knowledge management
KMO MSA	Kaiser-Meyer-Olkin Measure of Sampling Adequacy
LAN	Local Area Network
LO	Learning Organisation
MSA	Measure of Sampling Adequacy
NCHE	National Council for Higher Education
NDC	National Documentation Centre
OKS	Organisational Knowledge Sustainability
OL	Organisational Learning
SMS	Short Message Service
SPSS	Statistical Package for Social Scientists
UNISE	Uganda National Institute of Special Education
UOTIA	Universities and Other Tertiary Institutions Act
UPK	Uganda Polytechnic Kyambogo

ABSTRACT

Knowledge management and organisational learning have received much attention in recent times, owing to the increased recognition which has been accorded knowledge as a source of organisational success and sustainability. Researchers and practitioners have become increasingly interested in striving to understand how the two notions can be harnessed in order to attain that success. However, while it seems clear that both knowledge management and organisational learning have the same goals, that is to nurture and harness knowledge resources, the concepts have tended, in the past, to be regarded independently of each other, with parallel strategies having been implemented for each. Such an imposed separation has, at times, resulted in resource duplication and unsatisfactory outcomes for the organisations concerned.

The current study examines the nature of the relationship between knowledge management and organisational learning in higher educational institutions in Uganda, with the aim of providing a unified framework for understanding how the above-mentioned knowledge-based concepts relate to each other. A mixed methodology approach was applied to achieve the set objective. Quantitative data were collected using questionnaires from 270 respondents, employed at six higher educational institutions (comprising four universities, one management development institute, and one business school). Qualitative data, in contrast, were collected by means of interviews which were conducted with 13 key informants from three different institutions. Analytical techniques of correlation analysis, regression analysis and canonical correlation analysis were applied to the quantitative data, while content analysis procedure was applied to the qualitative data. Empirical evidence confirmed that knowledge management and organisational learning have an interdependent relationship, which is manifested in two main dimensions, namely the institutional strategic focus and people (human resources) focus. Based on such dimensions, the study proposes a re-conceptualisation of the linkage between knowledge management and organisational learning, aimed at evolving the two concepts into a single organisational knowledge sustainability concept in higher educational institutions. Such a joint concept emphasises the effective utilisation of existing knowledge, while, at the same time, focusing on the importance of continuous learning for acquiring new knowledge to meet future organisational knowledge requirements.

In addition, empirical evidence from this study show that knowledge management practices play an important role in promoting learning at various levels of the organisation. The study concludes that knowledge management has not been fully integrated in the strategic agenda of most higher education institutions in Uganda and much internal knowledge is not properly harnessed for the benefit of such institutions. The study recommends that, in the current information age, higher education institutions in Uganda should prioritise both knowledge management and organisational learning by implementing strategies aimed at exploiting existing knowledge, as well as at exploring new knowledge. Lastly, recommendations for future research are presented.

Keywords: ***Knowledge management, organisational learning, higher education institutions, organisational knowledge sustainability, Uganda***

CHAPTER ONE
INTRODUCTION

1. Introduction to the study

The importance of knowledge as a strategic source of competitive advantage (Appelbaum and Gallagher, 2000; Karma, 2006; Petruzzelli, 2008) has been steadily growing over the past two decades. Such growth has been complemented by the recognition that the "ability to learn faster than competitors may be the only source of competitive advantage" (De Geus, 1988: 71). Consequently, both researchers and practitioners have found that knowledge management and organisational learning have a significant influence on organisational performance and survival in the current dynamic business environment. Such a finding is supported by Cavaleri's (2004: 159) postulation that both concepts "offer the potential to achieve high levels of effectiveness". Whereas it seems clear that both knowledge management and organisational learning are critical to organisational performance, little research has, as yet, been conducted into how such concepts interact with each other to deliver that performance in higher education context in the developing world. Cavaleri (2004: 159), indeed, argues that "what is largely unknown is the effect that follows from integrating these two approaches into a unified system". The current research does not, however, focus on how knowledge management and organisational learning influence the performance of organisations, but rather on the nature of interdependence between the two knowledge-based concepts in a higher educational setting in a developing country such as Uganda.

Central to the current study is the fact that the convergence of knowledge management and organisational learning has been taken for granted in the relevant literature, with the exact nature of the interdependence of the two concepts not yet clearly understood. In addition, previous research into the two concepts has mainly focused on business enterprises, rather than on such sectors as higher education. Relatively few studies have focused on knowledge management in the higher education sector in the context of a developing country (Kumar and Idris, 2006). Accordingly, an empirical study which is

aimed at determining the interdependence of knowledge management and organisational learning within the context of a higher education setting has been deemed necessary, resulting in the current study.

1.2 Background to the study

In the current information age, knowledge and learning have come to be seen as key defining elements in terms of an organisation's competitiveness, growth and sustainability. Such a phenomenon holds true for all organisations, irrespective of whether they fall within the ambit of the business sector or within that of other sectors, such as education. The success of any organisation in the current era largely depends on the availability and utilisation of its intangible assets, including especially knowledge. In keeping with such thinking, Drucker (1994) points out that, in post-capitalist society, knowledge is the only meaningful economic resource, with an organisation only being able to survive in the current competitive environment by means of the effective utilisation of knowledge creation, inventory, and diffusion. Edvinson and Malone (1997) posit that, since the 1990s, intangible assets have become more important to organisational success than have the traditional factors of production, which include land, labour and financial capital. The growing importance of such assets does not, however, imply that the importance of the latter has been drastically reduced, but that, as Huosong, Kuanqi and Shiqin (2003) argue, they have become secondary in wealth creation.

In today's knowledge-based economies, the employment field places much stress on the importance of continuously exploring new areas of knowledge (which has evolved into organisational learning), as well as on exploiting existing knowledge (which has evolved into knowledge management; March, 1991). By means of such exploration and exploitation of knowledge, organisations are expected to acquire a competitive advantage (Drucker, 1994; Teece, 2000). Although the need to manage knowledge has existed for many decades, the concept of knowledge management first started to attract a great deal of attention by both scholars and practitioners in the fields of organisation and information technology (IT) in the 1990s (Huysman and Wulf, 2006). Such heightened interest may be attributed to the growing recognition of knowledge as a source of

competitive advantage (Appelbaum and Gallagher, 2000), the increased use of information technology in work processes, and the increasingly high level of work complexity.

According to Malhotra (1996), such increased complexity, when combined with uncertainty in, and the rapidity of, change in the environment forced organisations to continuously evolve new work practices, and constantly adapt to innovations which impacted on their functioning. Consequently, there is a growing necessity for all types of organisations to "learn faster and manage their knowledge assets better" (Loermans, 2002: 285). Senge (1990) asserts that organisations now accept that they have continually to attempt to expand their capacity to create their own future through the development of learning systems which transcend issues of organisational membership, thus placing a premium on learning.

Although the existing literature on organisational learning and on learning organisations presupposes that a "true" learning organisation does not exist (Calvert, Mobley and Marshal, 1994; Daniels 1994), interest in the subject has substantially increased during the second half of the twentieth century. Such authors as Griego, Geroy and Wright (2000), and Tobin (1998) have even contended that organisational learning is of great import to organisational success. Put more succinctly, organisational learning is seen as a critical success factor for the organisations of today, which operate in a rapidly changing environment, and which have come to acknowledge that sustainable competitive advantage is premised on continuous learning.

Despite such developments, some researchers and practitioners have paid equal, but parallel, attention to the concepts of knowledge management and organisational learning. As a result, the interdependency of the two concepts has not yet been well articulated, which has prompted Cavaleri (2004: 159) to question whether "... it is more than a mere happenstance that organisational learning and knowledge management share the same purpose-namely facilitating effective action". Such a question highlights the apparent ambiguity surrounding the relationship between knowledge management and

organisational learning. Such ambiguity is even more evident in the higher education sector, in which the number of knowledge management and organisational learning studies has been limited, despite the fact that institutions in the sector are knowledge-based. To underscore the need for research in knowledge management and organisational learning in the realm of higher education, Oliver, Handzic and Toorn (2003: 139) have pointed out that: "one area of omission in knowledge intensive studies is within higher education research where there is a cyclical nature of activities involving teaching, research, and consulting professional work". Though higher education institutions are essentially in the knowledge business, limited research has, so far, been conducted into how they acquire and manage their knowledge, and on how they learn. Higher education institutions need to manage their knowledge assets better, as well as to learn more quickly, in order to remain competitive and sustainable.

In keeping with Kumar and Idris' (2006: 96) assertion that "[t]he globalisation of education has greatly expanded opportunities for students to acquire knowledge outside their country of origin", comes the realisation that globalisation is affecting all organisations equally, whether or not they are profit-oriented. Worldwide competition for educational services has resulted in making higher education institutions competitive.

In addition to such competitive challenges, is the demand which is made on most governments in the developing world, including on that of Uganda, to liberalise such social services as education. Liberalisation has increased private sector participation in what, traditionally, was a government-sponsored social service, thereby increasing the competitiveness of the sector. With increased competition, higher education institutions have been required to assume some characteristics of a business in order to be able to compete in providing a quality education for their students. The assumption of such characteristics is only possible through continuous knowledge creation and learning, which entails embracing the tenets of both knowledge management and organisational learning.

Mulford (1998) argues that organisational learning is relevant to the deep societal concerns which have increasingly come to be expressed about the phenomenon of schooling. The desire to stay competitive, amid growing competition for educational services, compels higher education institutions to apply knowledge management practices in creating, sharing, applying and leveraging their knowledge-based resources, while simultaneously learning faster. Such simultaneous application and learning can only be effected by means of a burgeoning understanding of how knowledge management and organisational learning interrelate, so that higher education institutions can learn how to apply appropriate interventions to enhance organisation-based knowledge and learning.

The above presentation has shown that knowledge management and organisational learning are central to the competitiveness and sustainability of higher education institutions. However, the manner in which they interrelate in such a context and especially in a developing country such as Uganda still has to be understood. The current thesis articulates the position that knowledge management and organisational learning can be brought together, both theoretically and practically, in order to achieve understanding of their interdependence and application.

1.3 Problem statement

The main thrust of both knowledge management and organisational learning seems essentially to be the same, being to nurture and harness organisational knowledge resources in order to create a competitive advantage and to ensure sustainability. The two concepts, however, have, in the past, tended to be regarded separately by both some scholars and practitioners. The nature of interdependence of knowledge management and organisational learning is not well known. The number of empirical studies on how such concepts relate to each other is few, especially in relation to the higher education sector in the developing countries, such as Uganda. Whereas some scholars continue to conceive of the two concepts as being parallel to each other, some practitioners strategise separately for the two. From a practical perspective, such overlapping has, on occasion, led to the implementation of uncoordinated knowledge management and organisational learning interventions, which has led to the duplication of resources and to a likelihood

that the intended objectives will not be achieved. Theoretically, such overlapping has undermined the development of an integrated framework for understanding how the two concepts interact with each other to influence organisational performance. By resolving such overlapping, practitioners would be provided with an opportunity to design and implement better focused interventions so as to effectively harness knowledge and learning at their institutions. In some organisations, organisational learning is considered to be the domain of human resources development practitioners, resulting in its being located in the human resources department, while knowledge management is considered under information communication technology, therefore falling within the ambit of information communication technology departments. Consequently, knowledge management and organisational learning initiatives in many organisations in general, and in higher education institutions in particular, have failed to deliver much-needed benefits, partly due to the lack of integration of the two approaches. Evidence of such failure is reflected in the increasing number of investments in information technology and staff development which have not been matched with the improved management of knowledge and learning at such institutions. The current study attempts to harmonise knowledge management and organisational learning initiatives by means of providing a way in which to understand their essential interdependence in the higher education context in Uganda. Such a framework should, hopefully, contribute towards the effective implementation of knowledge management and organisational learning interventions in the future.

1.4 Research purpose

The major aim of the current thesis was to conduct an empirical examination of the nature of interdependence between knowledge management practices and organisational learning in higher education institutions in Uganda. This is accomplished by means of determining the dimensions of such an interdependence. By determining those dimensions, it should be possible to identify the applicability of the two knowledge concepts to higher education institutions in Uganda in terms of managing their knowledge better and learning faster within a dynamic environment. Such dimensions can be considered as guiding principles for determining those interventions which are

needed to promote learning and knowledge management in higher education institutions in Uganda. In addition, the current thesis is aimed at determining how knowledge management practices are associated with learning at individual, team and institutional level in higher education institutions.

1.5 Research objectives

To achieve such a purpose, the following four underlying objectives need to be met in relation to higher education institutions in Uganda:

1) to examine the influence of knowledge management practices on individual learning;
2) to assess the influence of knowledge management practices on team learning;
3) to determine the influence of knowledge management practices on institutional learning; and
4) to identify the dimensions of interdependence between knowledge management and organisational learning.

1.6 Research questions

The research objectives enumerated in subsection 1.4 above translate into the following research questions:

1) How do knowledge management practices influence individual, team and institutional learning?
2) Can dimensions of the interdependence between knowledge management and organisational learning be identified?

1.7 Delimitations of the study

In the current study, it is proposed that knowledge management and organisational learning are interdependent of each other. Such a proposal implies that pursuing one principle, and not the other, might not result in the organisation concerned attaining its desired outcomes. The present researcher has limited the study to the exclusion of other factors, such as organisational culture, individual attitudes, and organisational design, which might also impact on both knowledge management and organisational learning.

Variables of that nature are recommended for future studies however such exclusiveness is partly due to certain cultural aspects and individual attributes already being reflected in the subjects' willingness both to share their knowledge and their ability to learn. The study has not attempted to uncover the antecedents of successful implementation of knowledge management and organisational learning in higher education institutions, since such aspects have already been widely researched in other studies. In addition, the researcher is cognisant of the view that knowledge content differs from one context to the other, for purposes of this study; it is disciplinary knowledge content that was considered.

1.8 Assumptions of the study

The current study assumes that organisational learning is taken to be an activity which is deliberately entered into for enhancing an organisation's response to environmental factors, so that it becomes a learning organisation. In terms of such thinking, organisational learning is seen as a process which ultimately leads to an output, which is a learning organisation. The study also assumes that higher education institutions in Uganda are cognisant of those activities which they carry out with the aim of enhancing knowledge management and organisational learning. Higher education institutions are also assumed to be aware of the fact that their competitiveness and sustainability within a highly dynamic environment is dependent on how they manage their knowledge and on how they learn.

1.9 Significance of the study

The current study is significant in a number of ways. Firstly, the study is unique, in the sense that it uses empirical tests to examine the interdependence between knowledge management practices and organisational learning in a higher education setting, within a broader developing country context. Such use of empirical testing will help to provide insight into how organisational learning in higher education institutions is influenced by both individual and collective knowledge management practices. Secondly, the study is intended to contribute to the bridging of the gap which currently exists in the theory which is embodied in the two streams of literature on organisational learning and

knowledge management. Such bridging of the gap is accomplished by means of the provision of a unifying framework which is intended to accommodate the convergence of the two literatures, based on empirical analysis in higher education context in developing country. Thirdly, the study sheds light on the dimensions of interdependence between knowledge management and organisational learning, which offers a potential basis for implementing the related initiatives in higher education institutions. The other benefit of this study is that it has the potential to stimulate research in the fields of knowledge management and organisational learning in addition to designing interventions for better management of knowledge in higher educational institutions. Lastly, this thesis may be used as a reference material by future researchers in this field.

By gaining an understanding of knowledge management and organisational learning's interdependence on each other, higher education institution management structures might more easily than in the past be able to strategise the deployment of, as well as to determine how to optimally utilise, their resources. In addition, an understanding of such interdependence would help to generate a harmonised framework within which the two concepts could be applied in tandem to enhance the sustainability of higher education in the current era, which is marked by continuous change.

In a bid to become more competitive in terms of offering a quality education, higher education institutions have realised that the effective management of their most important asset (knowledge) and the enhancement of organisational learning are key to their sustainability. Higher education institutions should, therefore, be able to benefit from the current study by learning how knowledge management practices interact with organisational learning, so that they can, in future, utilise the appropriate strategies for harnessing such knowledge.

1.10 Justification for the study

Only a few of the currently available studies on knowledge management and organisational learning have researched the linkages between such concepts. One example of such a study is Loermans' (2002) candid call to synergise the learning

organisation and knowledge management principles by studying them in unison. Another such study is that of Cavaleri (2004), who launched an extensive argument for the alignment of knowledge management with organisational learning, based on their common philosophical roots, which are grounded in pragmatism. Cavaleri (2004) called for further research into such a linkage to be conducted from a pragmatic perspective. The current study, to a certain extent, answers such a call by investigating the linkage of knowledge management with organisational learning within the ambit of the higher education sector in Uganda.

Most of the studies into knowledge management and organisational learning have relied mainly on anecdotes and assertions, rather than on empirical evidence (Mowery, Oxley and Silverman, 1996). Jashapara (2003: 31) postulates that "even the related discipline of organisational learning is characterized by qualitative research with a few studies involved with hypothesis development". Empirical studies into knowledge management, such as those of Wong (2005) and Khalifa and Liu (2003) have largely focused on the successful implementation of such a concept. Other studies in the field, such as those of Huysman and Wulf (2006), Holsaple (2005), and Albino, Garavelli and Gorgolione (2004), have focused on the role of information technology in knowledge management. In contrast, many studies of organisational learning, such as those of Argyris and Schön (1978), Hedberg (1981), and Senge (1990), have been directed towards equipping managers with tools with which to build an environment which is conducive to learning and experimentation. A few empirical works in the field of organisational learning, such as that by Murray and Donegan (2003), have focused on the influence of certain dimensions of a learning organisation on organisational competence; on organisational performance, such as that by Jashapara (2003); or on validating dimensions of learning organisations, such as that by Yang, Watkins, and Marsick (2004). In short, organisational learning has been discovered to be a conduit for a learning organisation.

The current study makes a positive contribution to the current knowledge management and organisational learning debates by providing an empirical analysis of the interdependence of the two concepts, thereby bridging the gap between the two streams

of literature on knowledge management and organisational learning using higher education institutions in Uganda as a case study. The practical import of the study lies in its promotion of the understanding of managers in higher education institutions in respect of nurturing and harnessing organisational knowledge resources, which should enable them to identify those strategies which will maximise the benefits to be gained from knowledge management and organisational learning initiatives.

1.11 The state of higher education in Uganda

Uganda is a former British colony, which gained its independence in 1962. It is one of five East African Community countries. Uganda's population currently stands at about 30 million and its per capita income is about $300 per year. From 1971 to 1986, Uganda underwent several economic and political crises which negatively impacted on higher education in terms of funding, quality and relevance (Musisi, 2003).

The higher education sector in Uganda constitutes universities, national teachers' colleges, and colleges of commerce, technical colleges, and other tertiary institutions. From only one university in 1987, the number of universities in Uganda has now grown to 29, of which 5 are public, whereas 24 are private universities or university colleges. Kasozi (2005: 3) commented that some of the private universities were like "glorified high schools", indicating their inferior infrastructure, management systems and general outlook in comparison with the public institutions. The rapid increase in the number of private higher education providers was made possible by the liberalisation policy which the Ugandan government introduced in 1988.

Government funding of the higher education sector has decreased due to government policy to prioritise lower (primary and secondary) education over higher education. According to Kasozi (2005), government funding of higher education has stagnated at between 9% and 12% of the Ministry of Education budget. In a bid to sustain their operations, higher education institutions have commercialised higher education. Such commercialisation was precipitated by the entry into the educational arena of "suppliers of education", which entered into partnership with government as "deliverers of

education" (Kasozi, 2005: 4), in order to exploit the situation for financial gain. Some of the private institutions in Uganda can be seen to belong to this category of educational racketeers.

Uganda's higher education enrolment figures stand at 1.23% of the general population, which is far below Africa's 10% average. However, the number of students has increased substantially, from approximately 5,000 students in the 1970s to over 124,000 in 2005 (Kasozi, 2006). The annual average rate of increase in higher education enrolment has been 46% per annum during the last decade (World Bank, 2000). Foreign students, from over six different other countries, but mainly from the East African region countries of Rwanda, Burundi, Tanzania, and Kenya, as well as from the neighbouring countries of DR Congo and Sudan, have also contributed to such growth (Bakunda and Walusimbi-Mpanga, 2005). According to Kasozi (2006), the percentage of foreign students has more than doubled from 2.7% (2,947) in 2004 to 6.2% (7,735) in 2005.

Over all, Uganda's higher education system is characterised by: increased student enrolments; an increase in the number of higher education providers; commercialisation of the educational system; dwindling government funding; and globalisation. To sustain themselves amid such challenges requires higher education institutions to map out strategies that will enable them to manage their knowledge-based resources effectively so as to deliver a competitive advantage and remain sustainable.

Higher education in general and higher education in a developing country, such as Uganda in particular, provides a rich context within which to examine inter-relationships between organisational learning and knowledge management practices. The richness of the context is, at least in part, due to the advancement of knowledge and learning being the primary reasons for which higher education institutions tend to be established. However, as indicated earlier, researchers in knowledge management and organisational learning have tended to pay greater attention to such concepts in terms of business organisations and consultancy companies. Such knowledge-intensive organisations as those in the education sector have not yet received ample attention in terms of research.

However, a number of trends have crept into the educational sector, with commendable benefits. Commenting on the applicability of such management trends as knowledge management and organisational learning in higher education, Birnbaum (2000) posits that the process of adopting, and then abandoning, management trends in higher education might be seen as essential to the survival of the higher education system. In addition, Birnbaum argues that, in order to maximise the benefits of management trends in higher education, there is a need to invest in knowledge management. Increasingly, higher education institutions and, more specifically, universities have come under intense pressure, due to the role which such institutions play in knowledge-based economies. Such institutions are viewed as a key source of human resources, with which organisations can attain success in the current era. Globally, universities need to adapt to external accountability requirements and increased competition. Such adaptation necessitates a reorientation of their systems and procedures to enable them to respond flexibly to the dynamic environment within which they operate, which is consistent with organisational learning (Dill, 1999).

In Uganda, the situation is no different to elsewhere in the world. Due to reduction of funding from government and founder members, higher education institutions have had to attempt to secure funding from foreign-based development partners, in order to augment their internally generated funds. Such institutions, therefore, have had to adjust to being externally audited, failure of which tends to result in them not attaining the funding which they require. In addition, under the auspices of the Universities and Other Tertiary Institutions Act (UOTIA) of 2001, the National Council for Higher Education (NCHE) was established in 2001, with the main responsibility of acting as a watchdog for the quality and relevance of education provided in Uganda's higher education institutions. Both such aspects are enhanced by the institutions in question constantly seeking to upgrade their knowledge bases and continuously learning from the environment in which they operate. Such a move has led to many institutions improving not only their general infrastructure, including their information technology, but also the quality of their human resources, through training. The overall focus on information technology-driven knowledge management and an apparent lack of an explicit framework

for integrating knowledge and learning approaches might, at least in part, be held responsible for the failure of the higher education system to achieve its intended results.

1.12 Organisation of the thesis

The thesis is arranged in nine different chapters, which correspond to the steps taken in the study. Chapter One introduced the topic of the thesis, and explained the need for the study on which it is based. Chapter Two presents the review of literature on the major concepts in this study. Theories and models that form the foundation of knowledge management and organisational learning are identified, their possible linkages explored, and study propositions advanced.

Chapter Three provides an account of the research methods used in the study. It describes the philosophical underpinnings of the research, indicates on which population the study is based, and shows how the sample size for the study was attained. The chapter also highlights the techniques used in the data analysis.

Chapter Four and Five explain the procedures for quantitative data analysis and results of quantitative analysis respectively. More specifically, it is in the fourth chapter that the psychometric properties of the data collection instruments were tested and their reliability and validity assessed. The fifth chapter presents the results of quantitative data analysis based on the major statistical techniques used in this study namely regression analysis and canonical correlation analysis.

Chapters Six and Seven both deal with the qualitative data obtained in the study. Whereas Chapter Six explains how the key informant interviews were conducted, and how the qualitative data were analysed, Chapter Seven presents the results of the key informant interviews on a case by case basis, this is followed by a cross case analysis, as well as their interpretation.

Chapter Eight presents a discussion of the results obtained in the study. In the Chapter, results from both the quantitative and the qualitative analyses are integrated and discussed together, in relation to the research propositions made. The proposed

organisational knowledge sustainability concept is also presented and discussed in the Chapter.

Chapter Nine concludes the research by presenting a summary of the findings of the study and highlighting the contribution which is made by the study to the field of knowledge. The Chapter also offers a number of recommendations to researchers and practitioners; outlines the study's limitations and advises as to possible future research in the field.

CHAPTER TWO
LITERATURE REVIEW

2. 1 Introduction

This chapter provides an overview of existing theories and models underpinning knowledge management and organisational learning. It has been noted that most of the research in knowledge management and organisational learning has largely been concentrated in the business sector, rather than in the higher education context. Knowledge management and organisational learning as concepts have been widely covered in the organisational literature. The literature which is reviewed in the present chapter is limited to that which is critical to the understanding of the problem of interdependence between knowledge management and organisational learning, which is the subject of the research undertaken for the current thesis. Firstly, an overview of the literature which pertains to the conceptual understanding of knowledge, in terms of its definition, and how it relates to information, is presented. Such a presentation provides a basis for understanding knowledge and knowledge management as social phenomena. Secondly, the literature which covers the linkages between the social capital and intellectual capital, as well as the socially constructed models of knowledge management, is discussed. Thirdly, in order to place knowledge management within the context of the education sector, a discussion of related literature is then presented. Fourthly, since the current study is about knowledge management and organisational learning, the next section of the review primarily focuses on organisational learning, during which emphasis is placed on the social processing perspective of learning and on other relevant models and frameworks of learning. Distinctions are drawn between organisational learning and learning organisations, in addition to contextualising organisational learning within the higher education context. Fifthly, the review explores the issue of interdependence between knowledge management and organisational learning in the existing literature. Finally, implications of the reviewed literature to the present study are presented.

2.2 The nature of knowledge

To clearly understand the concept of knowledge management, it is essential first to understand what knowledge is. According to Jashapara (2004), the search for the meaning of knowledge dates back to the year 360 BC, at which time Plato explored the nature of knowledge, by defining knowledge in three different ways. According to Plato, knowledge is, firstly, a perception; secondly, it is true judgment; and thirdly, it is true judgment combined with accountability. Subsequently, various scholars have offered different views on the meaning of knowledge. However, until the current day, no consensus has yet been reached about what knowledge is, though it is generally understood that the concept of knowledge is derived from perception, which rationally justifies the existence of such a concept (Jashapara, 2004).

Davenport and Prusak (1998) argue that knowledge is associated with beliefs, experience, context and interpretation. Such a view is contrary to that which is held by Malchup (1986), who states that all information is knowledge. Such a position has been subjected to much criticism by a range of scholars, including Wiig (1993) and Bender and Fish (2000). An attempt to provide a clear distinction between data, information and knowledge was offered by Cong and Pandya (2003), based on Wiig's (1993) model. To such scholars, data represents raw facts. For data to be of any value, they must be processed within a given context, which gives rise to information regarding which decision it would be appropriate to make. Bhatt (2001) earlier expressed a similar view, in arguing that data are raw facts, which, when organised, become information. Knowledge, in contrast, is perceived as meaningful information or, as Jashapara (2004: 16) terms it "actionable information". Knowledge, therefore, is neither data, nor information. Knowledge improves our capacity for decision-making and provides an effective input in terms of organisational dialogue and creativity as far as providing information at the right place, at the right time, and in the appropriate format is concerned (Tiwana, 2000). Knowledge makes individuals act more effectively, and gives them an opportunity to predict the results of their performance, which would not be possible if they only had access to information and data. A distinction must be drawn between data,

information and knowledge in order to clarify the role played by knowledge management and systems in information management.

Ackoff's (1978) model, which is presented, in slightly modified form, in Figure 2.1 below, is a hierarchical representation of how knowledge relates to data, information, and expertise/wisdom. In the model, data have been defined as a set of omnipresent discrete and objective facts about events (Davenport and Prusak, 1998). Bender and Fish (2000) assert that data become information when they gain meaning, understanding, relevance and purpose. Information, in contrast, is referred to as the full, or partial, description of the state or condition of a particular situation (Wiig, 1993). Such an understanding of the concept implies that information is data which are organised in such a way as to make them more useful for decision-making.

By means of internalisation, information can be transformed into knowledge. Such internalisation is a mental process, in terms of which information is processed, and then integrated, into the existing knowledge framework of an individual, resulting in learning. Information that has not been processed cannot, therefore, constitute knowledge and also, by implication, cannot result in either individual or organisational learning. Mastery of knowledge lends expert status. According to Alexander (2003), an expert is one who possesses extensive and highly integrated domains of knowledge, can effectively recognise the underlying structure of domain-based problems, and can select and apply appropriate problem-solving techniques to the problem at hand. An expert is capable of retrieving relevant domain knowledge and strategies with minimum cognitive effort. The ease with which an expert can reason about an issue is based on the degree of knowledge which he or she has accumulated over time, either by means of deliberate knowledge acquisition strategies or by means of experience through repetitive actions focused on concretising aspects of a specific knowledge domain.

Bender and Fish's (2000) positioning of expertise at the apex of the pyramid differs slightly from Wiig's (1993) interpretation of the knowledge pyramid, in which wisdom is located above all other concepts. Wiig justified his positioning of wisdom by stating that

the mastery of such a concept demands a high level of understanding in a specific area of concern, with such mastery entailing such personal characteristics as willingness to learn and flexibility. Wiig (1993) contends that expertise comprises specialised knowledge and skills in a particular area. Making knowledge available to individuals who have no interest in learning will not result in their acquiring expertise, as the willingness to learn is the cornerstone for individual knowledge acquisition.

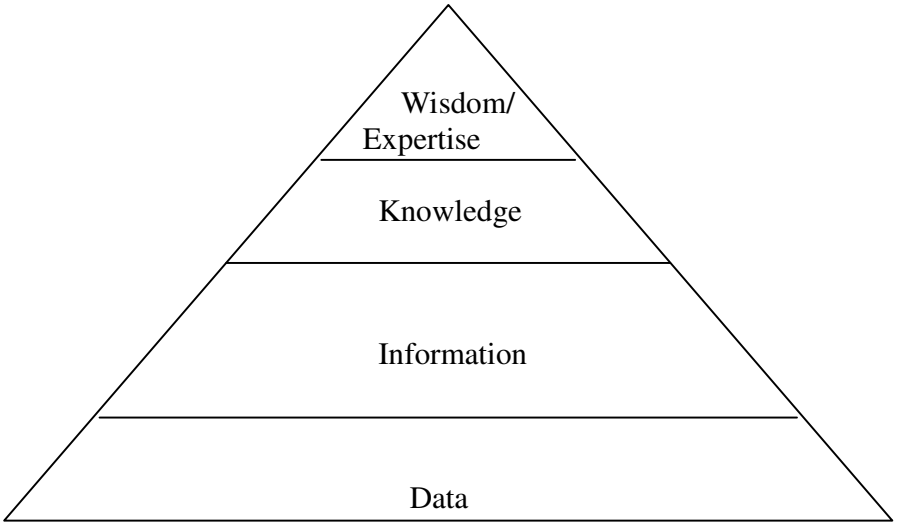


Figure 2.1: Pyramid showing levels from data to wisdom
Source: *Based on Ackoff (1978); Wiig (1993); Bender and Fish (2000); Cong and Pandya (2003)*

The classic pyramidal representation of knowledge (Figure 2.1) has been heavily criticised by both Curry (1997) and Tuomi (1999), who argue that data should be regarded as being on a higher level than either knowledge or information. Both researchers contend that knowledge is a higher form of information. In essence, they upend the pyramid, asserting that, once knowledge is verbalised, structured, and articulated, it is transformed into information, whereas information can be transformed into data when it is positioned in predetermined structures. The current researcher is of the view that the classic model is techno-centric, in the sense that it advances the systems perspective of knowledge, rather than human resources, as being central to knowledge management.

2.3 Knowledge categories

Yahya and Goh (2002) categorise knowledge into two broad categories: individual knowledge, and organisational knowledge. Whereas the former category of knowledge relates to cognitive understanding, the latter pertains to knowledge which is formed by means of interaction with technology, techniques, and people. The management of individual knowledge, which is sometimes referred to as personalised knowledge, is problematic, due to its tacit nature, whereas that of organisational knowledge is relatively easy, due to its being explicit.

Davenport and Prusak (1998: 5) define knowledge as "a fluid mix of framed experience, values, contextual information and expert insight that provides a framework for evaluating and incorporating new experiences and information". Knowledge originates, and is applied, in the mind of the knower. In organisations, knowledge is embedded not only in documents and repositories, but also in organisational routines, processes, practices and norms.

Further categorisation of organisational knowledge was provided by Venzin, Von Krogh and Roos (1998), who identified a number of different categories, including tacit, embedded, and embodied knowledge. Kogut and Zander (1992) distinguish between 'information' and 'know-how' as two types of knowledge, viewing the former as ***what*** something means and the latter as knowing ***how*** to do something. According to Palanyi (1962, as cited by Cavusgil, Calantono and Zhao, 2003), knowledge consists of two categories: tacit, and explicit. Tacit knowledge is that knowledge which is nonverbal, being intuitive and unarticulated. Such knowledge includes skills, competences, and capacities, constituting know-how and experience, which cannot be codified and formalised as formulae or programmes. Tacit knowledge is personal, context-specific, and difficult to regularise. Ordenez de Pablos (2006) contends that tacit knowledge helps individuals to perceive and define their environments. In contrast, explicit knowledge is codified and can easily be transferred from one person to another, as well as from one place to another, through deliberate means, including rules and procedures, training tools, computer programs, and databases, among others (Nonaka and Takeuchi, 1995). Ordenez

de Pablos (2006) argues that, as the extent of 'tacit-ness' of knowledge increases in an organisation, it becomes less teachable, more difficult to codify, and ultimately less transferable among organisational entities. Ordenez de Pablos (2006), in response to the knowledge conversion model of Nonaka and Takeuchi (1995), further asserts that the degree of knowledge transferability between organisational entities can be best understood from the perspective of the two dimensions of knowledge creation, namely the epistemological dimension and the ontological dimension.

The epistemological knowledge dimension refers to the degree of *tacit-ness* and *explicit-ness* of knowledge, whereas the ontological knowledge dimension considers organisations as depositories of different types of knowledge (namely, tacit and explicit), which exist at different levels of the organisation (individual, group/team, organisational and inter-organisational). From the foregoing discussion, the current researcher has drawn two inferences. The first one is that, ontologically, knowledge may be found at four different levels within an organisation, starting with the individual level, progressing up to the team level, then the organisational level, with, at the acme, the inter-organisational level. The individual level is of central importance, because it forms, firstly, the basis of the team level, and, secondly, that of the organisational level. The second inference drawn by the current researcher is that, epistemologically, knowledge can either be tacit or explicit, though tacit knowledge is the more difficult to manage, because it resides in the individual's mind. As a result, much emphasis must be placed on knowledge management at such a level. For purposes of the current study, the individual who constitutes the smallest unit of the organisation while, simultaneously, owning tacit knowledge, is central to understanding how organisations manage their knowledge, as well as how they learn.

Table 2.1: Epistemological and ontological dimensions of knowledge creation

		ONTOLOGICAL			
		Individual	Group/Team	Organisation	Inter-Organisational
EPISTEMOLOGICAL	Explicit knowledge	**A**	**B**	**C**	**D**
	Tacit knowledge	**E**	**F**	**G**	**H**

Source: *Based on Ordenez de Pablos (2006).*

The matrix which is presented in Table 2.1 above constitutes eight cells, each represents a combination of epistemological knowledge type and ontological knowledge level in an organisation. For example, cell A represents individual knowledge, which can be made explicit by means of codification processes. Whereas Cell B represents explicit knowledge at the group or team level, Cell C represents explicit knowledge at the organisational level. The latter is the category of knowledge which has been fully documented, and which is available for use by all organisational members. Such knowledge can easily be accessed by means of various repositories in the organisation. Cell D represents explicit knowledge at inter-organisational level. Such a knowledge type can be found within firm alliances and organisations which have been documented for purposes of transferring knowledge from one organisation to the other. Those cells which are in the lower section of the matrix represent tacit knowledge at various levels of the organisation. For example, Cell E represents an individual's tacit knowledge, which is difficult to codify and which resides in the individual's cognitive mindset. Cell F, in contrast, represents that tacit knowledge of team members which has not yet been

formally captured. Whereas Cell G represents organisational tacit knowledge, Cell H represents tacit knowledge at the inter-organisational level. Cooperating organisations may both be in possession of knowledge that has not yet been fully documented and accessed by organisations within the same alliance. An understanding of knowledge creation dimensions helps those organisations which are engaged in implementing knowledge management initiatives to determine where they should place relatively more emphasis in order to ensure that knowledge management initiatives are focused appropriately.

Higher education institutions are convergence zones of both tacit and explicit knowledge. The different types of knowledge range from what is generated by means of research activities to those which are created by means of learning activities and by way of other stakeholders. The key premise of the current study is that the way in which such knowledge is managed by the institutions concerned influences the way in which such institutions learn, which, in turn, determines the future sustainability of the institutions in the present knowledge-driven era.

2.4 Knowledge as a resource: The social capital and intellectual capital Perspective

According to Spender's (1996) and Grant's (1996) knowledge-based view of the firm, the most important internal resource of an organisation is its tacit and explicit knowledge. Grant (1996) emphasises the fact that firms are social communities which specialise in both knowledge creation and knowledge transfer among organisational members. Such processes are accomplished by means of transforming organisational inputs into outputs, using the knowledge which the organisations concerned possess. Therefore, processes relating to knowledge creation, acquisition, storage and utilisation all take place within such social communities. If, according to Grant (1996), the firm's role is to coordinate such processes within the organisation in order to generate a competitive advantage, then the knowledge-based view of the firm is the most relevant for the understanding of knowledge management. Bierly and Chakrabarty (1996) argue that differences in organisational performances tend largely to be due to two main reasons, namely (a) to the

existence of knowledge bases in such organisations, and (b) to the extent to which organisations are capable of developing and deploying knowledge to achieve organisational goals. Accordingly, Yang (2007: 84) argues that "companies can change from a situation where lost knowledge causes intellectual liabilities to a situation where shared knowledge results in intellectual assets". As a result, knowledge sharing and knowledge integration are key factors in achieving competitive advantage.

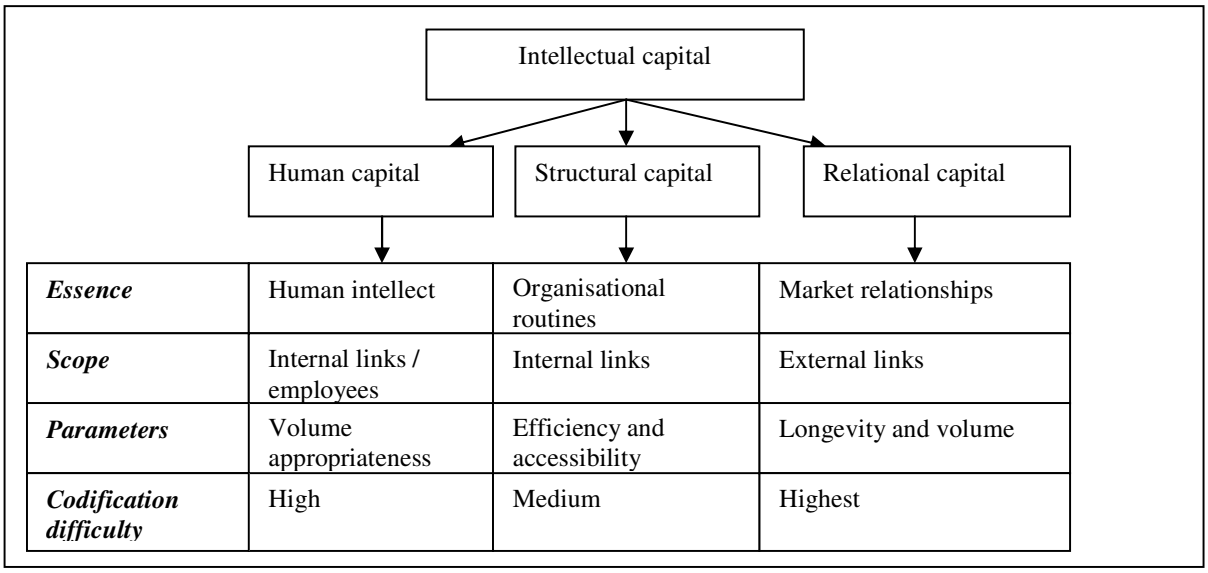
The realisation of knowledge as a key resource for competitiveness is rooted in the social capital argument that the size and intricacy of organisations, the proliferation of critical information, and the increased complexity of work tasks make connections and cooperation among organisational members of prime importance (Cohen and Prusak, 2001). Social capital has been described as an attribute or asset of work organisations, with Nahapiet and Ghoshal (1998: 243) defining such a concept as "the sum of actual and potential resources embedded within, available in, and derived from the network of relationships possessed by an individual or a social unit". The capacity of an organisation to utilise knowledge resources which are at its disposal effectively determines the level of its performance. Ensuring that knowledge which is held within an organisation is shared among all its members for decision-making is critical for organisation's performance. Nahapiet and Ghoshal (1998) provide a useful theoretical framework for understanding the dimensions of social capital. Such a framework consists of three different, yet mutually reinforcing, dimensions, which are structural, relational and cognitive in nature.

The structural capital dimension considers social capital from the social network theory perspective, which focuses on the pattern, configuration, and purpose of interactions among members in a given setting. According to Burt (1992), the benefits of social relations are a result of (a) gaining access to valuable information, (b) the ability of actors in the network to provide information as soon as it becomes available (i.e. timing), and (c) the provision of information relating to those opportunities which are available to actors in the network (i.e. referral).

The relational dimension, in contrast, is mainly concerned with the content of social relationships which individuals and groups have developed over a period of time by means of continuous interaction. The most important elements in such a dimension are trust and trustworthiness. Mayer, Davis and Schoorman (1995: 712) define trust as the "willingness to be vulnerable to the actions of another party", whereas trustworthiness has been described by Levin and Cross (2004) as the quality of the trusted party which makes the one who trusts willing to be vulnerable to the actions of the other. The literature which was available in this regard indicated that people are more willing to share knowledge with one another if they perceive that the degree of trust between them is high. Further, the willingness to make oneself vulnerable in a trusting relationship is related to risk-taking behaviour (Mayer et al., 1995). Such behaviour is, in turn, associated with experimentation with new ideas, as well as with the accessing and synthesising of diverse pieces of information and knowledge, which has the potential to result in the development of intellectual capital (Nahapiet and Ghoshal, 1998). The study is of the view that the ultimate outcome of such a process is the bonding of the members concerned, as well as the bridging of beliefs and opinions, which results in the sharing of knowledge, and, ultimately, organisational learning.

The cognitive dimension of social capital refers to those resources which provide "shared representation, interpretation, and meaning among parties" (Alexopoulos and Monks, 2004: 5). The different facets of such a dimension include shared language, codes, and narratives (Nahapiet and Ghoshal, 1998). Language is a medium of communication, codes constitute symbols of understanding between people, whereas narratives include the spoken accounts of sequences of events or experiences, which, when shared, contribute to the development of the knowledge bases of the organisation concerned. Therefore, the existence of shared language and symbols is critical to knowledge transfer among individuals, though it is also contingent upon the willingness of the individuals to share, as well as on the level of intercommunication that exists among individuals (Alexopoulos and Monks, 2004).

The three dimensions of social capital and their inter-linkages are based on the existence of networks through which people interact, the degree of trustworthiness among individuals, and the cognitive abilities relating to shared language, symbols and meaning. Such dimensions can clearly be contrasted with those which are covered in the literature on intellectual capital, which identifies the following three types of knowledge-based resources namely human capital, relational capital, and structural capital) as shown in figure 2.2 below:



Essence	Human intellect	Organisational routines	Market relationships
Scope	Internal links / employees	Internal links	External links
Parameters	Volume appropriateness	Efficiency and accessibility	Longevity and volume
Codification difficulty	High	Medium	Highest

Figure 2.2: The conceptual model of intellectual capital. (*Adopted from Ordenez de Pablos 2006).*

According to Ordenez de Pablos (2006), human capital is the knowledge capital of employees of an organisation. In terms of such an understanding, employees contribute to intellectual capital by means of their knowledge, skills, experience, attitude, absorptive capacity, and emotional intelligence. When employees leave an organisation, they take such capital with them. Similarly, Ungerer, Herholdt and Uys (2006: 51) regard human capital as "the tacit knowledge embedded in the minds of people", describing human capital as the soul of the company which represents a collection of intangible resources which are embedded in people within a company. The intangible resources which are

identified in terms of such a perspective are competencies, which are based on the skills possessed by employees, as well as on their attitudes, which are reflected in their motivational levels. Intangible resources also include intellectual agility, which is the ability of the people to innovate, as well as to adopt and cross-fertilise ideas. Human capital is the most important resource of any organisation, due to its capability to create value by means of the application of knowledge and skills, which are used to generate products and services to satisfy customer needs.

Relational capital, in contrast, which authors such as Stewart (1997) refer to as 'customer capital' is that type of knowledge, which can be found in organisational networks and exchanges with its environment. The most common form taken by such capital is that of such stakeholders as customers, suppliers and shareholders. Ungerer et al. (2006: 57) argue that "relational capital represents the potential the organisation has due to ex-company intangibles which are embedded in relationships outside the firm". Knowledge which is embedded in customer capital is difficult to codify, and, because it is external to the organisation, is difficult to control.

Finally, structural capital represents that knowledge which remains within an organisation, even after the employees have left. An organisation can claim ownership of such a type of knowledge resource. Such knowledge can be found in various forms, such as in handbooks, manuals, and databases (Walsh and Ungson, 1991). According to Bontis (1999), structural capital includes such organisational elements as processes and routines, structures and culture. It also includes related methodologies and processes, such as risk management methodologies and information databases, which enable an organisation to function. Other aspects of structural capital include renewal and development activities, such as research and development and new product development, which are aimed at the future. Ungerer et al. (2006: 56) expand on such a definition by stating that "structural capital also constitutes technological components and architectural competencies". They explain that such competencies constitute the local abilities and knowledge which is used to solve work-related problems.

Ordenez de Pablos (2006) also posits that structural capital can be subdivided into technological and organisational capital. Whereas the former refers to such technical and industrial knowledge as research and development, the latter refers to institutionalised knowledge. Organisational capital encompasses documented experiences, comprising those organisational processes which are documented in databases, handbooks and manuals. Such knowledge is embedded in organisational routines. Ungerer et al. (2006: 55) expands on this definition, stating that: "organisational routines are the organisation's genetic material; some are explicit like in bureaucratic rules, while others are implicit like the organisational culture".

The interface between explicit and tacit knowledge is reciprocal, because individual knowledge holders make choices, based on their expectations in terms of returns. In other words, if individuals perceive that they will benefit from their actions, based on previous experiences, they are more likely to support the interaction of their tacit knowledge with the explicit organisation's routines, and vice versa. The same applies in respect of the perceived economic gains to be gained by individual action.

As a result of the above-mentioned contrast between social capital dimensions and intellectual capital components, three key issues, which are of particular relevance to the current study, can be identified. Firstly, the structural perspective of both social capital and intellectual capital essentially refer to how processes, structures, networks and routines within organisations are established to support learning. Secondly, whereas the relational dimension of social capital is internally focused, the relational capital of intellectual capital looks beyond organisational boundaries to capture those knowledge resources existing both within and outside their control. Thirdly, the cognitive dimension of social capital, which is concerned with individuals' interactions by means of shared language and codes, can be compared to the human capital perspective of intellectual capital. The convergence which is evident in such a dimension can be found in the individual's ability to share knowledge by means of a common meaning and vision (the *how* question), whereas the human capital perspective focuses on what should be shared (the *what* question).

The current study reflects the view that social capital underlies the existence of intellectual capital, and that intellectual capital, in turn, is based on the knowledge bases in the organisation, which are either held by individuals, or else embedded in organisational routines. Such knowledge must be managed by means of appropriate mechanisms, in order to enhance organisational performance and to promote sustainability and competitiveness in the ever-changing environment of today.

2.5 Knowledge Management (KM)

Although the concept of knowledge management has attracted much attention from both academicians and practitioners, no generally acceptable definition of the concept has yet been found. Yahya and Goh (2002: 456) complained that "defining the concept of knowledge management is difficult, because different perspectives or schools of knowledge management can yield different dimensions and meanings". In terms of definition of the concept, such researchers as Mertines et al. (2001) have taken an information systems approach, whereas others, such as Beijerse (2000) and Newell, Robertson, Scarbrough and Swan (2002) have taken a strategic approach. Whereas Skyrme (1999) and Swan, Newell, Scarbrough and Hislop (1999), among others, have taken a human resources process approach towards definition of knowledge management, still others, including Davenport and Prusak (1998) have taken an approach which integrates IS. Table 2.3 below presents a summary of some of the more outstanding definitions of knowledge management. Jashapara (2004) presents the definition of knowledge management from four different perspectives, being those of strategy, IS, human resources process, and a combined information systems and human resources process. The current researcher, however, finds the definition which is presented by Swan et al. (1999), which represents the human resource process perspective, to be the most helpful. According to such researchers, knowledge management can be defined as any process or practice of creating, acquiring, capturing, sharing, and using knowledge, no matter where it resides, in order to enhance organisational learning and performance.

Table 2.2: Sample knowledge management definitions

Author (s)	*Definition*	*Perspective*
Davenport and Prusak (1998)	Knowledge management draws from existing resources which organisations already have in place in terms of sound IS management, organisational change management, and human resources management practices	**Integration (information systems and human resources)**
Swan et al. 1999	"…. Any practice of creating, acquiring, capturing, sharing and using knowledge, wherever it resides, to enhance learning and performance in organisations"	**Human resource process**
Skyrme 1999	"The explicit and systematic management of vital knowledge and its associated processes of creating, gathering, organizing, diffusion, use and exploitation, in pursuit of organisational objectives"	**Human resource processes**
Mertins, Heisig and Vorbeck (2001)	"… All methods, instruments and tools that in a holistic approach contribute to the promotion of core knowledge processes"	**Information systems**
Beijerse (2000)	The achievement of organisational goals by making the factor knowledge productive	**Strategy**
Newell et al. (2002)	"… Improving ways in which firms facing highly turbulent environments can mobilize their knowledge base (or leverage their knowledge assets in order to ensure continuous innovation"	**Strategy**

Source: *Adopted from Jashapara (2004:11).*

Irrespective of the existing variations in the definitions of knowledge management, what clearly emerges is that knowledge management focuses on how knowledge in organisations can effectively be nurtured and harnessed to create a competitive advantage and to enhance organisational effectiveness. Knowledge management is meant to

enhance, improve, share, and apply knowledge use to the achievement of organisational goals.

Bukowitz and Williams (2000) present a different perspective on knowledge management to the preceding views. In their focus on knowledge management processes, they distinguish between the tactical and strategic processes in knowledge management (See Table 2.3 below.).

Table 2.3: Tactical and strategic levels of knowledge management

Process	***Steps***
Tactical	Step One: Gather information. Step Two: Use information to create value. Step Three: Learn from what you create. Step Four: Feed the new knowledge back into the system.
Strategic	Step One: Assess knowledge-based assets. Step Two: Build, sustain, and invest in knowledge-based assets.

Source: *Based on Bukowitz and Williams (1999).*

By distinguishing between the tactical and strategic processes in knowledge management, organisations are able to differentiate between day-to-day tactical activities of knowledge management initiatives and strategic knowledge management initiatives, which focus on the alignment of the organisational knowledge strategy with the overall business strategy of the organisation, so that preoccupation with one strategy does not occur at the expense of the other.

Davenport et al. (1998) identify the following five processes as constituting knowledge management:

1) understanding knowledge requirements; searching for knowledge from different sources; finding existing knowledge; and fusing it;
2) creating new knowledge;
3) integrating knowledge created externally;
4) applying existing knowledge; and

5) re-using knowledge.

The first two processes above correspond to the strategic knowledge management level, as advanced by Bukowitz and Williams (1999), whereas the remaining three correspond to the tactical level.

Filius, De Jong and Roefs (2000) consider the five primary activities involved in knowledge management processes and practices to consist of the following:

1) knowledge transfer;
2) knowledge documentation;
3) knowledge creation;
4) knowledge acquisition; and
5) knowledge application.

What can be deduced from the delineation of such practices, processes and activities by the above-mentioned researchers is that knowledge management practices tend to include the following elements: acquisition; documentation; storage; knowledge creation; distribution; sharing or transfer; and use, utilisation or application. For the purposes of the current study, those practices which are advanced by Filius et al. (2000) are adopted, as they encompass all the activities of any effective knowledge management initiative.

2.6 Origins of the concept of 'knowledge management'

There are many opinions about the origin of knowledge management just as there are definitions of the concept. According to Prusak (2001), knowledge management originated in Greek philosophers attempting to generate and document knowledge for use by certain of the communities of the day. Prusak (2001) traces the intellectual antecedents of knowledge management in the fields of economics, sociology, philosophy and psychology. However, in terms of practice, the major drive for knowledge management initiatives during the past decade has come from the information management sector, the quality movement (to which school Nonaka subscribes), and, more recently, the human capital movement. Loermans (2002) contends that, despite knowledge management

having been an issue with humankind for centuries, such a concept was popularised only in the 1990s.

According to Swan et al. (1999), knowledge management is rooted in the following fields: information technology systems and principles, including artificial intelligence: business process reengineering; information systems; expert systems; decision support systems; data mining; and data warehousing. Such an information technology perspective on knowledge management has not proved to be as successful as anticipated, because, as Davenport (1995) argues, it does not consider the human element. Essentially, such a perspective tends to focus more on the distribution and storage of already existing information and knowledge in an organisation, rather than on the creation and acquisition of new knowledge, which is the enterprise of individuals. Nonaka and Takeuchi (1995) posit that knowledge management originated in the desire to ensure that knowledge in organisations is harnessed for the benefit of such organisations by means of the creation of competitive advantage. The same researchers view knowledge as being based on individual and organisational competencies, such as skills, knowledge and know-what. Jashapara (2004: 9) argues that "some literature on knowledge management is heavily rooted in information systems, giving an impression that knowledge management is little more than information management". Other relevant literature considers people's share in knowledge creation and sharing, regarding the field of knowledge management as being akin to that of human resource management. Due to the different information systems approaches to knowledge management initiatives not yielding the desired results, the human dimension of knowledge management has been required to become integrated with the information systems dimension in order to produce the desired outcomes.

Though different schools of thought lead to different perceptions of the origins of knowledge management, the range of perspectives indicates that knowledge management is an emerging multidisciplinary field, with its main concern being how best to harness and nurture individual and organisational knowledge appropriately. Such knowledge management can be accomplished by implementing strategies aimed at getting the right

knowledge (i.e. knowledge which is relevant to organisational activities) to the right place (i.e. to where it can be utilised) at the right time (i.e. when it is required).

2.7 Factors for successful knowledge management implementation

Owing to the fact that modern organisations have realised how critical knowledge is to the success of their operations, the implementation of knowledge management programmes has become an ongoing major concern. Wong (2005), for instance, argues that, because organisations have become more knowledge intensive, they tend to be more concerned with hiring 'minds' than 'hands', and those strategies which are aimed at leveraging the value of knowledge in organisations are increasing in number. Such a finding is consistent with Drucker's call over the years for organisations to pay keen attention to the role of the knowledge worker, despite such an appellation still not being clearly understood. What Drucker intended by his use of the term was those employees who utilised their intellect to bring about innovation (Drucker, 2004). In a bid to streamline knowledge management in organisations, researchers and practitioners have conducted a number of studies aimed at answering the pivotal question: What factors influence the successful implementation of knowledge management programmes in organisations? Such studies have been geared towards different aspects of the problem, such as towards finding out what the prerequisites for, or predictors of, knowledge management success are, as well as towards determining what the key success factors knowledge management implementation are. In all studies reviewed, notable factors for knowledge management success revealed range from organisational culture and human resources to information technology.

Gold, Malhotra and Segars (2001) argue that cultural aspects that encompass people's beliefs, attitudes, norms and values have an influence on the degree of knowledge management success which is obtained in organisations. Stuhlman (2008) defines culture as a combination of organisational history, shared experience, group expectations, unwritten rules, ethics, and social interactions which affect the behaviour of individuals in an organisation. Due to the interpersonal nature in which knowledge is transferred from one individual to another, it is plausible to assume that sharing knowledge, at any

level in an organisation, is supported by the beliefs and trust that people have in others. Consequently, individuals with a high mutual level of trust and belief in one another are more likely to share knowledge among themselves. Whether such a level of trust exists among members of an organisation is questionable.

Chua and Lam (2005) postulate that cultural factors are a major cause of failure of knowledge management initiatives in organisations. Syed-Ikhsan and Rowland (2004) investigated organisational elements, including organisational culture (referring to the knowledge sharing culture and individualism) and knowledge transfer within public organisations. They found that a sharing culture had a positive and significant impact on the creation of knowledge assets and on knowledge transfer performance. Such a finding served to confirm Rubenstein-Montano, Liebowitz, Buchwalter, McCaw, Newman and Rebeck (2001) assertion that a knowledge management strategy should bear the entire knowledge management process, including people, information technology and the culture of sharing knowledge, in mind.

In addition to cultural factors, human resource management practices have been found to influence the success of knowledge management programmes. For instance, Syed-Ikhsan and Rowland (2004) investigated the impact of human resources on both knowledge assets creation and knowledge transfer performance. In their study, human resource was disaggregated to include posting (deployment), training and staff turnover. The researchers found that staff posting/deployment, training, and staff turnover, which are all elements of human resources management, had a positive and significant effect on knowledge assets creation. Training and posting, however, were not found to have a significant effect on knowledge transfer performance, although the influence of such factors was found to be positive. Such a finding is consistent with the results of Yahya and Goh's (2002) study, which was aimed at examining linkages between human resource management and knowledge management. The two researchers proved that four human resources activities which are critical to the success of knowledge management practices in an organisation are training, participation in decision-making processes, performance appraisal and reward and compensation. Both studies concluded that people

are critical to the success of any knowledge management initiative. Such thinking is in line with that of the second generation of knowledge management, that emphasise the importance of human resources in knowledge management programs. Such thinking contrasts with that of first-generation knowledge management that tended to stress the technological aspects of an organisation, without much success.

Another factor which is considered critical for the success of knowledge management implementation is information technology. Gold, Malhotra and Segars (2001), in considering the broader elements contributing to the success of knowledge management, identified technological aspects, such as information communication technology, which promote knowledge flow. In their study of a public organisation in Malaysia, Syed-Ikhsan and Rowland (2004) found that information communication technology know-how (i.e. the ability to use information communication technology tools) and information communication technology infrastructure (including local area networks) had a positive significant impact on both knowledge assets creation and knowledge transfer performance.

Another study which found information technology to be an important factor in knowledge management success is that of Albino et al. (2004), who emphasised the role played by information technology in knowledge transfer, arguing that information technology is a key enabler for implementing knowledge management initiatives. Topping such arguments is that of Holsaple (2005), who contended that, as knowledge management initiatives and information technology are inseparable, they should be considered jointly. Such an argument provides insight into the use of information technology as a support tool for knowledge management initiatives. To date, some organisations, including many higher education institutions, still rely heavily on information technology to propel their knowledge management programmes. However, those arguments which are in support of stressing the role which is played by information technology in knowledge management are seen by many writers as supporting the traditional first-generation knowledge management line of thinking. For example, Cavaleri (2004: 161) postulates that “the first generation knowledge management was

largely concerned with knowledge capture and the main focus was on employing technologies and networks to increase information flow within the organisation".

The second generation of knowledge management, however, has looked at organisational learning (which occurs at individual, team, and organisational levels) as a critical component of knowledge processing. Information technology can play an efficacious role in knowledge management practices if there is knowledge already available in the organisation to capture, distribute and document. However, successful acquisition of new knowledge and learning with which to enrich the organisation's already existing knowledge bases largely depends on the people involved, with information technology only serving to enable the process. The availability of sophisticated information technology tools in an organisation, therefore, might not guarantee successful knowledge management practice. As Loermans (2002) contends, information technology merely plays an enabling role in the implementation of knowledge management programmes.

What emerges from such the above discussion is that no knowledge management initiative will succeed in leveraging knowledge assets within an organisation if the human resources issues are not first addressed by means of the creation of an enabling environment, which supports sharing and learning, using attendant modern information technology tools as enablers. For any knowledge management initiative to succeed, therefore, both the organisational culture (in support of knowledge sharing and transfer) and the effective management of human resources play a critical role, with information technology as the enabling factor.

2.8 Review of knowledge management models

Two of the many knowledge management models which have been advanced over the past two decades have been found to be of particular value to the current study. They are the knowledge conversion model (Nonaka, 1991, 1994; Nonaka and Konno, 1998; Nonaka and Takeuchi, 1995) and the socially constructed model of knowledge management processes (Demarest, 1997), which has been modified by McAdam and McCreedy (1999).

2.8.1 Nonaka and Takeuchi's (1995) 'SECI' model of knowledge conversion

According to the 'SECI' model, an organisation cannot, on its own, create knowledge, but individually held knowledge forms the basis of an organisation's knowledge creation. As seen earlier, Nonaka and Takeuchi (1995) perceive knowledge creation as consisting of both an ontological and an epistemological dimension (see subsection 2.3 in this regard). Nonaka (1994) argues that knowledge management initiatives should be concerned with making knowledge more useful to an organisation by focusing on the conversion processes involved in converting knowledge from one category to another. Nonaka and Takeuchi (1995) identified four processes involved in the knowledge conversion process, which is summarised in the acronym, 'SECI' that refers to: a) socialisation; b) externalisation; c) combination; and d) internalisation, as depicted in Figure 2.3 below.

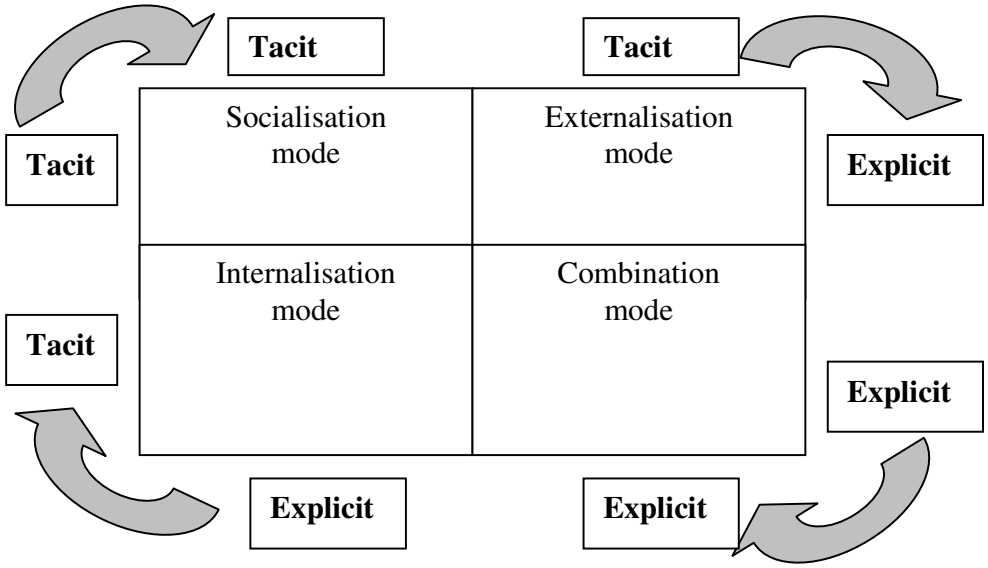


Figure 2.3: Nonaka and Takeuchi's (1995) model of knowledge conversion.

According to Nonaka and Takeuchi (1995), the socialisation mode refers to that arena in which tacit knowledge of an organisation is converted into tacit knowledge. The sharing of skills and experiences by members of the organisation takes place in such a mode by means of observation and imitation. In the externalisation mode, tacit knowledge is

converted into explicit knowledge by means of the use of metaphors, analogies, models and concepts, which are contained in such documentation as manuals, handbooks, and databases. In the combination mode, explicit knowledge and concepts are made still further explicit by means of analysing and reorganising the information within an organisation by converting its location and form. Such conversion is achieved with the aid of such information technology tools and programs as the intranet, local area networks, data mining and databases. The last mode in the SECI model is the internalisation mode, which is where explicit knowledge is converted into tacit knowledge by means of hands-on approaches using either actual experiences or simulation models.

A number of inferences can be drawn from the SECI model in relation to the current study. Firstly, knowledge sharing, or transfer from one individual or entity to another, and knowledge acquisition are part of the same socialisation mode. Secondly, knowledge documentation is part of the externalisation mode, in which tacit knowledge is made explicit. Thirdly, knowledge creation and application are both part of the internalisation and combination modes. The socialisation mode tends to be more complex than the other modes, due to its involving human nature. The reluctance of people to share knowledge and to learn from others presents a major challenge to organisations. The internalisation mode, which follows next, accommodates individual decision-making regarding the internalisation of knowledge, which is made available in the form of procedures and processes, so as to make such knowledge tacit. The externalisation mode, despite its also relying on individuals' willingness to make their tacit knowledge available, is less complex than the former two modes. The least complex mode of all is the combination mode of knowledge conversion, which can easily be controlled by the management of an organisation.

However, Nonaka and Takeuchi's (1995) SECI model does not explicitly show how knowledge flows into an organisation from the outside, in the form of the recruitment of new employees, and how interaction with the organisation's stakeholders, such as customers and suppliers, can be handled. The socially constructed model of knowledge

management, which is discussed in subsection 2.8.2 below, takes into account the knowledge acquired by an organisation from external sources, as well as other learning processes.

2.8.2 Socially constructed model of knowledge management processes

Demarest (1997) posits the socially constructed model of knowledge management processes, which emphasises the following four key dimensions of knowledge management initiatives:

1) **Knowledge construction:** Such a dimension includes both the scientific inputs to knowledge creation (such as innovation-based knowledge, which is generated both internally and externally) and the social construction of knowledge, by means of interaction among members of an organisation
2) **Knowledge embodiment**: Such a dimension assumes that the knowledge that has already been constructed becomes embedded within organisational processes by means of both explicit (in the form of programmes) and social interactions among organisational entities.
3) **Knowledge dissemination:** Such a dimension involves the process of distributing constructed and embodied knowledge throughout both the internal and external organisational environment.
4) **Knowledge use:** Such a dimension is seen as the ultimate goal of constructing and disseminating knowledge across the entire organisation. Knowledge use is considered to bring about economic and other benefits to an organisation, including its knowledge workers. The model discussed above is shown in Figure 2.4 below.

1.

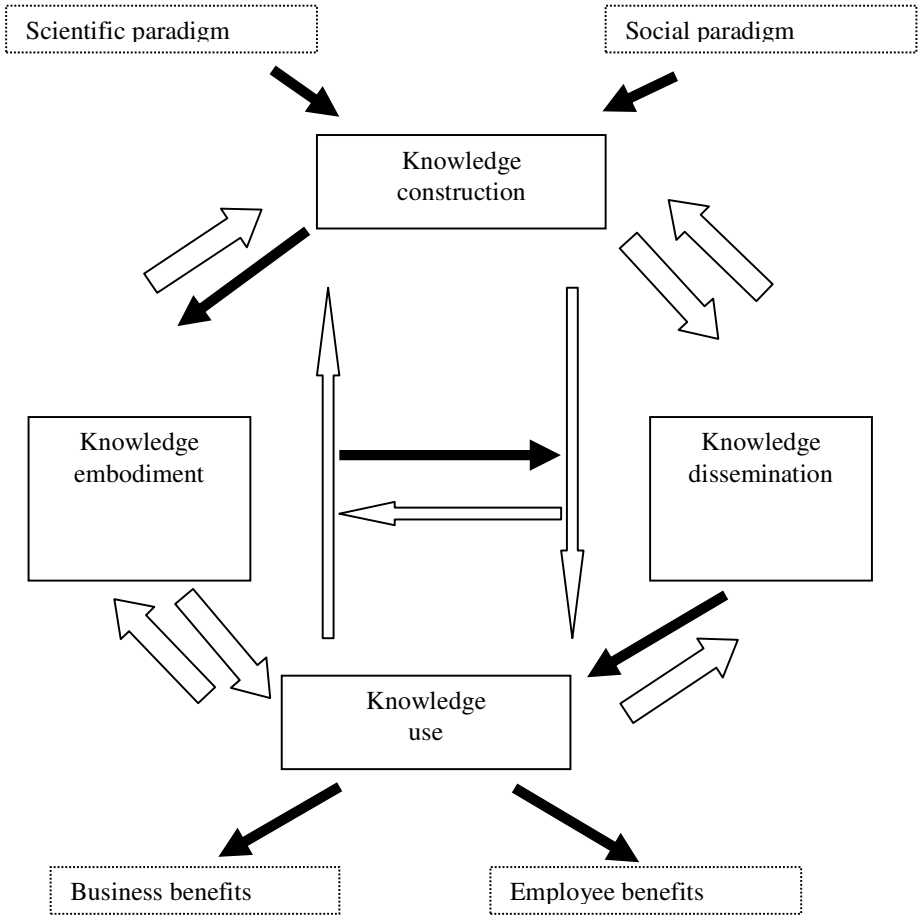


Figure 2.4: Modified version of Demarest's (1997) knowledge management model
Source: *McAdam and Reid (2000: 318).*

In Figure 2.4 above, the bold arrows show the direction of the primary knowledge flows, whereas the plain arrows show the direction of the envisaged flows.

The socially constructed model is concerned with the processes involved in the management of knowledge resources in an organisation. The current study is based on inferences drawn from the model, due to such a model taking into account all the processes involved in the knowledge management initiatives. The study also focuses on knowledge as an integral part of the social and learning processes which occur both within and outside the organisation. A relationship can be identified between the

knowledge management processes identified in the model and the knowledge management processes considered for the study.

Table 2.4: Comparison of knowledge management processes used in the current study with those proposed in the social construction of knowledge management processes.

Four processes of social construction models of knowledge management (Demarest 1997)	*Five knowledge management practices considered in the current study*
1) Knowledge construction	1) Knowledge creation
	2) Knowledge acquisition
2) Knowledge embodiment	3) Knowledge documentation
3) Knowledge dissemination	4) Knowledge transfer
4) Knowledge use	5) Knowledge application

Knowledge construction is considered to be the key process in the model, as it forms the foundation for all the other processes. The process encompasses the development and creation of knowledge, being equivalent to what Nonaka and Takeuchi (1995) term 'organisational knowledge creation'. Knowledge creation, which entails the ability to conceive ideas and solve problems, is a process which results in the development of new knowledge, or in the reorganisation of existing knowledge, in order to render such knowledge usable. Knowledge creation is clearly the most important aspect of knowledge management, because it is concerned with the development of skills, new products, better ideas and more efficient processes.

To most researchers and practitioners, knowledge, together with an organisation's capacity to create and utilise such knowledge, is the most important source of competitive advantage (Drucker, 1995; Nonaka and Takeuchi, 1995; Sveiby, 2001). Cyert and March (1983) argue that, despite emphasising organisational knowledge creation and discussing intellectual capital and knowledge-based management, few people seem to understand how organisations create and manage knowledge. However, most organisations are preoccupied with mere information processing in the name of knowledge management. In organisations, knowledge creation is realised through innovation, entailing the invention of new ways of doing things and the implementation of new processes directed at improving systems. Once knowledge has been created, it should be encapsulated in

organisational systems and processes. Knowledge becomes part of the tacit knowledge of individuals in an organisation by means of the internalisation process (Nonaka, 1994). Knowledge can also be externalised into explicit knowledge by means of codification, which can be stored in manuals, handbooks, databases and programs. Filius et al. (2000) refer to such a process as knowledge documentation, whereas knowledge dissemination entails the process of spreading, sharing, transferring and transmitting knowledge to all organisational units, so that they can attain maximum benefit there from.

Davenport (1995) argues that, due to the stickiness of knowledge, knowledge sharing is one of the most difficult tasks to accomplish in knowledge management initiatives. In agreement with such thinking, Nonaka and Takeuchi (1995) assert that expertise exists in people, with much knowledge being tacit rather than explicit, which makes such expertise difficult to share. In order to overcome such difficulties, and to disseminate knowledge among all of its members, an organisation should implement strategies directed at motivating employees to share their knowledge with one another. Knowledge usage, which offers benefits to both the organisation and the knowledge worker, implies the ability to utilise organisational knowledge resources to generate a competitive advantage for the organisation.

2.9 The concept of knowledge content in higher education institutions

Successful implementation of knowledge management initiatives requires a clear understanding of the type of knowledge content which has to be managed within a particular context. The usefulness of knowledge content differs between contexts. Du Plessis (2007) argues that the type of knowledge resource and its contribution to value creation should be the starting point in knowledge management. For any knowledge to qualify as a resource to a specific organisation, its content must be deemed critically important. Since knowledge management programmes need to be anchored in processes and activities of an organisation to be successful, the knowledge to be managed should be "as valid and as relevant as possible" (Havens and Knapp, 1999: 7) to organisational processes. However, Du Plessis (2007) cautions that the relevancy of knowledge content changes with the context, making it essential to review such content regularly.

Havens and Knapp (1999) offer a useful framework for the interaction of the three C's, namely content, community, and computing, in efforts to sustain knowledge management. Their framework, however, emphasises computing (information technology) as a means of leveraging knowledge management processes. In terms of the social capital phenomenon (Nahapiet and Ghoshal, 1998), information technology is seen as secondary and people interactions as primary to sustaining knowledge management initiatives.

Higher education institutions are in the knowledge business (Rowley, 2000), which entails interfacing with a number of different stakeholders in the course of executing their mandates. Each stakeholder presents a unique contribution in terms of knowledge content. The management of such diverse knowledge bases is considered of paramount importance to the competitiveness of higher education institutions. Table 2.5 below highlights some of the areas of the knowledge content which are deemed relevant for higher education institutions.

Table 2.5: Relevant knowledge content for higher education institutions

Source	*Knowledge Content*	*Importance to higher education institutions*
Students	Level of understanding of subject matter Rating of teaching delivery	To meet the expectations of the students
Competitors/other higher education institutions	Programmes offered Delivery methods Course management	To benchmark best practices, so as not to lag behind competitors
Labour market	Skills required Skills available Employability of graduates	To develop market-related skills which enhance the employability of their products
Internal academic and other staff	Staff skills and competences Disciplinary knowledge	To utilise all available skills effectively so as to enhance goal achievements
Internal processes	Procedures and regulations Teaching methods Evaluation criteria	To facilitate uniform application of procedures and methods which enhance standardisation *branding*
Regulatory institutions	Quality assurance guidelines Evaluation reports and ranking criteria	To maintain quality standards in line with the National Council of Higher Education principles and to achieve improved rankings

As Table 2.5 above shows, numerous sources of knowledge content are relevant to higher education institutions, including students, other higher education institutions, the labour market, internal staff, and internal processes. An understanding of the knowledge content which exists in such a context helps determine which knowledge should be effectively managed so as to create benefits to the organisation. That content which is considered critical to the meeting of organisational needs should be integrated with all organisational processes, for purposes of knowledge management.

2.10 Knowledge management in higher education institutions

Knowledge management has its origins in the corporate business world and consultancy firms, which recognised the central significance of intellectual capital to the success of their businesses. Rowley (2000: 325) argues that "higher education institutions are [also] in the knowledge business, since they are involved in knowledge creation, knowledge

dissemination and learning". Kidwell, Linde and Johnson (2000), who stress that using knowledge management techniques and technologies in higher education institutions is as vital as it is in the corporate sector, identify some of the benefits which might accrue to higher education institutions if they apply knowledge management techniques. Such benefits include enhanced decision-making capabilities, reduced production cycle development (such as curriculum development and research), and improved academic and administrative services and related costs**.**

According to Davenport and Prusak (1998), knowledge management is concerned with the exploitation and development of the knowledge assets of an organisation, with the view to furthering organisational objectives. In view of such thinking, therefore, higher education institutions, whose main preoccupation is to ensure that knowledge is shared among lecturers, researchers and students, should be the leading advocates of knowledge management, as their objectives so clearly fall within the realm of knowledge management**.** According to Rowley (2000: 329), "higher education institutions have significant level of knowledge management activities, and it is important to recognise these, and use them as a foundation for further development, rather than invent a whole new paradigm". The need for effective knowledge management practices in higher education institutions cannot be over-emphasised.

Higher education institutions operate in a knowledge-bound context within a global context, in which both increased competition for students and funding, as well as the need to offer best-quality education to clients set the parameters for knowledge management. Such a scenario, coupled with the need to obtain sufficiently high international ratings as academic institutions, dictates that higher education institutions manage their knowledge resources better than they did in the past, or else risk becoming irrelevant. The 2002 World Bank report titled *Constructing Knowledge Societies: New Challenges for Tertiary Education*, indicates two central issues which underline the importance of knowledge management in higher education. Firstly, tertiary education is necessary for effective creation, dissemination, and application of knowledge, as well as for building technical and professional capacity. Secondly, both developing countries, as well as those which

are in transition, are at risk of being further marginalised in a highly competitive world economy, as their tertiary education systems are not adequately prepared to capitalise on the creation and use of knowledge. In support of such findings, Kumar and Idris (2006: 96) argue that most "higher education institutions have come to realise that to meet unprecedented demands of knowledge and other ever changing educational needs of a globally competitive society, they must manage their knowledge better". Such improved management of their resources will only be possible if knowledge management is placed high on the agenda of higher education institutions.

Higher education institutions, undoubtedly, have significant opportunities for applying knowledge management practices to support every part of their mission, whether it be in training, research or consultancy work. As Kidwell et al. (2000: 33) observed that "knowledge management should not be treated as a new idea to higher education institutions; rather it is the main reason of their existence".

2.11 Organisational Learning (OL)

This section of the current thesis reviews literature related to the concept of organisational learning, showing how such a concept has evolved over the past decade. In addition, relevant organisational learning models are presented, followed by a distinction between organisational learning and the learning organisation. The section concludes with a discussion of organisational learning in higher education institutions.

Before one understands organisational learning, it is imperative to first of all know what learning is. According to Van Daal, et al (1998), learning refers to acquiring new facts, new skills and perspectives which can be done to enhance existing tacit and explicit knowledge. Bierly III, Kessler and Christensen (2000:597) on their part take learning as: "a process of linking, expanding and improving data, information, knowledge and wisdom". Senge (1990) distinguishes learning into two categories namely: generative learning and adaptive learning. Generative learning is akin to Argyris and Schön's (1978) double loop learning and adaptive learning is similar to single loop learning. Adaptive learning is where learning in the organisation attempts to maintain the status

quo by merely making some adjustments while generative learning involves challenging the existing order. Dodgson (1993) identified two learning types – strategic and tactical. Learning therefore can be viewed as a process that involves acquisition of skills, knowledge and experiences from one entity to another. Learning therefore occurs at individual, group or team level and organisational levels. Individual learning is grounded in cognitive perspective, which emphasises that individual learning involves storing, retrieving, transforming, and applying information. Such information processing relies on memory as a storage device where everything we perceive and experience is stored (Kim, 1993). According to Fauske and Raybould (2005), memory is not simply a static storage device because it accommodates new information and knowledge as they emerge. Memories exist in individuals who collectively form shared knowledge and experiences within the organisational setup which in turn results in organisational learning.

Psychology, economics and management literatures post different perspectives of learning. To psychologists, the main concern of learning is about the processes involved. To economists, learning encompasses quantifiable improvements in activities. The management and business literature consider learning as a tool for sustainable competitive advantage. The latter two perspectives are outcome based, while the former is process based. In this study, learning is assumed to take both perspectives (process and outcome) and therefore learning constitutes ways in which organisations explore and exploit knowledge resources from within and outside their boundaries to enhance their capabilities to adapt to the constantly changing environment.

2.11.1 Definition of organisational learning

Argyris and Schön (1978) point out that the term ‘organisational learning’, though widely used, is usually not clearly defined. Some authors have gone to the extent of using such a term interchangeably with ‘learning organisation’ (Griego, Geroy and Wright, 2000). In organisational learning literature, there is an underlying assumption that learning should improve the performance of a company. Such an understanding contrasts with that of strategy-based literature, which looks at organisational learning as a way of achieving a close alignment of an organisation’s processes with the environment in which it operates.

The definition of organisational learning encompasses such assumptions as that which is proposed by Fiol and Lyles (1985: 803) that "organisational learning is the process of improving actions through better knowledge and understanding".

Kim (1993) defines organisational learning as an organisation's capacity to take effective action, whereas Argyris and Schön (1978: 29) define organisational learning as "a process that occurs when members of the organisation act as its learning agents, responding to changes in the internal and external environments by detecting and correcting errors in the organisation, and embedding results of their inquiry in private images and shared maps of the organisation". Learning within organisations has evolved from being a primary concern of training specialists to concerning all employees in an organisation, including top management. Boud and Garrick (1999) argue that learning has progressed from preparing people for employment to the means of sustaining employment, with such an understanding underlining the need for continuous learning in organisations. Emphasising the need for learning, Nolan, Goodstein and Pfeiffer (2004) postulate that "in a world that is constantly changing, there is not one subject or a set of subjects that will serve you well in the foreseeable future, let alone for the rest of your life. The most important skill to acquire now is learning how to learn". Consequently, the responsibility for learning has been placed on all individuals within an organisation with the aim of enhancing individual and collective performance.

Table 2.6: Definitions of organisational learning, according to selected authors

Definition	*Author*
Organisational learning is the process of detecting and correcting error	**Argyris, 1977**
Organisational learning means the process of improving one's action through better knowledge and understanding	**Fiol and Lyles, 1985**
Organisations are seen as learning by encoding inferences from history into routines that guide behaviour	**Levitt and March, 1988**
Organisational learning occurs through shared insights, knowledge, and mental models, and builds on past knowledge and experience	**Stata, 1989**
An entity learns if, through its processing of information, a range of potential behaviour is changed	**Huber, 1991**

What can be deduced from such definitions is that organisations learn in order to be in a better position to respond to the changing environment in which they operate. However,

it is the view of the current study that, in order for organisations to succeed and survive in the present era of continuous change, learning and unlearning must go hand in hand. For purposes of the study, organisational learning is defined as those processes which are concerned with improving the knowledge of individuals by means of learning and unlearning processes and which integrate that knowledge at group or team level to improve the capability of organisational members to achieve the objectives of the organisation effectively.

Argyris and Schön (1978) popularised the theory of two learning levels in an organisation: single-loop learning and double-loop learning. Single-loop learning refers to the learning that takes place in an organisation which maintains its central features by merely detecting and correcting its own errors. Double-loop learning, in contrast, questions and challenges current organisational norms. Argyris and Schön's (1978) concept of double-loop learning can be categorised as a form of higher level learning, which is characterised by non-routine activities, and which occurs in terms of heuristics and insights (Fiol and Lyles, 1985). Non-routine activities are engaged in when new knowledge has been assimilated by an organisation, as a result of exploration (March, 1991). Double-loop learning is defined as "those sorts of organisational inquiry, which resolve incompatible organisational norms, by setting new priorities and weightings of norms, or by restructuring the norms themselves together with associated strategies and assumptions" (Argyris, 1991: 24). Double-loop learning challenges the status quo and explores new ways of doing things, in effect, such learning is innovative. In a similar perspective, Senge (1990) argues that, in order for organisations to survive, adaptive learning must be accomplished along with generative learning. Adaptive learning concerns error detection and correction, whereas generative learning is similar to double-loop learning, in which new ideas come to be accepted as a result of the questioning of existing sets of assumptions.

No matter whether learning is strategic or tactical, adaptive or generative, single-loop or double-loop, it must first occur at the individual level. Wang and Ahmed (2003) argue that learning starts with the individual, with a learning organisation being founded on the

learning process of individuals in the organisation. The two researchers identified five different foci in relation to the concept of organisational learning, including individual learning, process or system, culture or metaphor, knowledge management and continuous improvement. The task of the learning organisation is to integrate individual learning into organisational learning.

Fiol and Lyles (1985) argue that, although individual learning is important to organisations, organisational learning is not simply a sum of each member's learning. The current study is based on the view that the difference between individual learning and organisational learning lies in the fact that not all the learning which is acquired by individuals is incorporated into organisational activities, making such learning personal to the holder, rather than organisational.

In addition, Fiol and Lyles (1985) contend that organisations, unlike individuals, develop and maintain learning systems which not only influence their immediate members, but which also are transmitted to others by means of organisational histories and norms. Hedberg (1981: 6) states that "although organisational learning occurs through individuals, it would be a mistake to conclude that organisational learning is nothing but the cumulative result of their member's learning". Organisations have organisational systems and memories. Similarly, the way in which individuals develop their personalities, personal habits, and beliefs over time, organisations develop world views and ideologies. Members of organisations may fluctuate, and leadership may change, but organisational memory preserves certain behaviours, mental maps, norms, and values, which are passed on to others. Organisational learning is, therefore, more than the cumulative learning of individuals, though it is dependent on individual learning. If individuals within an organisation do not learn, no organisational learning takes place.

When an organisation is still young, and has relatively few members, organisational learning can be equated with individual learning, because the interests and environment of the individual and the organisation tend to be closely attuned. As an organisation expands, however, a clear distinction between individual learning and organisational

learning begins to emerge. As Argyris and Schön (1978: 9) state: "There is something paradoxical here. Organisations are not merely collections of individuals, yet there are no organisations without such collections. Similarly organisational learning is not merely individual learning, yet organisations learn through experiences and actions of individuals. What then can we make of organisational learning?"

The current researcher holds the view that, no matter whether organisations are small or large, individual learning is the key to organisational learning, because learning takes place primarily at individual level, being integrated at team level (such as at faculty or department level), and is, ultimately, institutionalised at organisational level. Such learning occurs in the case of a university.

2.12 Organisational learning models and frameworks

Easterby-Smith and Araujo (1999) argue that the field of organisational learning has attracted a significant amount of attention of scholars from a number of different disciplines. As a result, diverse theoretical underpinnings have been developed, depending on the discipline of respective authors. Such different theoretical perspectives have resulted in various models and frameworks of organisational learning. The following discussion of the three organisational learning models has relevance to the crux of the current study.

2.12.1 The four-process organisational learning framework

The framework of organisational learning which is proposed by Crossan, Lane and White (1999) places the tension between knowledge exploration and exploitation in organisations at the heart of strategic renewal. Such renewal stems from organisations exploring and learning new ways, while simultaneously exploiting what they have already learnt. The four-process organisational learning framework proposes three levels of learning:

1) individual;
2) group (team); and
3) organisational (institutional).

On the three different learning levels, four processes flow naturally from one to another with no clear distinction or demarcation between them. Such learning processes are *intuiting*, which largely consists of a subconscious process, which often requires some form of pattern recognition. *Interpreting* is the process of explaining by means of words and/or actions an insight or idea about oneself or about another person. *Integrating* entails a learning process, in terms of which people in groups develop a shared understanding and take coordinated actions through mutual adjustment. Lastly, *institutionalizing* is a learning process which ensures that repetitive actions occur and that successful actions often become embedded in organisational routines. Table 2.7 below indicates the learning processes which fall within the three learning levels.

Table 2.7: Organisational learning frameworks

Level	*Process*	*Inputs/outputs*
Individual	Intuiting	Experiences, images, metaphors
	Interpreting	Language, cognitive mapping, dialogue
Group (team)	Integrating	Shared understanding, mutual adjustment, interactive systems
Organisation/ Institution	Institutionalising	Routines, diagnoses, rules and procedures

Source: *Crossan et al. (1999).*

2.12.2 Technical view of organisational learning

According to Easterby-Smith and Araujo (1999), the technical view of organisational learning assumes that "organisational learning is about effective processing and interpretation of; and response to information both inside and outside the organisation". Such a view was later expanded on by other scholars, such as Jashapara (2004). The view was also in line with the thinking of Huber (1991), Senge (1990), and Argyris and Schön's (1978). According to Huber (1991), an entity learns if, through its processing of information, the range of its potential behaviours is changed. Huber asserts that an organisation learns if any of its units acquires knowledge which it recognises as being potentially useful to the organisation. The information processing perspective focuses on

four constructs: knowledge acquisition; information distribution; information interpretation; and organisational memory.

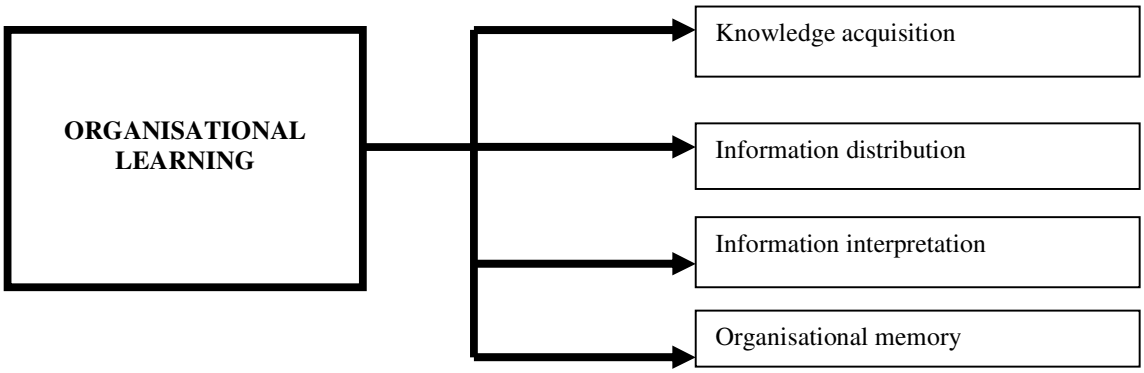


Figure 2.5: Huber's (1991) organisational learning frameworks.
Source: *Huber (1991: 90).*

Huber (1991) explains that organisations acquire knowledge by means of congenital, experiential, and vicarious learning, as well as by grafting, searching and noticing. Experiential learning entails learning by means of organisational experimenting, organisational self-appraisal, unintentional or unsystematic learning, and experiencing of basic learning curves. Though information distribution, in contrast, occurs at an informal level in an organisation, it may lead to the development of new information, as well as to new understanding. Information interpretation refers to the process of attaching meaning to information which is acquired in order to attain shared understanding, resulting in common mental models being held by the organisation. Information interpretation takes the form of cognitive maps, media richness, information overload, and unlearning.

Such a perspective has attracted much criticism from such researchers as Jashapara (2004), who contends that it tends to focus more on the outputs of the learning process than on the learning itself.

2.12.3 The social process perspective of organisational learning

The social process perspective of organisational learning focuses on the way in which people make sense of both their explicit and their implicit experiences at work (Easterby-Smith and Araujo, 1999). Key supporters of such a view include Brown and Duguid

(1991), who view organisational learning as a socially constructed political process, which is implied in the culture of an organisation. According to Easterby-Smith and Araujo (1999), the idea of learning as a social construction has helped to remedy some of the limitations of the technical perspective, which tended to overemphasise information processing. In addition, the social construction perspective recognises that data and information alone have no significance in their own right until people determine what they mean. In emphasising the individual contribution to the learning process, Wang and Ahmed (2003: 9) contend that "organisational learning is a sum of individual learning" which is acquired by means of interaction within a particular social milieu. Jashapara (2004: 59) expresses a similar view in his assertion that "organisational learning could be considered synonymous with individual learning". Such a scenario can best be understood in the context that organisations can learn only if individuals have been able to share their tacit knowledge in such a way as to transform it into explicit knowledge, which is at the disposal of all organisational members.

The above conceptualisation mirrors Nonaka's (1991) externalisation mode of knowledge conversion, which was discussed earlier. In addition, such a model perceives organisations as small societies, in which people create for themselves shared meanings, symbols, rituals, norms, and cognitive schemata. Once combined, all such factors facilitate the creation and maintenance of meaningful interactions among individual members of an organisation in relation to the world around them. In terms of such a model, learning refers to:

1) the process by which individuals become socialised to the culture of an organisation;
2) the process by which organisational category schemes, models, images, and cognitive models are transformed in response to error, anomaly or inconsistency; and
3) the process by which members of an organisation become cognisant of the social reality which they have jointly constructed; subject that sense of reality to critical reflection; and then seek deliberately to transform it.

The current study follows the organisational learning framework proposed by Crossan et al. (1999), in which three levels of learning are identified: individual, group (team) and organisation (institutional). Two processes exist at the individual level, namely intuiting and interpreting. At the group (team) level, the integrating process constitutes shared understanding and interactive systems. At the organisational or institutional level, institutionalisation processes encompass routines, rules and procedures.

In addition, as knowledge and learning constitute social phenomena, the current study draws useful inferences from the social construction perspective of knowledge and learning. Such a perspective presupposes that organisations are collections of people who interact on a regular basis, and who share a sense of collective identity. Further to that, the social construction perspective presupposes that learning applies to individuals within the context of a group. However, when individuals learn to interact with one another in order to carry out shared tasks for the benefit of the organisation, one can speak of the learning of a group or team.

2.13 'Organisational learning' versus the 'learning organisation'

The issue of how a learning organisation differs from organisational learning requires attention. Marquardt (1996, as cited in Griego et al., 2000: 6) states that learning organisations tend to focus on the 'what', meaning on the systems of an organisation which learns collectively, while organisational learning refers to the 'how', meaning proficiencies and processes of knowledge development. Similarly, DiBella (2001) argues that a learning organisation is a form of organisation, whereas organisational learning is the process of learning in an organisation. Easterby-Smith and Araujo (1999: 8) argue that "the distinction between organisational learning and learning organisation can be largely attributed to the distinct purposes recognized by proponents of the two sides". Researchers that tend to focus on the concept of a learning organisation are inclined to concentrate more on normative models and methodologies of creating change which are directed at improving learning processes. In contrast, academic researchers who tend to focus more on organisational learning (Easterby-Smith and Araujo, 1999) are inclined to concentrate on ways in which organisations learn.

A learning organisation values learning and enables its members to learn continuously, thereby generating benefits to the organisation by means of innovations and relatively close alignment with the context in which they operate. Such a view is supported by Appelbaum and Gallagher (2003), who assert that the main focus of a learning organisation should be to create a culture of transformational learning. In line with such thinking, the primary task of leadership which wishes to create a learning organisation is to create, within an organisation, a community culture which is characterised by bonded relationships among individuals which are directed towards the promotion of learning. The focus of a learning organisation can, therefore, be inferred to be less on the process (i.e. the how) and more on the fostering of those conditions which might allow for the successful outcomes of learning to flourish (i.e. the what).

Easterby-Smith and Lyles (2003) further clarify the difference between organisational learning and a learning organisation in stating that the focus of organisational learning is on inquiry into the ways in which organisations learn, whereas the focus of a learning organisation is on describing the characteristics of an organisation which successfully learns, making the latter a more pragmatic approach. A similar view is that of Fiol and Lyles (1985), who postulate that organisational learning refers to the stepping up of action by means of the enhancement of knowledge and understanding. The two researchers state that such learning is concerned with the nature and processes of learning within organisations**.** Such a view is supported by Whittington and Dewar (2004), who posit that a learning organisation should be treated as an ideal (or desired) form of an organisation, within which organisational learning flourishes.

The current researcher holds the view that organisational learning is a platform on which a learning organisation can be built, and conceives the process of building a learning organisation to be as important as is establishing the structure of a learning organisation itself. Organisational learning, therefore, constitutes those processes or activities which are used for attaining the ideal form of organisation, which is that of a learning organisation.

The study of organisational learning and the learning organisation relates to Senge's (1990) five learning disciplines, which have greatly influenced organisational learning and learning organisation literature over the past two decades, comprising *personal mastery*, *mental models*, *shared vision*, *team learning*, and *systems thinking*. A description of the disciplines follows:

1) *Personal mastery* concerns an individual's self-development and sense of self-fulfilment. According to Senge (1990), those who have achieved personal mastery are willing to assume risks and to make mistakes.
2) *Mental models* are derived from those experiences which serve to define and shape a person's beliefs and perspective (Senge 1990). Mental models are considered critical to organisations; as such models tend to reflect people's differences in opinion and perspective. Different mental models generate new ideas, which are prerequisites for innovativeness and creativity in an organisation. According to Senge (1990), when personal mastery and mental models merge, a new discipline, 'shared vision', is created.
3) A *shared vision* is a vision to which people are committed, being a shared picture of the future. An organisation that has a shared vision tends to have a relatively high degree of commitment to achieving its goals.
4) *Team learning* consists of a "process of aligning and developing the capacity of a team to create results that teams truly desire" (Senge 1990: 236). Such learning is only possible when the team members have a shared vision. According to Senge (1990), the drivers for effective team learning are dialogue and communication.
5) *Systems thinking* represent a fusion of the other four disciplines into a coherent body of theory and practice. Such thinking is the conceptual cornerstone of all five disciplines, with its focus on how organisations think and learn about the world in which they operate.

Watkins and Marsick (1993) postulate seven dimensions of organisational learning within the framework of three different learning levels. The first level comprises individual learning, which constitutes two dimensions of organisational learning (continuous

learning, and dialogue and inquiry). The second level comprises the team or group level, which is reflected by the collaboration and team learning dimension. The third, organisational, level, encompasses four different dimensions of learning (i.e. embedded systems, system connection, empowerment, and leadership for learning). The seven different dimensions form the basis of the Dimensions of Learning Organisation Questionnaire (DLOQ), which is discussed in Chapter Three. Table 2.8 below shows Watkins and Marsick's (1993) dimensions of learning disaggregated at the three specified learning levels.

Table 2.8: Watkins and Marsick's (1993) dimensions of learning at three levels

Learning level		***Seven learning dimensions***	
1)	Individual	1)	Continuous learning
		2)	Dialogue and inquiry
2)	Team/group	3)	Collaboration and team learning
3)	Organisational/Institutional	4)	Embedded systems
		5)	System connection
		6)	Empowerment
		7)	Leadership for learning

Drawing on such insights, the current researcher argues that organisational learning takes place at three different levels (individual, team and organisational/institutional), with the learning organisation being the ultimate goal. A learning organisation cannot exist without the occurrence of organisational learning. By implication, therefore, organisational learning should ideally result in a learning organisation. Learning is a continuous process, as organisations continue to adjust to constantly changing environments, making a true learning organisation being one in which organisational learning is a continuous activity.

Previous studies have applied the seven dimensions to either investigating the link between organisational learning and organisational knowledge performance (Yang, 2003), or to organisational financial performance (Watkins and Marsick, 1996). McHargue (2003) used the Dimensions of Learning Organisation Questionnaire (DLOQ)

in a national survey, in which he found that the seven dimensions of learning significantly determined organisational knowledge, mission and financial performance.

In line with the consideration of seven dimensions in terms of three different learning levels, as is reflected in Table 2.8 above, the current study uses the seven learning dimensions of the DLOQ to measure organisational learning at the three organisational levels. The questionnaire deals with the following three levels of organisational learning:

1) The first level consists of individual learning, which constitutes two dimensions: continuous learning/dialogue and inquiry.
2) The second level consists of team learning, which consists of a single dimension: collaboration and team learning.
3) The third level consists of institutional learning, which encompasses four dimensions: embedded systems; system connection; empowerment; and leadership for learning.

The justification for using such a tool is discussed in Chapter Three in relation to instrumentation and measurement of variables.

2.14 Organisational learning in higher education institutions

Organisational learning is linked to sustaining change processes in higher education institutions in the relevant literature. Such change is based on the need to serve clients better than in the past. Higher education institutions need to embrace environmental change by means of learning new methods of teaching and research, as well as to engage with students from a more rational and experiential academic standpoint. By becoming more professional in their operations, higher education institutions could facilitate students taking ownership of who they are, as well as of who they aspire to be. However, such improvement can only be attained if higher education institutions are prepared to take on a fully fledged character as learning organisations. The upsurge in organisational learning literature in regards to education is evidence that schools are currently engaged in searching for new directions in which to grow (Lam, 2002). Such authors as Marsick and Watkins (1990) and Rowley and Sherman (2001) have, however, asserted that

attempts to sustain successful change in higher education institutions tend to be problematic.

Forest (2002) agreed that colleges and universities must become more intellectually astute, encouraging and rewarding learning at organisational level. In a bid to improve service delivery to clients in the form of quality teaching and research, higher education institutions have invested extensively in information technology infrastructure, as well as revitalising their training and development functions. Watkins (2005) asserts that achieving change, which is a key component of organisational learning, is most difficult in higher education institutions, despite the positioning of higher education institutions within the learning culture context. In line with such thinking, Chickering (2003) states that prevailing structures and organisational assumptions make institution-wide change extremely difficult in higher education institutions.

Higher education institutions operate within a rapidly changing environment, which requires that they continuously learn and adapt in order to remain relevant. Boyce (2003) notes that the demands which society makes on higher education institutions are increasing at the same time as institutional resources are diminishing. The notion of economic rationalism, which most governments in the developing world have adopted, has placed higher education institutions at the centre of market forces, as regards competing for resources and clients (in the form of students). Such a notion is intent on bringing greater efficiencies, productivity and accountability to the social services. Such a situation demands that higher education institutions scan the environment in which they operate in order to remain alert to expanding opportunities, to which they can develop appropriate responses, so that they can become learning organisations. Such thinking is in line with Agyris and Schön's (1978: 29) description of organisational learning as a process which "occurs when members of the organisation act as learning agents for the organisation, responding to changes in the internal and external environments by detecting and correcting errors in organisation, and embedding results of their inquiry in private images and shared maps of the organisation". The term 'collective learning', which is used to refer to the development of shared memories and mental maps, is used

synonymously with the term ‘organisational learning’ by such researchers as Fauske and Raybould (2005).

Clark (1998) supports the need for organisational learning in higher education institutions, emphasising that universities require an enlarged capacity to respond to pressures in the external environment, such as government regulation, and to assume a civic role. They also need to hone their capacity to bring environmental demands under control by focusing more on their institutional character. In addition, Clark (1998) asserts that what is needed now in higher education is a strong ability to respond flexibly to changes in the knowledge domain. In line with Argyris’s (1991) theory of single-loop and double-loop learning, the current researcher holds that organisations can only be flexible and respond to external changes in the environment appropriately if they are open to learning from the environment in which they operate.

After an extensive review of literature relating to organisational learning in higher education, Boyce (2003) concluded that establishing conditions for continued organisational learning in higher education is essential for sustaining successful change. According to White and Weathersby (2005), though faculty members consider themselves to be knowledge creators for their own professions, as well as for other groups and practitioners with whom they identify, they tend to lack the capability to learn how to create knowledge on behalf of the higher education institutions by which they are employed. Such a lack of capability is despite the fact that they are responsible for instructing students on how to build learning organisations, as well as on how to enhance organisational learning in order to improve organisational performance. In support of the need for increased organisational learning by higher education institutions, Lam (2002: 440), in a study on the effect of transformational leadership on organisational learning in schools, commented that “changes evolved from organisational learning represent more mature, deliberate and well studied strategies that broaden the organisation’s problem solving repertoire and enhance future coping capabilities”.

In brief, higher education institutions must prioritise organisational learning, in order to ensure their survival and sustainability. However, whether higher education institutions have adequate mechanisms in place to support such organisational learning is debatable.

2.15 Knowledge management and organisational learning

The linkage between knowledge management and organisational learning calls for examination, especially in line with such an issue being the key concern of the present study. Pasteur, Petit and Schagan (2006) argue that, though the ultimate objective of knowledge management and organisational learning might be quite similar, the paths and methods by means of which to achieve such objectives vary greatly in both thinking and practice. The application of different strategies in each intervention might explain why a number of knowledge management initiatives and organisational learning strategies undertaken in organisations over the past two decades have failed to deliver the desired results. Whereas reference to the concept of organisational learning first appeared in the 1960s, becoming more common in the 1980s (Argyris and Schön, 1978), concern with knowledge management only emerged in the 1990s (Pasteur et al., 2006). If both knowledge management and organisational learning have essentially the same objectives, as the latter researchers propose, the field of knowledge management would not have attracted so much attention during the past few decades.

Some authors, such as Wiig et al. (1997), consider organisational learning to be a knowledge management strategy; whereas others assert that knowledge management is an implementation strategy for organisational learning. Other authors, such as Vera and Crossan (2003), confuse the issue still further by arguing that practitioners are the main promoters of knowledge management, whereas organisational learning is concerned with the process of knowing, and is, therefore, theoretically oriented. Such a view is supported by such writers as Easterby-Smith and Lyles (2003), as is explained later.

Essentially, organisations can only be competitive if they "continuously learn and upgrade their knowledge assets in order to respond to the changing environment" (Appelbaum and Gallagher, 2000: 40). Such continuous learning and upgrading requires

that those organisations which are in pursuit of a competitive advantage should implement knowledge management initiatives and pursue strategies that will make them learning organisations, thus underpinning the interconnection between the two strategies. In terms of Fiol's (1994) perspective, organisational learning is considered to be a process of achieving changes in states of knowledge. Such learning involves the following processes:

1) knowledge acquisition;
2) knowledge dissemination;
3) knowledge creation and refinement; and
4) knowledge implementation.

Arguing along similar lines, Huber (1991: 90) stresses that organisational learning consists of the following four constructs:

1) knowledge acquisition;
2) information distribution;
3) information interpretation; and
4) organisational memory.

Knowledge acquisition can be seen as a process by means of which knowledge is obtained, whereas information distribution is defined as a process by means of which information from different sources is shared, in such a way as to lead to the development of new information and understanding. In contrast, information interpretation consists of sharing a common understanding regarding information in an organisation. Organisational memory refers to the means by which knowledge is stored. Huber (1991) acknowledges having used the concepts of 'knowledge' and 'information' interchangeably, so that, according to his outlook, whatever pertains to information features also pertains to knowledge. Such an outlook is contentious, due to the difference that exists between information and knowledge, as can clearly be seen in the hierarchical presentation of knowledge in Figure 2.1. Information, which consists merely of organised data, can only become knowledge when meaning has been attached to it. Jashapara (2004: 16) calls knowledge "actionable information". Knowledge, therefore, is neither data nor information.

The current study draws meaningful inferences from Huber's (1991) framework, in terms of which the present researcher infers that the organisational learning process constitutes knowledge acquisition, information interpretation, information distribution and organisational memory. In addition, the study draws lessons from Lyles' (1988) finding that organisations learn when there is a change in their state of knowledge, which occurs by means of knowledge acquisition, dissemination, creation, refinement and implementation. When the perspectives of Huber (1991) and Lyles (1988) are contrasted with that of Davenport and Prusak (1998) and Filius et al. (2000), the interrelationship between organisational learning and knowledge management can clearly be seen. Davenport and Prusak (1998) discuss understanding knowledge requirements, creating new knowledge, integrating knowledge created externally, applying existing knowledge, and reusing knowledge, whereas Filius et al. (2000) focus on knowledge acquisition, documentation, transfer, creation and application. Such an apparent interconnection of organisational learning perspectives with the processes of knowledge management demands empirical investigation. Table 2.9 below illustrates the apparent convergence of the two concepts at least at the level of definition.

Table 2.9: Organisational learning and knowledge management convergence

Organisational learning	Knowledge management
According to Huber (1991): OL includes: knowledge acquisition; information* distribution; information interpretation; organisational memory	*According to Davenport and Prusak (1998):* knowledge management entails: understanding knowledge requirements; creating new knowledge; integrating externally created knowledge ; applying existing knowledge; reusing knowledge
According to Fiol (1994): OL includes: knowledge acquisition; knowledge dissemination; knowledge creation and refinement; knowledge implementation	*According to Filius et al. (2000)* Knowledge management entails: knowledge acquisition; knowledge documentation; knowledge transfer' knowledge creation; and knowledge application

*Huber (1991) uses the terms 'information' and 'knowledge' interchangeably.

Some writers on organisational learning and knowledge management discuss one concept without making reference to the other, with, at best, the two being pursued parallel to each other, especially in practice. Certain proponents of the knowledge management

school of thought even suggest that organisational learning is an entirely different discipline to that of knowledge management. Such an artificial division deliberately overlooks the fact that both learning and knowledge are components of both fields of understanding (Brown and Woodland, 1999).

In the light of the above discussion, the inter-linkage of knowledge management with organisational learning requires analysis. Such analysis will take the form of tracing the relationship between knowledge management practices and organisational learning, and of identifying the interdependent relationship between the two concepts.

2.16 Nature of the interrelationship between knowledge management and organisational learning

Limited literature currently exists as to the empirical understanding of the interrelationship of organisational learning with knowledge management practices, with the few related studies being either largely theoretical (Loermans, 2002; Pasteur et al., 2006), or else the expression of specific viewpoints on the issue (Firestone and McElroy, 2004). In an effort to relate organisational learning to knowledge management, Pemberton and Stonehouse (2000: 186) postulate that: "Whereas organisational learning is primarily concerned with continuous generation of new knowledge to add on existing stocks of assets, knowledge management is primarily centred on formalisation, storage, sharing, distribution and co-ordination of existing knowledge throughout the organisation, building and exploiting competences that yield superior performance". Such thinking implies that organisational learning influences knowledge creation.

Zhou, Tan and Uhlaner (2007), in their quantitative study of family orientation, strategy and organisational learning relating to knowledge management in SMEs in Netherlands, found a positive relationship between organisational learning and knowledge transfer. Two main limitations of their study, however, are that their data were collected by means of telephone, which might have rendered those responses which they received less than exhaustive and not all processes of knowledge management were considered, due to the study being limited to a consideration of knowledge transfer alone. Another attempt to

link organisational learning to knowledge management was made by Firestone and McElroy (2004), who concluded that knowledge is a result of learning activities associated with the knowledge life cycle.

Cavaleri (2004) examined the alignment and fit between knowledge management and organisational learning to determine the potential feasibility of integrating the two approaches. After analysing the philosophical roots of both approaches, he critiqued the first generation of knowledge management thinkers for their heavy reliance on information technology. On such a basis, Cavaleri (2004: 159) proposed that "these two approaches to increasing intellectual capital and human capacity for effective action are complimentary and may be integrated into a larger framework". Such a proposal was in line with Loermans' (2002) postulation synergising organisational learning and knowledge management, in addition to which he wondered why some writers still regarded organisational learning and knowledge management as separate disciplines, despite the similarity in their intended objectives of leveraging human potential in organisations.

Lopez, Peon and Ordas' (2004) empirical study, which aimed to find out the extent to which collaborative culture influences organisational learning and performance in Spanish companies, revealed that knowledge management policies, to which the researchers referred as collaborative culture, was a means of leveraging knowledge by means of organisational learning. Lopez et al. (2004) further argue that, in order for knowledge management initiatives to be truly effective, they would have to take into account the social contexts in which learning takes place. The researchers concluded that knowledge management is the initial stage of organisational learning, which implies that the latter is influenced by knowledge management practices. Cegarra-Navarro's (2005) empirical study into Spanish optical firms confirmed such a finding. Such studies go a long way to supporting Cross and Israelit's (1999) earlier postulation that knowledge management and learning go hand in hand, and that learning processes define the quality of knowledge distributed across the organisation, as well as the effectiveness with which knowledge is put to use.

In a theoretical paper, Pemberton and Stonehouse (2000), drawing insights from a number of sectors and companies, argued that successful organisations tend to create an organisational environment which combines organisational learning and knowledge management. Their study implies a relationship between organisational learning and knowledge management. Sandelands (1999) asserts that, in order for organisations to be successful in creating sustainable and self-renewing competitive advantage, a combination of individual learning, organisational learning and knowledge creation, together with management, must be harnessed to achieve critical organisational goals. Since learning occurs in the creation and use of knowledge, organisational learning is likely to be influenced by knowledge management practices.

An organisation needs to generate new knowledge on a continuous basis, facilitating its sharing within an organisation and applying it in improving its performance. According to Huttunen, Kyläheiko and Virolainen (2001), organisations are primarily knowledge repositories, in terms of which knowledge evolution can be analysed in terms of creating, transferring and integrating such knowledge within a dynamic or static environment. Managing organisational knowledge through a number of practices is important. The question that arises is what constitutes knowledge management practices for the effective management of knowledge. Previous researchers identified the following key practices in the knowledge management process:

1) acquisition, collaboration, integration, and experimentation (Leonard, 1995).
2) creation, transfer, and use (Spender, 1996);
3) creation, transfer, assembly, integration, and exploitation (Teece, 2000); and
4) knowledge capture, development, sharing and utilisation (Lee and Hong ,2002).

According to Gold et al. (2001), knowledge management processes can be grouped into four different dimensions: knowledge acquisition; knowledge conversion into useful form; knowledge sharing; and knowledge protection. Although such a cycle does not consider the strategic phase of knowledge management, the cycle is considered appropriate in terms of the current study, due to its consideration of knowledge

management all the way through from the point of acquisition of knowledge to its documentation and storage. The cycle then focuses on how knowledge is transferred and shared in order to create value for the organisation, which is followed by an understanding of how knowledge is applied and used in value-generating activities of the organisation, and, lastly, how knowledge is protected in order to maintain the uniqueness of the company. The current study holds that, at each of the phases, strategic considerations must be taken into account, such as what type of knowledge the organisation should acquire currently and in the future, as well as how such knowledge should be documented and stored.

Most researchers who write about knowledge management distinguish a series of activities or phases which are applicable to knowledge management. Wiig (1993) identified three phases of knowledge management: a) knowledge creation; b) knowledge representation; and c) knowledge use, which were presented as a cyclical model (Wiig, 1993), highlighting the investigation of knowledge, the building of knowledge, the organising and focusing of knowledge, and the apply and exploiting of knowledge. Such phases, however, excluded knowledge sharing and transfer, which the current research considers to be key to knowledge management. The current study has adopted the knowledge management practices of knowledge acquisition, transfer, documentation, creation and application, in keeping with the findings of Filius et al. (2000) and Yahya and Goh (2002). The influence of each of the above-mentioned practices on organisational learning is considered in the following sections of this thesis.

2.16.1 Knowledge transfer and organisational learning

Knowledge transfer is sometimes taken to be synonymous with knowledge sharing (cf. Yang, 2007), as the sharing of knowledge across companies is called 'knowledge transfer', whereas the sharing of knowledge between individuals is simply called 'knowledge sharing'. In the current study, knowledge transfer is seen to mean the distribution of knowledge from individual to individual and from team to team, within an institution. Individuals transfer knowledge to their counterparts by means of exchanging ideas, thoughts, beliefs, knowledge and experiences with them while contributing to task

execution in teamwork, or informally, through conversations with them. The transfer of knowledge at individual level occurs when an individual is willing to assist, as well as to learn from, others in the development of new skills and competencies. According to Senge (1990), learning involves digesting, absorbing and applying. The process of transferring knowledge helps to reduce the amount of knowledge in areas or individuals which have a high concentration of such knowledge to areas that need it. Such de-concentration of knowledge facilitates its applicability, thereby contributing to organisational effectiveness. Yang's (2007) study of international hotels in Taiwan concluded that knowledge transfer facilitates the transformation of collective knowledge to organisational knowledge, without such knowledge becoming orphaned or subject to depreciation. In contrast, Yang (2007) argues that, if knowledge is not shared, it depreciates in value. The view that knowledge sharing results in the advancement of organisational learning helped legitimise Spinello's (2000) claims that knowledge sharing and organisational learning are intimately connected.

2.16.2 Knowledge documentation and organisational learning

Knowledge documentation refers to the extent to which knowledge is captured and embedded in organisational procedures and processes by means of its encapsulation in manuals, databases, and handbooks. Knowledge that is documented becomes easy to distribute and to make available to other organisational members. Information technology and other knowledge dissemination tools play a critical role in knowledge documentation. The knowledge conversion model of Nonaka (1994) implies that knowledge documentation is part of the externalisation process. As knowledge becomes increasingly documented, and thereby explicit and codified, its distribution and sharing becomes relatively easy. Consequently, the documentation of knowledge enhances the learning of individuals, teams, and, ultimately, organisations. Su, Hsieh and Liu (2003: 288), who treat knowledge documentation as synonymous with knowledge inventory, confirm that "inventorising knowledge significantly affects the ability of organisations to learn". According to Huber (1991), knowledge documentation contributes to organisational memory, in which knowledge and information is stored in the form of procedures, manuals and databases. With the help of information technology, such knowledge and

information can easily be retrieved for use by individuals and teams. As far as teams are concerned, organisational memory can be found in formalised practices which guide future actions, decisions and planned team activities. However, organisational memory can also exist in the form of informal team practices and implicit systems. Such memory is what is sometimes referred to as 'transactive' memory, in terms of which team members efficiently store and retrieve information from experts for use in similar activities in future. Therefore, primarily organisational learning can be argued to occur through the sharing of insights at individual, team and organisational level. Secondly, such sharing occurs through the transmission of knowledge and information, using organisational memory. Since organisational memory is facilitated by knowledge documentation practices, by implication knowledge documentation positively influences organisational learning at the three levels mentioned.

2.16.3 Knowledge creation and organisational learning

Knowledge creation, which is at times referred to as knowledge construction (Demarest, 1997), is considered to be the most important process in knowledge management, as knowledge must first be created before knowledge transfer, application and documentation can occur. To emphasise the primary position of knowledge creation, Drucker (1994) contends that, in terms of the new economic system, in which knowledge is the only meaningful resource, organisations can survive if they are creators of knowledge. Knowledge creation involves developing, or replacing old knowledge with, new knowledge (Nonaka, 1994). In addition, Nonaka and Takeuchi (1995) argue that knowledge creation involves knowledge addition, or the correction of the existing knowledge. In higher education institutions, such knowledge creation is made possible by means of research. Once knowledge has been created, it results in individual and collective learning within the organisation. Su et al. (2003) confirmed such a relationship in their study, which proved that knowledge creation had a significant positive impact on the learning ability of the organisation as a whole. By using appropriate mechanisms, individual learning translates into team learning, and, ultimately, into institutional learning.

2.16.4 Knowledge acquisition and organisational learning

Organisations acquire knowledge in one of two major ways. The one way is through individual members of the organisation, as they interface with the clients, suppliers or stakeholders. The other way is from organisation to another (intra-organisation knowledge acquisition), as well as by means of competition. Jashapara (2004) argues in support of Huber (1991) that other ways in which organisations learn is by means of congenital learning, whereby the knowledge which is possessed by founding fathers of organisations is passed on to other members of the organisation. When individuals work in teams, members influence one another through knowledge exchange. Accordingly, knowledge acquisition takes place at all three levels of the organisation (individual, team, and organisational/institutional). Once such knowledge is acquired, it benefits the organisation in terms of productivity, the enhancement of creativity, the reduction of response times, and the improvement of decision-making (Hartenian, 2003). In other words, procedures change with the acquisition of knowledge. Since, according to Huber (1991), an entity learns, when, through processing of information, a range of potential behaviours is changed, knowledge acquisition influences the way in which organisations learn.

2.16.5 Knowledge application and organisational learning

Knowledge application is also referred to as knowledge utilisation (Davenport and Prusak, 1998), knowledge use (Demarest 1997), and knowledge reuse. According to the knowledge management cycle model (King, Chung and Haney, 2008), knowledge application is accomplished in various different ways, including by means of elaboration, thoroughness (facilitation), innovativeness and collaborative problem-solving. Knowledge can also be applied in the development of new products, research and development, and in the improvement of processes and procedures. According to Nonaka (1994), internalisation processes are those which convert explicit knowledge into tacit knowledge. In terms of such a process, explicit knowledge may be embodied in actions and practices, so that individuals acquiring such knowledge can re-experience what others do (Sabherwal and Becerra-Fernandez, 2003: 231). Since action and practice are both application oriented, internalisation processes can be seen to underlie knowledge

application practices. In a study to determine the degree of impact of internalisation processes on knowledge management effectiveness at individual, team and organisational levels, Sabherwal and Becerra-Fernandez (2003) found that internalisation had a significant impact on individual-level knowledge management effectiveness. In the same study, the individual's perception of knowledge management effectiveness was found to influenced team-level perception and organisation-level knowledge management effectiveness positively. Since, as was discussed in section 2.8 of this thesis internalisation involves action and practice (application); it can be argued that knowledge application is related to organisational learning at all three levels. In terms of the literature reviewed, knowledge management practices can be seen to relate to organisational learning at three levels: individual, team and institutional.

2.17 Interdependence between knowledge management and organisational learning

Pasteur et al. (2006), in a theoretical paper regarding knowledge management development, drew on Easterby-Smith and Lyle's (2003) framework, arguing that, based on the social construction of knowledge, knowledge is created and supported through the processes of learning by way of human interaction and situational embedding. In terms of such a framework, knowledge and learning are deemed to be co-dependent and inseparable. Pasteur et al. (2006) question whether it is helpful to see such concepts as separate disciplines, given the linkages between learning and knowledge, both in theory and practice. They emphasise the need to draw from the richness of the two literatures in ensuring greater alignment of organisational roles and strategies. Such thinking creates the need to bring both organisational learning and knowledge management into a unified framework. Due to Pasteur et al. (2006) not developing their framework further, they did not fully realise their unification of the two concepts. The current study attempts to build on such a foundation in order to determine empirically those dimensions which can explain the convergence of the two knowledge-related concepts.

Cavaleri (2004) and Loermans (2002) are two authors who have also linked knowledge management and organisational learning intuitively. Cavaleri (2004) argues that the two approaches have the same purpose, which is to facilitate effective action, as well as that they represent a potentially potent way of leveraging human intellectual capital for performance. Cavaleri (2004) roots for integrating the two concepts into a larger framework, by tracing the possible linkage of the two disciplines to their common philosophical grounding in the philosophy of pragmatism. The current study approaches such a linkage from a different perspective, by determining the dimensions of interdependence between knowledge management and organisational learning.

Loermans (2002) attempted to synergise knowledge management and LO thinking. In a theoretical paper, which he entitled 'Synergizing the learning organisation and knowledge management', Loermans (2002: 290) argues that "knowledge creation is the final result of the learning process and conversely, learning occurs when we talk about creating, sharing and using knowledge". In addition, Loermans (2002) passionately argues for synergising the normative form of organisational learning (i.e. the learning organisation) with knowledge management. Drawing extensively from literature on learning organisations and knowledge management, Loermans (2002) argues that many writers on management during the 1990s decried the lack of a sound understanding of organisational learning and knowledge management. The sharp decline in the number of articles published on learning organisations (and organisational learning), compared with the upsurge of articles on knowledge management, was found by Loermans (2002) to indicate a sharp decrease in a focus on people management and people development themes, with a corresponding increase in the focus on IS and information technology themes.

Easterby-Smith and Lyles (2003), in their attempt to differentiate organisational learning from knowledge management, located the focus of each field on two axes. On one axis, they located the body of literature which is largely theoretical, tending to arise in academic sources. On the other axis, they located literature which originates with

practitioners, management consultants and managers, who mainly tend to draw on their own experience and practice.

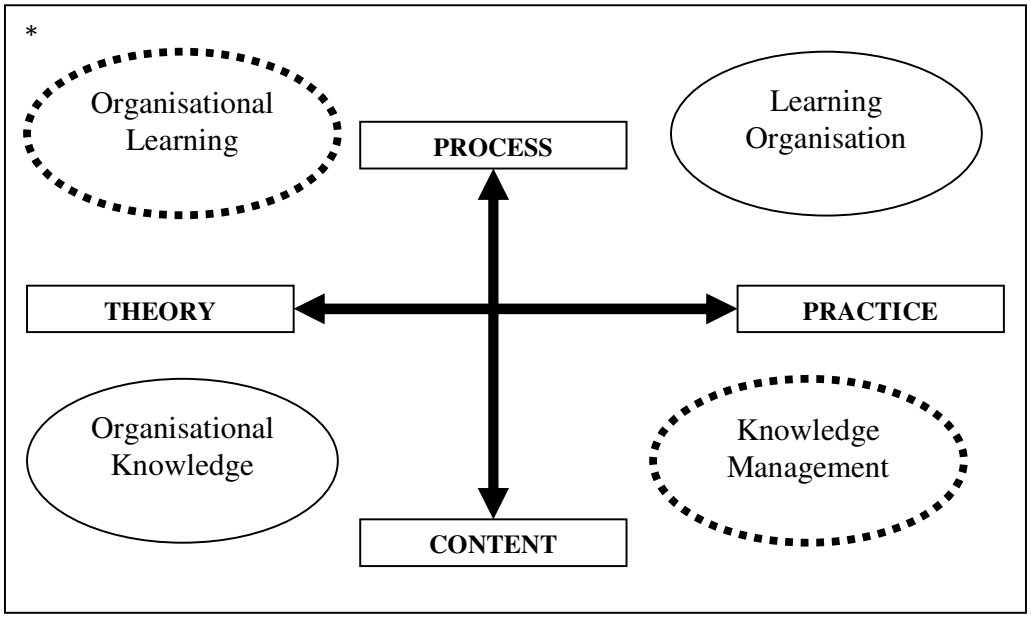


Figure 2.6: Easterby-Smith and Lyle's (2003) knowledge and learning framework

*The dashed circles represent the main interest of the current study.
Source: *Easterby-Smith and Lyle (2003).*

In the framework which is presented in Figure 2.6 above, Easterby-Smith and Lyle (2003) contrast theoretical approaches with practice-oriented ones to attain an understanding of knowledge and learning. Conversely, the two circles (which represent organisational learning and organisational knowledge) in the left quadrants of the figure reflect a theoretical perspective; whereas the two circles (which represent learning organisation and knowledge management) in the right quadrants reflect the practical dimension. In addition, the two circles (which represent organisational learning and the learning organisation) in the top quadrants are process-based. Lastly, the circles (representing organisational knowledge and knowledge management) in the two bottom quadrants are content-based. In terms of such a framework, the theoretical approach to learning is termed 'organisational learning', whereas the practical approach is labelled 'learning organisation'. In terms of knowledge, the theoretical approach is termed

'organisational knowledge', whereas the practical aspect is termed 'knowledge management'.

In terms of the above framework, the intricate linkages between organisational learning and knowledge management can be seen relatively easily. According to Easterby-Smith and Lyle (2003), organisational learning is concerned with how an organisation learns (i.e. the theoretical aspects), whereas knowledge management is concerned with "how knowledge should be managed" (i.e. the practical aspects). The paradox which emerges from the above framework is, therefore, whether the way in which organisations learn depends on how knowledge in organisations is managed, or whether the way in which knowledge in organisations is managed depends on how organisations learn. The answer to such a question lies in identifying the dimensions of the interdependence between the two knowledge-based concepts of knowledge management and organisational learning. Identifying the underlying dimensions of such an interdependence will contribute to bridging the gap between the theoretical and practical literatures concerning organisational learning and knowledge management.

2.18 Linking knowledge management to organisational learning: A theoretical perspective

The social and intellectual capital theories (Nahapiet and Ghoshal, 1998; Stewart, 1997) and the social construction models of learning and knowledge (Crossan et al., 1999; Demarest, 1997; Watkins and Marsick, 1993) provide a useful theoretical context for investigating the interdependence between knowledge management and organisational learning. For example, the three dimensions (cognitive, relational, and structural) of social capital and the three categories (human, relational, and structural) of intellectual capital effectively represent those knowledge management practices which are considered by the current study. In addition, Watkins and Marsick's (1993) learning dimensions provide a basis for apportioning learning in organisations at three levels: individual, team and institutional.

The cognitive dimension refers to those resources which provide shared representation, interpretation, and meanings among the parties involved (Alexopoulus and Monks, 2004). The dimension includes such aspects as shared language, narratives, and codes, which are responsible for communication and the promotion of understanding among people. Such a dimension is concerned with the enhancement of continuous learning by means of dialogue and inquiry, which are the first two dimensions of learning at an *individual level* (Watkins and Marsick, 1993). While continuous learning facilitates *knowledge acquisition*, dialogue (among members) and inquiry facilitates *knowledge transfer* (sharing), both of which are those aspects of knowledge management which support the linkage between knowledge management and organisational learning.

The social relationship and interactions that exist among organisational members, teams and groups can be traced to the relational dimension of social capital, as well as to relational capital in the intellectual capital theory. In terms of such capital, those relationships which promote knowledge *transfer* practices thrive on trust and trustworthiness (Mayer et al., 1995). Demarest's (1997) social construction model of knowledge equates knowledge transfer with knowledge dissemination, in a way which is also comparable to Crossan et al.'s (1999) organisational learning process of integrating knowledge among the members of the organisation. The interrelationship of knowledge management with organisational learning is most prominent in considerations that the third learning dimension, according to Watkins and Marsick (1993), consists of collaborating to enhance learning at team level. Such an outlook supports the postulation that relational capital and the relational dimension of social capital provide the basis for knowledge transfer (in terms of sharing and dissemination), which promotes team learning, thereby allowing for linkage between the two.

The human capital perspective of intellectual capital theory focuses on the knowledge, skills and experiences of the organisational members. According to Ungerer et al. (2006), human capital can also include tacit knowledge. For such knowledge to be useful to an organisation, it has to be converted into explicit knowledge, to which Nonaka and Takeuchi (1995) refer as 'externalisation'. According to such a phase of the knowledge

conversion model, the externalisation of knowledge facilitates its embodiment (Demarest, 1997) in organisational processes and procedures, which take such form as databases, manuals, handbooks, and documented practices and guidelines. Such a process corresponds to the knowledge *documentation* practice in knowledge management.

Knowledge documentation in linked to 'embedded systems' (Watkins and Marsick, 1993), which comprise a learning dimension at organisational level, which indicates a linkage between the two. In addition, human capital is an intangible asset which has been exploited to create a competitive advantage (Havens and Knapp, 1999). The possession of intangible assets, in general, creates benefits for the organisation and the individual worker, by means of maximising the effective use of knowledge (Demarest, 1997), corresponding to Filius et al.'s (2000) knowledge *application.* By means of knowledge application, new inferences emerge that call for renewed learning on the part of the individual. Since individuals are learning conduits for an organisation, it can be assumed that human capital supports the linkage between knowledge application and institutional learning.

The structural capital dimension has been categorised into two (Ordenez de Pablos, 2006), namely technological capital and organisational capital. According to the intellectual capital theory, the term 'technological capital' refers to technical and industrial knowledge, also including research and development, and renewal and development (Ungerer et al., 2006). Both research and development and renewal and development have implications for both knowledge construction (Demarest, 1997) and knowledge *creation* (Filius et al., 2000), which relate to knowledge management practice, as considered in the current study. The linkage of knowledge management to organisational learning can be traced to the institutionalisation of knowledge in terms of Crossan et al.'s (1999) organisational learning framework. Organisational capital, in contrast, refers to institutionalised knowledge, which is embedded in those organisational routines which contribute to the perpetuating of organisational memory, which is important for organisational learning.

In brief, the theoretical inter-relationship between knowledge management and organisational learning, which is based on the social and intellectual capital theories and on the social construction models of knowledge and learning, calls for empirical investigation. Such a challenge forms the basis for advancing the following propositions for testing using the data obtained from higher education institutions in Uganda.

1) *Proposition One: Knowledge management practices influence individual learning.*
2) *Proposition Two: Knowledge management practices influence team learning.*
3) *Proposition Three: Knowledge management practices influence institutional learning.*
4) *Proposition Four: An interdependent relationship exists between knowledge management and organisational learning, which is defined in terms of at least one distinct dimension.*

2.19 The conceptual framework

The literature review contained in this chapter provides insight into the inter-relationship between organisational learning and knowledge management. The current study is grounded in the social capital and intellectual capital theories, which are supported by the social construction models of both learning (Brown and Duguid, 1991; Easterby-Smith and Lyle,s 2003) and knowledge (Demarest, 1997; McAdam and Reid, 2000). Organisational learning and knowledge management literature shows a degree of inter-relationship between organisational learning and knowledge management (e.g. Davenport and Prusak, 1998; Easterby-Smith and Lyles, 2003; Huber, 1991), which is mainly due to the discussion of knowledge being incomplete without a consideration of learning. Similarly, in the discussion of organisational learning, knowledge features prominently. More importantly, however, is that what organisations learn is knowledge is that knowledge which is needed to promote their ability to remain competitive and sustainable. Knowledge management is concerned with how organisations manage their knowledge in order to create a competitive advantage through engagement in the processes of knowledge acquisition, creation, documentation, transfer, and application. The social construction perspective postulates that knowledge is socially constructed

from interactions among individual members of an organisation, which initially occurs at team level and later at organisational level. Similarly, the social process perspective of organisational learning; as propagated by Easterby-Smith and Araujo (1999), focuses on the way in which people make sense of their experiences at work. Where the two perspectives converge is in treating knowledge and learning as socially constructed phenomena and in emphasising the role of social relations in creating knowledge and in enhancing learning.

Organisational learning emphasises the maximisation of learning potential for the individual, team and organisation. Although organisational learning is not a sum of individual learning, as is noted by Argyris and Schön (1978), organisations do not learn if they fail, first, to allow for individual learning to take place. Individuals are considered to be learning agents of an organisation, with knowledge management practices being considered necessary to transform individual learning into organisational learning. The team learning level is viewed as a cornerstone of organisational learning. In terms of the knowledge conversion model proposed by Nonaka (1991), the tacit knowledge which is held by individuals can be converted into explicit knowledge during the externalisation mode, making such knowledge organisational in nature. Similarly, during the socialisation mode, tacit knowledge can be further translated into tacit knowledge of other individuals within a team.

The current study proposes that knowledge management practices influence individual, team and institutional learning. In addition, the study hypothesises that it is possible to determine the interdependence of knowledge management and organisational learning, based on certain dimensions. The study considers the knowledge management practices of knowledge transfer, acquisition, documentation, creation, and application, with learning being considered at individual, team, and institutional level. Figure 2.7 below illustrates the conceptualised relationships concerned.

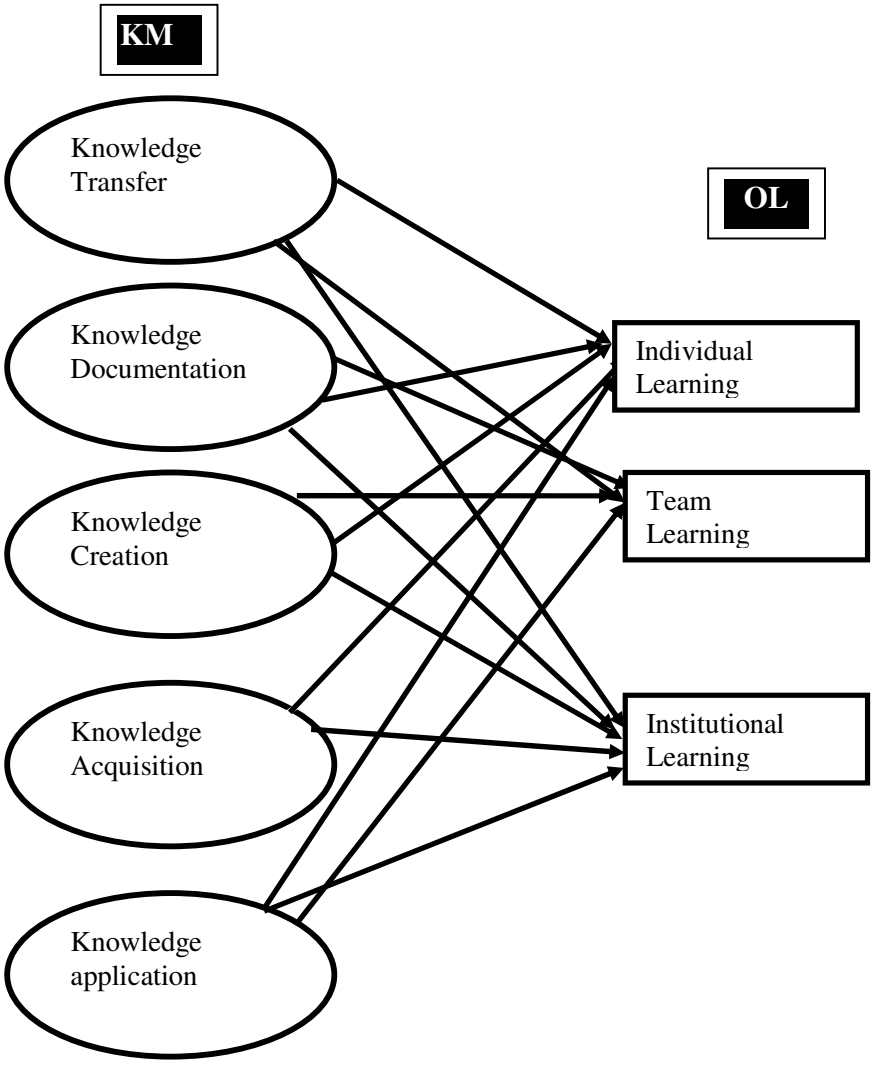


Figure 2.7 Conceptual framework of the study.

2.20 Summary

The literature review presented in this chapter has revealed links between organisational learning and knowledge management (Firestone and McElroy, 2004; Loermans, 2002; Lopez et al., 2004; Pasteur et al., 2006; Pemberton and Stonehouse, 2000), though such links have not yet been empirically tested. Likewise, in terms of the literature, it is possible to assume that a relationship between the two concepts exists, though such a relationship has yet to be examined empirically. In addition, the context in which such

studies have been conducted is mainly that of the business sector and the developed world, whereas little emphasis has, as yet, been placed on other sectors, such as higher education. Secondly, the nature of interdependence between knowledge management and organisational learning has not yet been determined within the higher education context and in a developing country such as Uganda. The next chapter presents the methodology employed by this study to determine the interdependence between the two concepts in higher education sector and developing country context.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The aim of Chapter Three is to describe the research methods and the design used for conducting the study. The chapter, which commences with highlighting the research philosophy employed, explains the competing research paradigms, namely those of positivism and interpretivism. The latter is also commonly referred to as the social constructivism paradigm. Such an explanation is followed by a discussion of the different research approaches in each of the two paradigms. The case for post-positivism is then argued, on the grounds that, in social science studies, absolute objectivity does not exist, in which the researcher is divorced from the topic studied. The subsequent sections of the chapter address the research design, the population and sample size determination, the instrumentation, the reliability and validity of the instruments, the data gathering procedures, and the methods of statistical analysis.

3.2 Philosophy of research

Research is defined as a disciplined inquiry into the study of problems (Gay and Airasian, 2003), meaning that it is a careful and systematic means of solving problems. Fellows and Liu (2003: 4) define research as a "voyage of discovery", for which the reason is to discover the truth and to construct reality. Research is founded on philosophical assumptions, which are related to the researcher's view or perception of what reality is. According to Easterby-Smith, Thorpe and Lowe (2002), such philosophical assumptions can be understood in terms of epistemology and ontology. Epistemology, which is the branch of philosophy that deals with the study of knowledge, concerns itself with the understanding of how people have come to know what they claim to know. In terms of such a perspective, some of the questions which emerge relate to what constitutes meaningful evidence, as well as to what process gives rise to knowledge. In contrast, ontology is concerned with the nature of reality or, as Easterby-Smith et al. (2002) put it, ontology is the science of being and existence. In effect, therefore, ontology is the researcher's perception on the nature of the real world. Ontological questions therefore

relate to such issues as the nature of reality and to whether reality can exist prior to being discovered.

Research in the sphere of the natural and social sciences has assumed different perspectives, in keeping with the above philosophical assumptions. As a result, two different streams of research, with different methodological underpinnings, have emerged, namely positivism and interpretivism, which are discussed below.

3.2.1 Positivism and interpretivism research paradigms

A research paradigm is a comprehensive belief system which guides research and practice in the field. Fellows and Liu (2003) define a research paradigm as a system in terms of which people view events. The positivism research paradigm is variously referred to as the 'normative' and 'quantitative', while the interpretivism paradigm is often referred to as 'social constructivism' and 'qualitative' by different scholars. Positivist scholars argue that the world is concrete and real, and that a separation is necessary between the researcher and the research object in order to prevent the former's subjective feelings from affecting the research process, which might, otherwise, bias the study. Positivists believe in empiricism, which is based on the belief that observations and measurements constitute the core of all scientific endeavours. Interpretivist scholars, in contrast, believe that the world is, by nature, subjective, because it is determined by people, rather than by objective, externally observable facts (Easterby-Smith et al., 2002). In support of such an argument, Fellows and Liu (2003) contend that truth and reality are socially constructed and cannot, therefore, exist independently. Interpretivists, therefore, maintain that the key role of the researcher in the research process is to gain a general overview of the context of the topic which is being investigated.

Proponents of both schools of thought have advanced reasons for claiming the superiority of one school which they advocate over the other. Positivists, for instance, contend that qualitative data does not necessarily exist in exclusivity, and that all data can be quantified by means of allocating figures or codes. The interpretivists, in contrast, argue that all data are basically qualitative, with numbers merely being attached to meanings in

quantitative analysis. As the debate rages on, various research approaches characterising both the positivist and interpretivist approaches have emerged. (See Table 3.1 and 3.2 below)

Table 3.1: Various research approaches in terms of the positivist paradigm.

Research approach	***Questions***	***Main features***
Experiments (laboratory)	How, why	Intensive study; precise relationship; quantitative variables
Experiments (field)	How, why	Real-life situation experiments
Archival analysis	Who, what, where, how many	Quantitative and qualitative analysis of records to describe incidences
Forecasting future research	What, how much	Insights into likely future events
Simulation, game, role playing	What, how	Simulating the behaviour of a system by generating and introducing random variables
Surveys	Who, what, where, how many, how much	Questionnaires, interviews, observations used to obtain data on practices or situations

Source: *Adopted from Galliers (1992: 144).*

Table 3.2: Various research approaches in terms of the interpretivism paradigm.

Research approach	***Questions***	***Main features***
Case study	How, why	Explanatory; exploratory; descriptive
Archival analysis	Who, what, where, how many	Quantitative and qualitative analysis of records to describe incidences
History	How, why	Explanatory studies related to happenings over time
Subjective argumentative	What	Creative; free flowing; unstructured
Action research	What to do, how, why	Obtaining results and benefits for practical value
Grounded theory	What	Structured approach to forming theory grounded in data
Descriptive, interpretive	What, how, why	Based on the philosophy that phenomena are the essence of experience; development of cumulative knowledge

Source: *Adopted from Galliers (1992: 144).*

While a number of research approaches under the two paradigms appear distinguishable from one another, with the exception of archival analysis, which is present in both, it is possible to apply mixed approaches in any study.

3.2.2 The middle of the road: The post-positivist paradigm

The realisation that neither of the paradigms can best explain reality to perfection, has given rise to a new thinking that has been labelled the "post-positivism paradigm". Increasing support for post positivism has been precipitated by the fact that "divisions between objectivity and subjectivity are socially constructed" (Ryan, 2006: 16). One of the philosophical foundations of post-positivism is critical realism which underscores the fact that there is reality beyond people's thinking. This is in stark contrast with the interpretivists who contend that there is no external reality until it is constructed socially by observers through interpretation.

Post-positivists recognise that all observations are prone to error, which allows for theory to be revisited. Essentially, post-positivists doubt people's ability to understand reality with the high degree of certainty to which positivists subscribe. Though both positivists and post-positivists are realists, the latter tend to be more critical of reality than the positivists are. To address the shortcomings of positivism, post-positivists accentuate the importance of using multiple measures and observations (i.e. triangulation of data) to enhance the understanding of reality. Post-positivists also believe that all observations are inherently biased by the researchers' cultural experiences and by their understanding of the world, leading to their questioning of the nature of objectivity. To a post-positivist, the best way to achieve objectivity is to triangulate across multiple methods of data collection and analysis. In terms of such thinking, objectivity is not inherent in an individual, as is presupposed in interpretivism (Fellows and Liu, 2003), nor is it found 'out there', external to the researcher, as the positivists argue. Instead, it is an inherently social phenomenon.

3.2.3 Selection of the post-positivist paradigm for the current study

The current study applies the post-positivist paradigm, based on the understanding that researching knowledge management practices and organisational learning is deeply rooted in the social context. Such practices can, at least partly, be measured to a certain extent on a scale representing the perceptions of the respondents. The choice of such an approach is also informed by the fact that total objectivity is deemed to be impossible in social science research. In addition, it is assumed that subjectivity is inherent in the social world, although it can be minimised by means of the triangulation of the methods used, by self- questioning and by the inviting of scrutiny of the topic covered.

The inseparability of individuals and objects in the research context is vividly expressed by Whittaker (2005: 135), who argues that "any distinction that presumes the manager [as naturally there] or the world [as simply there] is meaningless". In addition, Whittaker (2005) clarifies that the manager (or any other individual) is not an autonomous self-sufficient source of intelligibility, who possesses mental states in isolation, and who acts in terms of an essentially disinterested intentionality. Rather, such a person derives their being (i.e. their intelligibility) from being there (i.e. in the world). It is for this reason that this study argues that neither purely positivism nor purely interpretivism approach can adequately address the research questions but a blend of the two. Determination of interdependence between knowledge management and organisational learning, which is the major aim of this thesis, can best be accomplished through hypothesis testing. But in-depth exploration of people's perceptions is deemed very instrumental in augmenting the results and shedding more light on this phenomenon. The use of triangulation both in data collection and analysis was found more relevant for this research that sought to collect extensive data through quantitative survey techniques and at the same time generate relevant data from in-depth interviews conducted with key informants. This approach ensured richness of data collected and results upon which conclusions were drawn.

3.3 Research design and strategies

Social science research is normally divided into two broad categories: Quantitative and qualitative research, although in recent years, a new approach that combines both quantitative and qualitative methods called the mixed methodology has emerged

(Creswell, 2009). Quantitative research involves numbering relationships between variables (Sekaran, 2003); uses objective measurements and statistical analysis of data, which are collected from a well-controlled environment. According to Ary, Jacobs and Razavich (2002), quantitative research falls into either the experimental or the non-experimental category.

In experimental research, which is considered to be most accurate and powerful method of inquiry of all research methods, a researcher manipulates treatment in order to establish the cause and effect of the phenomenon studied. In contrast, in a non-experimental study, no attempt is made to change the behaviour or conditions of the subjects of research, with the researcher measuring existing phenomena as they are found (Sekaran, 2003). Major forms of non-experimental research include survey research (such as exploratory studies), correlation studies, and causal comparative studies. Survey research is undertaken to measure the characteristics of different groups, or their attitude towards, or perceptions of, a certain phenomenon. Correlation research, in contrast, is used to determine, as well as to examine the strengths and direction of, the relationship between two or more variables in relation to the same group of people (Ary et al., 2002). Causal comparative research attempts to investigate the cause for, or the consequences of, differences between certain groups of people.

3.3.1 The mixed methodology design

In keeping with the post-positivist approach explained in subsection 3.2.3, and in light of the objectives of the current study, a survey design using questionnaires and interviews was deemed to be the most appropriate design for the study. The questionnaires and interviews were used to measure the perceptions of the respondents in regards to knowledge management and organisational learning in higher education institutions, in terms of the adoption of a mixed methodology approach. According to Johnson and Onwuegbuzie (2004), the mixed method approach fits the description of methodological pluralism, which is claimed by its proponents to provide superior research results. Johnson and Onwuegbuzie (2004) posit that, in the mixed research approach, one of two research types may be designed. In terms of the *mixed model* approach, both qualitative

and quantitative data are mixed within or across the entire research process, whereas with the *mixed method* approach the study concerned would include both a quantitative *phase* and a qualitative *phase*. The current researcher opted for the latter design.

Johnson and Onwuegbuzie (2004) argue that in constructing a mixed method design the researcher must make two primary decisions: (a) whether to operate largely within one or more dominant paradigms; and (b) whether to conduct the phases concurrently or sequentially. The present researcher opted for one dominant paradigm, the quantitative approach, with qualitative analysis as the supportive paradigm. Opting for the sequential process was deemed appropriate due to the qualitative findings being intended to lend support to the findings of the quantitative analysis. Table 3.3 below illustrates the mixed method which was adopted for the study.

Table 3.3: Mixed method design matrix with mixed method research designs shown in four cells.

	Time order decision	
	Concurrent	**Sequential**
Paradigm emphasis decision	**Equal status** A QUAL + QUANT	B QUAL → QUANT QUANT → QUAL
	Dominant status C QUAL + quant QUANT + qual	D QUAL → quant Qual → QUANT **QUANT → Qual** Quant → QUAL

Source: *Adopted from Johnson and Onwuegbuzie (2004: 22).*

Table 3.3 above depicts a matrix of possible research designs which can be adopted within a mixed method approach. Whereas the vertical axis indicates that the researcher

can choose to use either the quantitative approach or the qualitative approach on an equal footing, meaning that such approaches may have an equal weight in the study, or to use either approach as dominant to the other. In terms of the horizontal axis, the researcher can choose between using the approaches either concurrently or sequentially. The current researcher chose to use the quantitative approach as the dominant one, with the qualitative approach as the supportive one. The two approaches were applied sequentially, as can be seen in the underlined option in Cell D in the above table.

Bearing such an approach in mind, the survey method was deemed to be the most appropriate for the current study. As seen earlier, survey research is usually quantitative, which necessitates standardising information used in defining or describing variables and their relationships in a study. Such information was supplemented by means of qualitative data obtained from interviews, in order to enhance the validity of the findings concerned. According to Forza (1998), surveys are either descriptive or relational. Whereas descriptive surveys are intended to describe the prevailing situation, relational surveys are designed to examine relationships among two or more variables in an exploratory or confirmatory empirical way. The current study seeks to explore the interdependence of knowledge management practices and organisational learning in terms of a relational survey design.

3.4 Population of the study

The target population in the current study comprised the academic staff members of higher education institutions in Uganda with knowledge management and organisational learning practices being measured indirectly by means of assessing the perceptions of such staff members. Such staff were deemed to be fully conversant with the phenomena being investigated, due to them either influencing, or being affected by, those knowledge and learning processes which occur in higher education institutions.

For purposes of the current research, the term ‘higher education’ refers to universities, business schools and management development institutes. In total, 29 higher education institutions were registered with the National Council for Higher Education (NCHE) at

the time of the data collection for the study, which took place in November 2007. After initial correspondence with such institutions, only six agreed to take part in the study. The six participating institutions were four universities (two privately owned and two government/publicly owned), one business school and one management development institute.

As previously stated, the current study was designed to collect information only from academic staff. For purposes of the current study, the term 'academic staff' refers to those employees of higher education institutions with academic responsibilities. Such staff included the lecturers (irrespective of the position held), the librarians, the researchers, and the information technology staff, who are generally known by the title of 'systems administrator'. The respondents were expected to provide relevant information for the current research, due to them being at the crux of the core business of higher education institutions, as well as due to their concern with knowledge and knowledge-related activities at the institutions concerned. In all, the institutions had a total population of 1672 academic staff, in terms of the report produced for the NCHE in 2007 (NCHE, 2007).

3.5 Sample size and Sampling procedure

According to Cooper and Emory (1995: 200), "sampling assumes that by selecting part of the elements in the population, conclusions may be obtained about the entire population". Sampling falls into two major categories: probability and non-probability sampling. Probability sampling is, additionally, organised in terms of simple random, complex random, systematic, cluster and stratified sampling (Cooper and Emory, 1995). Non-probability sampling, in contrast, constitutes convenient sampling, purposive sampling, and snowball sampling. The current study applied a non-probability convenient sampling approach, mainly as a result of it not being possible to reach all academic staff members who are employed by all the higher education institutions which are located at some distance from one another in Uganda.

The following three techniques were applied in determining the sample size for the current study:

1) The first approach followed Krejcie and Morgan's (1970) table, as reproduced by Sekaran (2003: 294). According to the table concerned, the corresponding sample for the population of approximately 1 672 (which is the population for the current study) is given as approximately 313 respondents.

2) The second approach entailed computing the sample size using the formula provided by Yamane (1967), which is depicted as follows:

$$n = \frac{N}{1 + N\ e^2}$$

Where:

n = the sample size

N = the population of the study

e = the level of significance (set at 0.05 for this study)

To arrive at the sample size, the above formula was used by substituting with known quantities as follows:

$$n = \frac{1672}{1 + 1672\ x\ 0.05^2}$$

$$n = \frac{1672}{1 + (1672\ x\ 0.0025)}$$

$$n = \frac{1672}{1 + 4.18}$$

$$n = \frac{1672}{5.18}$$

$$n = 322$$

3) The third technique which was applied was introduced mainly to satisfy the conditions for factor analysis. The technique followed Hair, Black, Babin, Anderson and Tatham's (2006) recommendations that those observations which are conducted in a study must be at least five times as many as the number of the variables analysed, which implies attaining a ration of 5:1. In the current study, 34 items were used in terms of the Knowledge Management Scale, with 21 items being used in terms of the Organisational Learning Scale, giving a total of 55 items. The corresponding number of observations, on the basis of the 5:1 ratio, therefore, is expected to be 275 observations (55 × 5). Use of such a method required that the appropriate sample be constituted of 275 respondents.

The recommended sample was decided upon by using all three techniques, namely those of Sekaran (2003: 294) = 313; Yamane (1967) = 322; and Hair et al. (2006) = 275. In the study, 330 questionnaires were distributed, thus exceeding the number which is recommended by such techniques. The number of responses ultimately used for the analysis was 270.

The current study applied certain principles gleaned from the projective technique to elicit the perceptions of academic staff in higher education institutions about knowledge management and organisational learning practices at their respective institutions. Such techniques comprise research participants "projecting their subjective ideas and contents on an object" or on a third party (Dichter, 1964, as cited in Boddy, 2005: 240). Although projective techniques have been widely used in both psychological and market research, they are increasingly being applied in social and educational research (Catterall and Ibbotson, 2000). Despite such a technique not reflecting reality exactly, its use was seen to be essential in regards to providing the required data for analysis at both the individual and the organisational level. Two datasets were created "with different units of analysis" in keeping with Schulenburg's (2007: 107) study, with the first dataset reflecting

variables at individual academic staff level and the other reflecting variables aggregated at institutional level. Such disaggregation was instrumental in facilitating the following two phases of analyses:

1) The descriptive analysis, which compared knowledge management and organisational learning practices at different institutions in line with Filius et al.'s (2000) procedure, used an institutional dataset'
2) The relational analyses (regressions and canonical correlations), which required relatively more data, utilised the individual level dataset.

3.6 Instrumentation and measurement of variables

The main objective of the current study was to determine the interdependence of knowledge management practices and organisational learning practices at higher education institutions in Uganda. The following instruments were merged to form that which was used in the survey to measure the variables in the study:

1) the knowledge management practices questionnaire, which was initially developed by Filius et al. (2000), and which was later replicated by Yahya and Goh (2002); and
2) the Dimensions of the Learning Organisations Questionnaire (DLOQ), which was developed by Watkins and Marsick (1993).

The instruments used are outlined in Table 3.4 below.

Table 3.4: Summary of the instruments used in the questionnaire

Concept	*Original author*	*Subscales*	*Number of items*
KM	Filius et al. (2000)	Knowledge acquisition	7
		Knowledge documentation	6
		Knowledge transfer	6
		Knowledge creation	7
		Knowledge application	8
OL	Watkins and Marsick (1993)	Individual level learning	6
		Team level learning	3
		Institutional level learning	12
Total number of items used			**55**

3.6.1 Knowledge Management Scale

The Knowledge Management scale was used for measuring knowledge management practices in the institutions which were surveyed. The items used to describe such practices were adopted from an instrument developed by Filius et al. (2000), with the practices including knowledge acquisition, documentation, transfer, creation and application, as can be seen below:

1) *Knowledge acquisition* relates to the respondents' perceptions of the extent to which their institutions acquire knowledge and encourage such knowledge acquisition. Such knowledge acquisition, which includes obtaining knowledge from competitors and other stakeholders, was measured in terms of seven items.
2) *Knowledge documentation* relates to the respondents' perceptions regarding the extent to which organisations document, and inventorise, the knowledge within an organisation by means of following systematic procedures, such as the keeping and updating of handbooks. Such documentation was measured in terms of six items.
3) *Knowledge transfer* relates to the respondents' opinions as to the extent to which knowledge is transferred and shared in the institution. A number of statements were used to measure the respondents' perception on such knowledge transfer mechanisms as mentorship and knowledge distribution channels. Such transfer was measured in terms of six items.
4) *Knowledge creation* relates to the measurement of respondents' perceptions as to the extent to which new ideas are generated and used in the course of their day-to-day activities in order to improve their processes. Such creation was measured in terms of seven items.
5) *Knowledge application* relates to the practical aspects and utilisation of knowledge, including the extent to which knowledge is deployed at work. Such application was measured in terms of eight items.

The above-mentioned items focus largely on the extent to which the knowledge and experiences of employees are integrated in their day-to-day work activities. Minimal modification of the tool was performed to reflect the inherent differences between profit-

making companies (such as those which comprised Filius et al.'s [2000] sample) and the higher education institutions (which formed the sample in the present study).

A 7-point Likert scale was used, with the respondents being asked to indicate the extent to which they agreed or disagreed with the statements with which they were presented. (See Appendix One for the detailed questionnaire used in the study.)

3.6.2 Organisational Learning Scale

Based on the works of Watkins and Marsick (1993), organisational learning is perceived to take place at three levels: individual, team/group, and institutional/organisational. Such levels correspond with the above researchers' seven dimensions of the learning organisation, as well as with the instrument, the Dimensions of Learning Organisation Questionnaire (DLOQ), which they evolved. The three levels are as follows:

1) The first level consists of individual learning, which encompasses the two dimensions of organisational learning (continuous learning/dialogue and inquiry).
2) The second level consists of team or group-level learning, which is reflected captured in the collaboration and team learning dimension.
3) The third level, which consists of organisational learning, covers four dimensions of learning: embedded systems; system connection; empowerment; and leadership for learning.

The DLOQ has been extensively used by researchers and practitioners to measure organisational learning and to identify problems associated with learning, which still require resolution. Of the seven dimensions, two (continuous learning and dialogue and inquiry) represent individual learning, which is measured at individual level, one dimension (collaboration and team learning) corresponds to learning at team level; whereas four dimensions (embedded systems; system connection; empowerment; and leadership for learning) correspond to learning at organisational or institutional level.

The DLOQ has been extensively used to measure organisational learning by both researchers and practitioners in order to identify learning problems in organisations. The

questionnaire has proved to be a valid and reliable assessment tool for organisational learning by, most notably, Hernandez and Watkins (2003), Lien, Yang, and Li (2002), and Yang et al. (2004). Three versions of the DLOQ exist, with the first having a total of 43 items, whereas the second has 21 items, and the third 7 items. According to Yang (2003), the first version, which provides a comprehensive assessment of organisational learning, based on seven different dimensions, has the capacity to provide more information on which to base decision making about the positioning of interventions in an organisation. Yang et al. (2004) concluded from their study which was intended to measure and validate the construct of a learning organisation that a shorter version of the instrument was needed, which would, nevertheless, retain the same psychometric properties. The shortened version of the instrument, according to Yang et al. (2004: 46), "is of particular interest for research purposes when it can be incorporated with other instruments in examining relationships among several important organisational variables". Such a version constitutes 21 items, which are grouped in terms of three different variables: individual, team, and institutional learning. The current study used the 21-item version of the DLOQ to measure organisational learning at individual, team/group and institutional/organisational level.

The individual learning level items include continuous learning and dialogue for inquiry, which was measured in terms of six different items, in accordance with Yang et al.'s (2004) shortened version of the organisational learning instrument. The team/group level learning dimensions were represented by collaboration and team learning, which were measured by three items. Twelve items, which were represented by four different learning dimensions, consisting of embedded systems, system connection, empowerment, and leadership for learning, were used to measure organisational or institutional level learning. Similarly, on a 7-point Likert scale, the respondents were asked to indicate the extent to which they agreed with the statements with which they were presented, with 7 representing 'strongly agree' and 1 representing 'strongly disagree'.

3.7. Procedure for data collection and handling

3.7.1 Administration of the questionnaire

A self-administered questionnaire was constructed, based on the two above-mentioned instruments. The first section of the questionnaire contained questions relating to institutional data, which included the name, ownership and type of institution. The second section, which contained questions about knowledge management practices, consisted of the following five subsections:

1. Subsection A contained questions regarding knowledge acquisition.
2. Subsection B contained questions regarding knowledge documentation.
3. Subsection C contained questions regarding knowledge transfer.
4. Subsection D contained questions regarding knowledge creation.
5. Subsection E contained questions regarding knowledge application.

The third section of the questionnaire, concerning organisational learning, was split up into the following three subsections:

1) Subsection F contained items relating to learning practices at individual level.
2) Subsection G contained items relating to learning practices at team/group level.
3) Subsection H contained items relating to learning practices at institutional level.

The combined tool was pre-tested with students in the Masters of Management Studies class at Uganda Management Institute, drawn from different higher education institutions, and with twelve lecturers from different universities. After completing the questionnaire, the participants gave their qualitative comments on the questionnaire. Such comments were mainly related to the wording and length of the questionnaire. Since the previous tools had been used for research different organisations, the respondents of the pre-test group suggested that the word ‘organisation’ be replaced with ‘institution’. and that the word ‘unit’ or ‘section’ be replaced with the word ‘department’ or ‘faculty’, as appropriate. Although the pre-test group considered the questionnaire to be too long, the researcher did not find it necessary to reduce the number of items in the questionnaire, since it was a combination of previously used instruments.

A letter requesting permission to collect data from academic staff who were respondents in this study was sent to the heads of all 27 institutions concerned, together with a letter from the researcher's supervisor. As has already been stated, only six institutions were prepared to have their employees participate in the study. A contact person was identified at each such institution, to whom the questionnaires were sent for distribution to, and collection from, the respondents concerned with the study. The contact person approached each potential respondent, giving out the questionnaire only to those who expressed willingness to participate in the study. Only full-time academic staff members were requested to participate in the study.

The researcher, together with a research assistant who was trained to assist with the study, physically collected all the completed questionnaires from the contact persons at each institution. Figure 3.1 below summarises the processes that were undertaken during the data collection process.

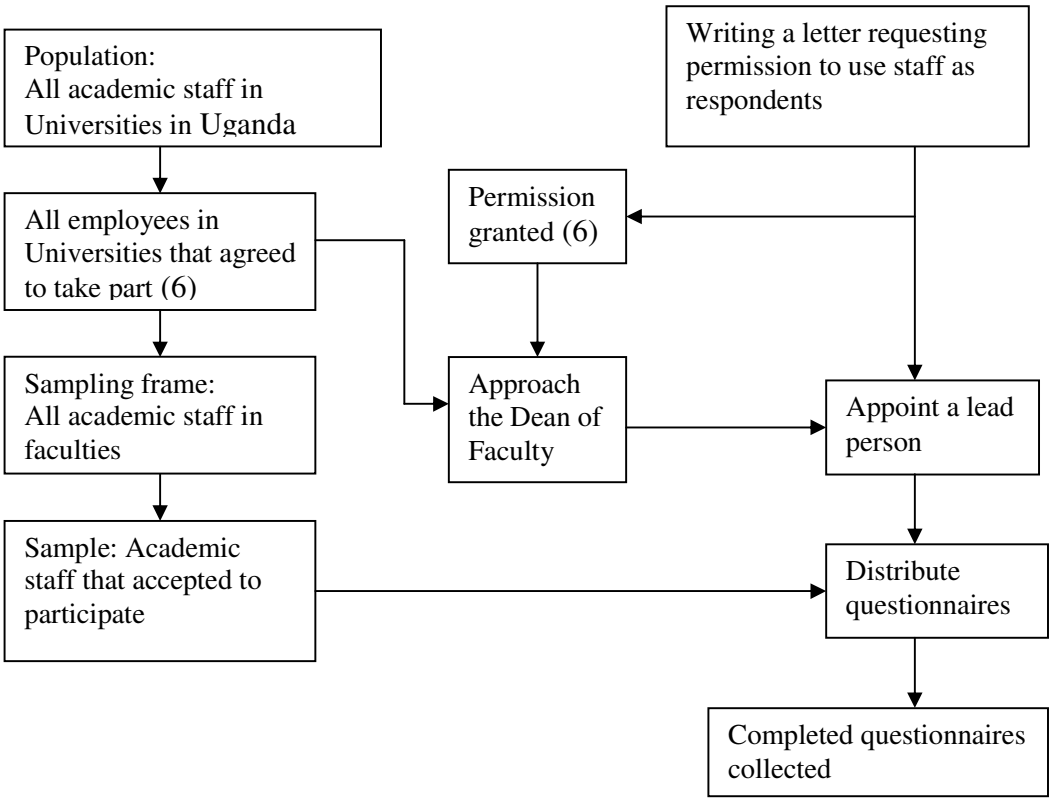


Figure 3.1: Procedure for data collection using questionnaires

3.7.2 Coding and data entry

The completed questionnaires were coded, with the raw data being entered onto the Statistical Package for Social Scientists (SPSS) program, Version 12.0. Due to the fact that the data were collected by means of self- administered questionnaires, no opportunity existed for ensuring that all items on the instrument were responded to. As a result, some questionnaires were returned incomplete**.**

Such gaps in data may cause two major problems, according to Roth and Switzer (1995). One major problem is that missing data have the potential to reduce the statistical power of the study, because a large sample size has to be obtained to make statistical tests accurate. According to Roth and Switzer (1995), the other problem which is associated with missing data is that such lack of data negatively affects the accuracy of parameter estimation, by increasing the variance around true scores due to there being less data available for analysis. They suggested a number of different guidelines for dealing with gaps in the data set, including list-wise deletion, pair-wise deletion, and mean substitution. List-wise deletion refers to a situation in which all data for a given individual entry with missing data is eliminated. Pair-wise deletion, in contrast, eliminates information on a statistic-by-statistic basis. Conversely, mean substitution inserts the mean value of the variable in the place of the missing value. In the current study, the pair-wise deletion approach was used, as it saves some data that would otherwise be lost with use of list-wise deletion.

The response rate for the study was 87%, which is considered very good, according to Babbie (2007), and which should indicate that the current survey research study is successful. According to Frohlich (2002), the response rate is important, because many statistical tests require a suitable number of cases for appropriate analysis. High response rates also serve as an indirect indicator of the relevance and the rigour of the research conducted.

3.8 Key informant interviews

Key informant interviews were used to supplement the quantitative data which were collected by means of questionnaires. The interviews were conducted with senior managers and lecturers in the higher education institutions, as well as with some professionals in the fields of organisational learning and knowledge management. When academics in organisational behaviour and learning and the staff of higher education institutions who were responsible for knowledge management were interviewed, they provided information in respect of knowledge management activities and organisational learning practices in higher education institutions. In addition, they provided insight into how organisational learning and knowledge management practices are interdependent on each other in the higher education setting. According to Kvale (1996), interviews are beneficial to studies in the following ways:

1) Firstly, they allow the respondents to describe what is meaningful or important to them in their own words, rather than in terms of pre-determined categories, which results in them feeling more relaxed and able to be more candid.
2) Secondly, they provide results that have high credibility and face validity.
3) Thirdly, they give the researcher an opportunity to probe for more details and to ensure that respondents understand questions in the way in which the researcher intended them to be understood.
4) Fourthly, they enable interviewers to use their knowledge, expertise, and interpersonal skills flexibly in order to explore interesting or unexpected ideas about themes which are raised by respondents.
5) Lastly, they provide an opportunity for the researcher to observe the non-verbal communication of the respondent.

The main two drawbacks that interviews have is that, firstly, they cost a great deal in terms of money and time, and, secondly, they may be subject to researcher bias, with the researcher prompting the respondent in the direction in which he or she wants the research to go. In the current study, such disadvantages were minimised by means of adherence to the predetermined interview guide, as well as by the researcher creating a

good rapport with the respondent by encouraging the latter's participation in the interview process.

Key informant interviews made it possible for the researcher to gain in-depth understanding of the relationships between organisational learning and knowledge management practices by soliciting the respondents' views on the subject matter. The gaining of such understanding was made possible through the building of sufficient rapport with the respondents, and through ensuring that the respondents clearly understood the questions which they were required to answer.

As has already been stated, the sample of respondents for the interviews was selected from those who were willing to participate in the study. Appointments were made with such participants telephonically. A number of the individuals who were initially targeted for such interviews turned down the request, citing lack of time as one of the reasons for them not taking part in the study. The number of individuals contacted and those interviewed is indicated in Table 3.5 below.

Table 3.5: Distribution of key informants

Institution category	*Number contacted*	*Number interviewed*
University	25	4
Business school	16	5
Management development institute	07	4
TOTAL	48	13

The semi-structured interview guide (see Appendix 2) was used during the interviews, with the respondents being asked to comment on knowledge management practices and organisational learning within their respective institutions. Other questions were related to their perception of the linkages between knowledge management and organisational learning. On average, each interview lasted for 90 minutes.

Content analysis, which is a technique in terms of which a message is analysed within a particular context, was used to analyse data from the interviews. The technique involves

analysing words, themes, ideas, or phrases. As stated by Babbie (2007), use of the technique requires empathy to be applied for the proper interpretation to be achieved.

3.9 Reliability and validity of quantitative data

3.9.1 Reliability

Reliability refers to the extent to which a measurement scale or a test is dependable, consistent, predictable and stable (Kumar, 1996: 142). Such a concept refers to whether one can obtain the same answer in repeated use of the same instrument. The greater the consistency of an instrument, the more reliable it is. Sekaran (2003) posits that reliability refers to the extent to which a set of variables is consistent with what it is intended to measure. Expressed differently, reliability is the ability of the research tool to produce the same results when it is used at different times, but in a similar setting. In other words, reliability measures how reproducible survey data are, using the same survey instrument. The reliability of the scale, therefore, is the degree of accuracy with which it measures what it is supposed to (Ary et al., 2002). According to Nunally (1978), four methods are commonly used to assess the reliability of survey instruments, namely: a) the test–retest method; b) the alternate form method; c) the split halves method; and d) the internal consistency method.

The *test–retest method* requires that the same tool be administered to the same sample of people at different times in order to test the degree of stability of responses, and to determine whether their responses remain the same over time. Following on such testing is the calculation of the correlation coefficients of the responses concerned. If the correlation of the responses obtained in the first test and those obtained in the second test is 0.70 or above, the instrument is deemed reliable (Nunally, 1978).

In the *alternate form method*, the tool is first administered to a sample of respondents, after they have completed and returned the questionnaires. The words and their sequence in the instrument are then interchanged, though the meaning of the sentences is retained. After the modification, the tool is administered to the same sample again. As in the previous case, the correlation analysis is then computed on the two sets of responses. If the correlation

coefficient between the first and second set of responses is found to be above .70, the instrument is deemed reliable.

The *split halves method* requires a large sample, which can be split into two halves. Each half is given an alternately worded instrument. Once each instrument is completed and returned, the correlation coefficients are calculated, which, if found to be above .70, shows that the tool can be considered reliable.

The *internal consistency method* is the most commonly psychometric measure of assessing survey instruments and scale. The method indicates how well different items on a scale measure the concepts which they are purported to measure. Such measurement is essential, because different items which are considered to have the capacity to measure one variable should clearly focus on the variable concerned. Internal consistency is calculated by measuring a statistic known as the Cronbach's alpha (Cronbach, 1951; Nunally, 1978), which reflects the homogeneity of a scale. According to Nunally (1978), Cronbach's alpha is considered a good measure of reliability in social science research when it is found to be .70 or above. The higher the Cronbach's alpha (close to 1) in relation to an instrument is found to be, the more reliable the instrument concerned is.

A comparison of the four methods highlighted above reveals that the first three present methodological disadvantages. The test–retest is time consuming, and the respondents may exhibit response fatigue as a result of being subjected to repeated testing by the same instruments. The use of the alternative form method is also difficult to administer, as well as time consuming regarding the reformulation of the items on the instrument, whereas the split halves method is subject to variations in the different halves of the samples concerned. The internal consistency method does not present such problems, as it requires only a single administration, and does not require the rewording of items on the scale. Even more importantly, such a method provides a unique test of reliability from only a single administration. The current researcher, therefore, adopted such a method for assessing the reliability of the tools used.

According to Kumar (1996), a number of factors may affect the reliability of an instrument, including the wording of the questions, the mood of the respondent and the nature of interaction between the researcher and the subject. To enhance the reliability of the instrument used in the current study, a pilot test was conducted on Master of Management Studies (MMS) students who were registered with the Uganda Management Institute, as well as with 12 lecturers from a higher education institution, who provided feedback on the way in which the questions were formulated, as well as on their wording, and on the length of the questionnaire. The questionnaire was revised after the pilot test to address the concerns raised.

Cronbach's alphas were calculated for all subscales of the instrument to determine their reliability. The computation of Cronbach's alpha was used to measure how well the set of items chosen measured a single unidimensional latent construct. By determining the inter-item correlations using factor analysis, it is possible to tell whether the measurement instrument has a high or a low reliability. A low inter-item correlation indicates a low reliability of the instrument, meaning that the instrument is not consistent, whereas a high inter-item correlation means the instrument is highly reliable. Cronbach's alphas for all variables of this study were computed using SPSS, Version 12.0 and results are presented in chapter four of this thesis.

3.9.2 Validity

Validity refers to "the extent to which the empirical measure adequately reflects the real meaning of the concept under consideration" (Babbie, 1990: 133). Due to the fact that the study used instruments which had been developed and used on samples other than those in the higher education sector in countries other than Uganda, the researcher deemed it to be necessary to assess their validity. The validity of an instrument can be inferred from three perspectives: face and content, validity; concurrent, or predictive, validity; and construct validity (Kumar, 1996). *Face validity* refers to the judgement made of the instrument in respect of the logical linkage between the questions asked and the objectives of the research in question. *Concurrent validity* refers to the degree to which one instrument

compares with another when they are concurrently administered. Predictive validity, in contrast, refers to the extent to which an instrument can easily predict or forecast the outcome of a study. *Construct validity*, which is the most sophisticated method of testing validity of all three, aims at ascertaining the contribution which each construct makes to the total variance observed in the phenomenon.

In the current study, both the face validity and the construct validity tests were conducted. The face validity was established with the help of the Uganda Management Institute peer review study group, which comprised lecturers and researchers. They were asked to review the items on the questionnaire and assess the extent to which they reflected the meaning they are expected to measure. This process was followed by rewording some statements that were deemed not accurate. The construct validity was established by means of factor analysis, in terms of which a number of constructs were established, based both on the eigenvalues and on the percentages of variance explained by each construct. The eigenvalues and the variance which are explained by each are presented in Chapter Four in terms of factor analysis.

3.10 Establishing validity in the qualitative phase of the study

Validity and reliability measures have been largely applied in the positivist research paradigm, which involves quantitative data and analytical techniques (Golafshani, 2003). Since the two concepts are concerned with the level of dependability, credibility and consistency of the research findings and the analytical procedures, they should be oriented to qualitative research, as well as where such tenets are deemed paramount. Golafshani (2003) argues the need to demonstrate that the research is credible not only in quantitative, but also in qualitative, research. The adaptation of validity and reliability concepts should focus on ensuring the "credibility, transferability and trustworthiness" of the research concerned (Golafshani, 2003: 600).

The literature suggests a number of ways in which the credibility and trustworthiness of qualitative research can be tested and demonstrated. Creswell and Miller (2000) proposed

the following nine techniques, based on paradigm focus and the lens used by the researcher to validate the studies:

1) *triangulation*, in terms of which the researcher can operate across multiple sources of data, theories or methods;
2) *disconfirming evidence*, in terms of which the researcher can establish preliminary themes or categories, after which a search can be conducted to identify evidence that the data are consistent with the pre-formulated themes, or that the data disconfirm it;
3) *researcher reflexivity*, in terms of which the researcher discloses beliefs, values and opinions which may bias the inquiry;
4) *member checking*, in terms of which data and interpretations are fed back to participants in the study;
5) *prolonged engagement in the field*, in terms of which observations are repeated in order to build up trust with the participants in the study;
6) *collaboration*, in terms of which the participants in the study are included as co-researchers in the study;
7) *the audit trail*, in terms of which researchers provide clear and detailed documentation of all research activities and decisions;
8) *thick rich description*, in terms of which "deep, dense and detailed" (Denzin, 1989: 83) accounts of the study are provided; and
9) *peer briefing*, in terms of which debriefing about the data and the research process is conducted by someone who is conversant with the research or the phenomenon being explored.

There are pros and cons for each of the above techniques. For example, where as prolonged engagement in the field ensure repeated observation and trust building, it requires a lot of resources including time and funding for research. This applies to member checking and collaboration procedures, but in addition the participants may have little interest in continuing to be part of the study process after interviews. Researcher reflexivity and thick rich description procedure is more applicable to phenomenological

studies and researchers using a constructivist perspective. Both approaches also require much time.

In the light of the post positivism approach taken in the current study, the appropriate validity approaches applied were triangulation, disconfirming evidence and peer debriefing, as described below:

1) In *triangulation* across multiple sources of data, the researcher conducted interviews with the representatives of academic staff separately from that which was conducted with a representative of the management of the participating institutions. Such separate interviewing provided an opportunity to cross-check the evidence which was gathered from each set of respondents. In addition, follow-up interviews were conducted to clarify some of the issues that appeared to have been either ambiguous or incomplete during the interpretation phase.
2) *Disconfirming evidence* was also applied as a measure to ensure the credibility of the qualitative phase. Such application took the form of establishing preliminary themes, which were based on the reviewed literature, consisting of knowledge documentation, transfer, acquisition, application, and creation (for knowledge management practices), and of individual, team and institutional learning (for OL). During the interviews, care was taken to identify those activities undertaken in the institution concerned which corresponded to a priori themes.
3) *Peer debriefing* also provided an opportunity for improving the credibility of the study. Such research was conducted with the help of a research assistant. After every interview, both the researcher and the researcher assistant compiled summaries of the interview data using the summary sheets concerned. On several occasions, the research assistant provided a different outlook on the way in which the responses were treated. The interview notes were shared with a study group of PhD students at the researcher's institution in order to obtain feedback on the study methodology, thus contributing to the overall credibility of the study. Additional credibility was provided by the researcher's supervisors, who gave feedback on the draft reports.

3.11 Ethical considerations

In social science research in particular, and in research in general, the ethical implications of the study for both the researcher and the respondents must be considered. According to Sekaran (2003), ethical issues are related to how respondents are treated, and to how confidential information is safeguarded during the research process. The current researcher collected data in two phases. The first phase involved a survey, in which respondents were required to complete questionnaires, whereas the second phase involved conducting interviews with key informants from selected institutions. Due ethical consideration was applied in both phases.

In the quantitative phase, permission was obtained from the heads of institutions or their representatives to collect data from employees at their institutions. The researcher was, in each case, referred to the Dean of Faculty, who asked the faculty members to willingly participate in the study. To ensure the anonymity of the respondents, they were asked not to indicate their names on the questionnaires concerned.

During the qualitative phase, a number of possible key informants were approached, of whom some refused to participate for various reasons, including the desire not to disclose certain information about their organisations. Those who accepted were informed that their responses would be kept as anonymous as possible, and that their names would not be revealed in the final report. However, for purposes of the follow-up interviews, their details were kept by the researcher. In the presentation of the results of the study, the responses have been kept anonymous, in order to uphold the ethical position which had been agreed on with the respondents. In addition, the reporting was objective, based on the findings obtained.

3.12 Data analysis procedures

The following statistical techniques were applied both in the data analysis and in the hypothesis testing: factor analysis; correlation analysis; multiple regression analysis; and canonical correlation analysis. The SPSS, Version 12.0, was used in all the analyses.

3.12.1 Factor analysis

Factor analysis is a multivariate statistical technique, which is used for the resolution of a set of a large number of variables in terms of relatively few hypothetical variables, called factors (Rummel, 2007; Shenoy and Madan Pant, 1994). Such analysis is also used to find ways of condensing that information which is contained in a number of original values into only a few dimensions. Factor analysis attempts to explain the correlations among the variables by yielding only a small number of underlying factors, which contain all the essential information about the linear interrelationships among the variables concerned. According to Shenoy and Madan Pant (1994: 258), factor analysis results serves three main purposes:

1) to identify the underlying, or latent, factors which determine the relationship between observed variables;
2) to clarify the relationship between the variables; and
3) to provide a classification scheme, in terms of which data scores on various rating scales are grouped together.

As the current study combines two scales previously used for different populations in a different setting, it required a determination of psychometric properties by means of factor analysis.

Lewis-Beck (1994: 4) states that factor analysis takes "the form of either exploratory factor analysis, or of confirmatory factor analysis". In *exploratory factor analysis*, the researcher may be unaware of the number of dimensions in a given data set, requiring that a factor analysis be undertaken by means of observed covariance in order to explore to what extent the data can be reduced. In contrast to such a method, in *confirmatory factor analysis* the researcher, who may anticipate that there are a number of different variables underlying certain dimensions, whereas others belong to other dimensions, uses factor analysis to confirm such an assumption. The current study applied exploratory factor analysis to determine the factor loadings on variables in the study. The eigenvalues greater than 1.00 rule, the variance explained criterion and the Bartlett test of sphericity were used to obtain the number of factors extracted. Such use was complemented by the theoretical basis upon which the factors in each variable set were determined. After the

number of the factors extracted was determined, the data analysis was undertaken, based on the factors extracted.

3.12.2 Correlation analysis

In the social sciences, researchers seek to understand and explain the nature of relationships between different variables or phenomena. The phenomena are operationalised into measured relationships, which are observed or tested. Accordingly, correlations serve as empirical indications of possible relationships between variables. Discovering that a correlation exists does not mean that the existence of a causal relationship has been proved.

Correlation analysis determines the relationships between two or more variables or sets of variables. Such analysis explains three fundamental dimensions: significance, direction, and magnitude (Sekaran, 2003). The numbers of variables correlated may lead to the classification of basic kinds of correlations, consisting of either bivariate or multiple correlations. Whereas some bivariate correlations, called symmetric correlations, are non-directional, other bivariate correlations, called asymmetric correlations, are directional. In the current study, bivariate correlation analysis using a Pearson correlation matrix was used in order to determine how the variables in the study and their respective dimensions related to one another. The results of the analysis are presented in Chapter 5.

3.12.3 Regression analysis

Regression analysis consists of the determination of the statistical relationship between two or more variables (Kothari, 2004). Such analysis is a technique whereby the value of the dependent variable is predicted, using one or more independent variables. Regression analysis can either be simple or multiple. In a simple regression, only two variables, the independent and the dependent variables, are considered for analysis.

The basic relationship in a simple regression is depicted by the following formula:

$$\gamma = \alpha + \beta X$$

where γ = the dependent variable; α = constant; β = the beta coefficient; and X = the independent variable.

In multiple regression analysis more than one independent variable is considered, which enables the magnitude of the direction to be determined, as well as the relationship between a number of variables, with the independent and the dependent variable under consideration. The relevant equation is expressed as follows:

$$\gamma = \alpha + \beta X_1 + \beta X_2 + \beta X_3 + \beta X_4 + \beta X_5$$

where γ = the dependent variable; α = the constant; β = the beta; and X_1-X_5 = the independent variables. The current study, whose main objective was to determine the interdependence between knowledge management practices and organisational learning in higher education institutions, applied the multiple regression analysis procedure to ascertain the degree to which such variables were interdependent on each other.

3.12.4 Canonical correlation analysis

According to Hair et al. (1998), canonical correlation analysis is a multivariate statistical technique, which facilitates the study of interrelationships among sets of multiple variables. Thorndike (2000), in contrast, defines canonical correlation analysis as an analytical method, which is used to investigate the relations among two or more variable sets. In canonical correlation analysis, the variables in each set are combined in such a way as to produce, for each set, a predicted value, which has the highest correlation with the predicted value in the other set (Lew and De Bruin, 2006). According to Thorndike (2000: 242), "a canonical correlation may be viewed as a product moment correlation between two weighted composites, in which the composites of a pair are defined in a manner that maximises their canonical correlation". Hair et al. (1998) state that canonical correlation analysis develops a number of independent canonical functions, which maximises the correlation between linear composites (a.k.a. canonical variates). The canonical variate, which is the square of the canonical correlation, expresses the

proportion of variance in each composite that is related to the pair of variables. Canonical correlation analysis helps to explain the features of the overall relationship between a set of variables, allowing for the correlation to be analysed not only in terms of individual correlations, but also according to the critical dimensions of the inter-relationship. "Squaring of the extracted canonical correlations results in an expression of the proportion of variance in each composite that is related to the other composite of the pair" (Thorndike, 2000: 244).

Weighted composites are referred to as 'canonical variates'. According to Lew and De Bruin (2006: 45), "the variance explained by a canonical variate may be partially separated from the original correlation matrix, with a second variate being formed from the residuals". In such a case, the second canonical variate will be orthogonal to (i.e. independent of) the first canonical variate, resulting in it explaining less of the variance than the first variate does. Such a process may be repeated until either a non-significant canonical variate is found, or until the number of the variates is equal to the number of variables in the smaller set. The benefits of canonical correlation analysis lie in it providing an overall picture of the dimensions (or variates) underlying the relationships between the two variable sets (Davies and Kanaki, 2006). Such a technique has been widely used in social science and behavioural research, resulting in the production of meaningful results. A few of the studies which have applied such a technique are those by Avlonitis and Gounaris (1999) on marketing orientation and its determinants, by Jiao and Onwuegbuzie (2002) on dimensions of library anxiety and social interdependence, and by Davies and Kanaki's (2006) on the interpersonal characteristics associated with different team roles in work groups.

As the current study sought to determine the dimensions of interdependence (or the interrelationship) between knowledge management practices and organisational learning, canonical correlation analysis was deemed an appropriate technique to apply.

3.13 Summary

Chapter Three described the research methodology applied in the study; it explained the underlying research philosophy and the justification for the choice of a mixed methodology approach. The chapter further highlighted the study design, the population, and sample, determination, sampling procedures and sample size, and data collection procedures. Procedures for determining the reliability and validity of the data, in addition to ethical considerations in this study, have been presented in the chapter. Finally the chapter explained the data analysis techniques used in the study. Chapter Four discusses the analysis of quantitative data.

CHAPTER FOUR
QUANTITATIVE DATA ANALYSIS AND PRESENTATION

4.1 Introduction

Chapter Four presents the analysis of quantitative data obtained in the study. The chapter starts with the response rates and the data cleaning exercise, which involved missing values analysis, testing of univariate outliers, and the conducting of normality tests. The descriptive analysis of data, according to the respective variables of the study, follows. The chapter ends with a discussion of the factor analysis procedure which was undertaken to achieve data reduction and a presentation of the determination of emerging factor structures, which are based on the eigenvalues and the percentage of variance explained by each factor.

4.2 Response rate

Following the sample selection procedures explained in Chapter Three, it was deemed appropriate to distribute a total of 330 questionnaires, of which 286 were returned, reflecting a response rate of 87%. Such a high response rate which indicates the degree of study relevance to respondents was attributed to the use of contact persons stationed at each of the institutions which had agreed to allow their employees to take part in the study, as well as the provision of frequent reminders, in terms of telephone calls, short message services and email messages sent by both the researcher and the research assistant. Despite such monitoring, 16 of the questionnaires returned were rendered unusable, because most of the items remained unanswered, whereas some of the items had been circled twice. In the final analysis, 270 questionnaires were used, indicating an 82% rate of usable responses. Table 4.1 below presents a summary of the response rate.

Table 4.1: The response rate for the current study

Questionnaire distributed	330
Questionnaires returned	286
Questionnaires not returned	44
Questionnaires returned but not usable	16
Returned questionnaires usable	270
Response rate	87%
Usable response rate	82%

4.2.1 Demographics of the sample

Responses in terms of institution

Table 4.2 below shows a breakdown of the responses received from the university, business school and management development institute which participated in the study.

Table 4.2: Responses according to the type of institution

Institution category	*Frequency*	*Percent*	*Cumulative percent*
University	188	69.6	69.6
Business School	40	14.8	84.4
Management Development Institute	42	15.6	100
Total	**270**	**100**	

As Table 4.2 above shows that the university provided the largest number of responses (188), which represents 69.6% of the total number of responses used in the study. The business school provided 40 (14.8%) of the responses and the management development institute provided 42 (15.6%) of the responses.

Responses in terms of ownership of the institution

The respondents indicated that the institutions at which they worked were either privately or publicly owned. (See Table 4.3)

Table 4.3: Responses according to category of ownership of institution

	Frequency	*Percent*	*Cumulative percent*
Public	207	76.7	76.7
Private	63	23.3	100.0
Total	**270**	**100.0**	

Table 4.3 above shows that more (207; 76.7%) of the respondents were from public (government) owned institutions than from privately owned institutions (63; 23.3%). Firstly, both the business school and the management development institute which participated in the study are government-owned, being the only institutions of the kind in Uganda. Consequently, the response rate from the government institutions was higher. Secondly, some of the academic staff at the private universities were excluded from the study because they work on a part-time basis.

Responses in terms of faculty

The academic staff members of the faculties of Arts and Social Sciences, Sciences, Education, and Business participated in the study. (See Table 4.4 below)

Table 4.4: Responses according to faculty

Faculty	*Frequency*	*Percent*	*Cumulative percent*
Education	42	15.6	15.6
Arts and Social Sciences	50	20.4	35.9
Business and Management	120	44.4	80.4
Science	53	19.6	100.0
Total	**270**	**100**	

Table 4.4 above indicates that most (120; 44.4%) of the responses for the study came from the Business and Management faculties. Such responses were followed in declining numbers by the faculties of Arts and Social Sciences (55; 20.4%), by the faculties of Sciences (53; 19.6%), and the faculties of education (42; 15.6%). The high response rates in terms of the faculties of business and management may be attributed to two main reasons. The first reason is that all responses from the Business School and the Management Development Institute were placed in the same Business and Management

Faculty category. The second reason is that the academic staff in the Business and Management faculties found the study more relevant to their own concerns; they also have more students which, at least partly, motivated their participation in the study.

4.3 Data cleaning exercise

The data cleaning exercise involved three analyses, namely the missing values analysis, a test of univariate outliers, and the normality test.

4.3.1 Missing value analysis

Missing values are problematic, as they affect the sample size, leading to a loss of data in the analysis. Missing values may also be an indicator that the study data are biased. Values in any data set can be missing either randomly or non-randomly. Random missing values may occur due to the fact that the respondent unintentionally did not respond to an item on the survey questionnaire. Conversely, non-random missing values, which are commonly found in surveys dealing with sensitive topics, arise when the respondent deliberately does not answer a survey item.

In the data set of the current study, the few missing values which were identified with the help of SPPS, Version 12.0, appeared to be random, since they presented no specific pattern. All missing values need to be dealt with as part of the data cleaning process. The following options are provided in the SPSS package for dealing with missing values in a data set:

1) ***Listwise deletion***, in terms of which SPSS excludes subjects with missing values in relation to the variable(s) from analysis. Such an option is disadvantageous, in the sense that some data tend to get lost, as the program removes all the data of those subjects who responded selectively.
2) ***Pairwise deletion***, in terms of which specific missing values are removed from the analysis. Pairwise deletion is advantageous in situations where the sample size is small, and where the number of missing values is high.
3) ***Imputation***, in terms of which the missing values are replaced, either by means of mean or regression substitution. In the former, the missing value is replaced with

the mean score of the variable, whereas, in the latter, regression analysis is used to replace the missing values.

The current researcher chose to use the ***pairwise deletion*** method, due to the fact that use of such a method saves some data that might otherwise be lost with use of the listwise option.

4.3.2 Univariate outliers test

Outliers are values which are extreme, relative to the rest of the data in a sample. Outliers have the potential of rendering the data set non-normal, posing serious implications for the use of statistical techniques especially parametric in which the normality of data is assumed (Osborne, 2002). Univariate outlier analysis can either be conducted on each of the survey items in a study, or on a composite variable, which averages the scores of items that measure a specific dimension. As the questionnaire used in the current study contained 55 survey items, it was deemed practical to carry out an outlier analysis, based on the following composite variables: knowledge documentation; knowledge transfer; knowledge application; knowledge creation; knowledge acquisition (for the Knowledge Management Scale); and individual learning; team learning; and institutional learning (for the Organisational Learning Scale).

With the help of SPPS 12.0, and observing the box plots concerned, some outliers were detected for each of the composite variables, as shown in Table 4.5 below. Examination of such outliers in the raw data revealed that the majority resulted from coding errors.

Table 4.5: Outliers from box plot observations

No.	*Composite variable*	*Number of outliers based on the box plot*
1	Knowledge documentation	4
2	Knowledge transfer	3
3	Knowledge application	6
4	Knowledge creation	6
5	Knowledge acquisition	5
6	Individual learning	4
7	Team learning	6
8	Institutional learning	4

Literature suggests the following ways of dealing with outliers:

1) Those values which appear as outliers may be deleted, by declaring them to be missing values.
2) The variable may be deleted from the analysis, if it is discovered that the question was inappropriately formulated.
3) A mathematical transformation procedure may be run.

Owing to the fact that outliers in the study were few, and were a result of coding errors, the first option of deleting the outliers and treating them as missing values was chosen.

4.3.3 Test of normality of data

A number of statistical procedures assume that data are normally distributed (Osborne, 2002). A normal distribution can be defined as a symmetric bell-shaped curve, which is defined by the mean and the variance. Violating such an assumption significantly may lead to a type I or type II error being committed, based on the type of analysis conducted (Osborne, 2002). Mecceri (1989), however, postulates that true normality seldom occurs in education and psychology studies. Some researchers have even argued that normality is a matter of degree.

Normality assessment may be conducted using either a graphical or numerical procedure. Whereas the former procedure relies on visual inspection, the numerical procedure relies on statistical tests. Graphical procedures include histograms and stem leaf, whereas numerical procedures include inferential tests, such as the Kolmogorov-Smirnov (K-S) test and the Shapiro-Wilk (S-W) test. Such tests compare the normality of data to the normal distribution, which has the same mean and standard deviation as does the sample. The current study opted for carrying out the numerical tests, because they offer the advantage of providing an objective judgement, rather than a visual inspection. The K-S test is considered appropriate for samples larger than 2 000, whereas the S-W test is deemed appropriate for samples ranging from 50 to 2 000. As the current study contained 270 usable responses, the S-K test was the appropriate test to use. As is the case with tests which are conducted on univariate outliers, it was considered practical to carry out the test

of normality using composite variables. The results of the test, using SPSS, Version 12.0, are reported in Table 4.6 below.

Table 4.6: Results of the Shapiro-Wilk (S-W) test of normality of data.

No	*Composite variable*	***Shapiro-Wilk (S-W) test***	
		Statistic	*Significance*
1	Knowledge documentation	.984	.062
2	Knowledge transfer	.989	.089
3	Knowledge application	.991	.261
4	Knowledge creation	.985	.164
5	Knowledge acquisition	.992	.295
6	Individual learning	.987	.071
7	Team learning	.982	.068
8	Institutional learning	.990	.072

According to the S-K test, the null hypothesis (i.e. that no difference exists between the distribution of the data set and the normal distribution) was tested. In keeping with convention, the alpha level was set at 0.05. Such a hypothesis can only be rejected if the p-value from the test is less than 0.05 (meaning that it is significant). If such a value is greater than 0.05 (meaning that it is non-significant), the null hypothesis cannot be rejected. As Table 4.6 above shows, the p-values for the composite variables were as follows: for knowledge documentation .062; for knowledge transfer .089; for knowledge application .261; for knowledge creation .164; for knowledge acquisition .295; for individual learning .071; for team learning .068; and for institutional learning .072. All such values were found to exceed 0.05, which implies that the null hypothesis that states that there is no difference between the distribution of this data set and the normal distribution is accepted.

4.4 Descriptive analysis

In the current study, descriptive statistics were computed from the responses obtained in order to determine the means and standard deviations for the variables in the study. The use of such a technique facilitated the displaying and interpretation of data (Levin and Rubin, 2000). Ascertaining the frequency of a given phenomenon in a study requires computation of the means or the average scores of data collected, as well as the variability scores of the responses on various items in the questionnaire, which are represented by the respective

standard deviations. The current study collected behavioural data obtained in response to the application of a 7-point Likert scale.

According to Stacey (2005), enhancing the reliability and validity of ordinal data requires that they be transformed into interval data, which can be achieved in one of the following ways:

1) The algorithmic approach optimally fits distributions to observed response frequencies.
2) The correspondence analysis approach rescales ordinal data as interval level data.
3) The interval scale assumption approach assumes that data are collected by means of the application of the 7-point Likert scale to the interval data.

The current researcher applied the latter approach, due to the possibility that ordinal responses could lead to fruitful results (Stevens, 1951, as cited by Stacey 2005). Abelson and Tukey (1959) argue that ordinal level data can be considered to be interval level data for the purposes of analysis. Table 4.7 below reflects the descriptive statistics of the study variables.

Table 4.7: Descriptive analysis of study variables

Variable dimension	*Mean*	*Standard deviation*
KM practices		
Knowledge transfer	4.28	1.38
Knowledge documentation	4.33	1.02
Knowledge creation	4.71	1.35
Knowledge acquisition	5.06	1.18
Knowledge application	4.80	1.14
Organisational learning practices		
Individual level learning	4.44	1.35
Team level learning	4.67	1.34
Institutional level learning	4.82	1.52

4.4.1 Descriptive analysis of knowledge management practices

As shown in Table 4.7 above, the mean score (the measure of central tendency) obtained for knowledge management practices was found to range from 4.28 on a scale of 7, with a standard deviation (the measure of dispersion) of 1.38 being the lowest for knowledge transfer, and 5.06 being the highest mean, scored by knowledge acquisition, with a

standard deviation of 1.18. In relation to the remaining variables, knowledge documentation had a mean of 4.33 with a standard deviation of 1.02; knowledge creation had a mean of 4.71, with a standard deviation of 1.35, and knowledge application had a mean score of 4.80, with a standard deviation of 1.14. The small range of standard deviations (1.02–1.38) for the different dimensions of knowledge management indicates that the responses received in response to the questions asked were not widely dispersed. Such a finding was important for the study, as it facilitated the use of appropriate parametric tests in further analysis.

4.4.2 Descriptive analysis of organisational learning dimensions

The highest mean score for the organisational learning dimensions was attained by institutional learning (4.82), with a standard deviation of 1.52, followed by team learning, with a mean score of 4.67, and a standard deviation of 1.34. The lowest mean in terms of organisational learning was recorded in terms of individual learning, with a score of 4.44, and a standard deviation of 1.35. By implication, such responses were not widely dispersed from the normal distribution.

4.5 Construct validation using exploratory factor analysis

Factor analysis was conducted using the procedure outlined in section 3.12 of this thesis. Validating the tools used in the study was deemed important, because they had never before been used in the higher education context in Uganda. The following criteria were applied:

1) The *Bartlett test of sphericity*. The test allows for the presence of correlations among the variables to be studied. Such a test gives evidence of the statistical probability that a correlation matrix has significant correlations among some of the variables concerned (Hair et al., 1998)
2) *Measures of sampling adequacy*. Such measures calculate the entire correlation matrix and each individual variable, in order to determine the appropriateness of applying factor analysis procedure to the study. The measures of sampling adequacy above 0.5 for the whole matrix or for an individual variable indicates

appropriateness, with measures above 0.8 being taken to be meritorious (Hair et al., 1998)

3) *Communalities* represent the shared or common variance among the variables. Factors originating from common factor analysis are based on common variance alone. If the communality exceeds 1, problems with the solution are presumed. In contrast, very low communalities are a sign of unrelated variables in the set. According to Hair et al. (1998), values above 0.6 are considered to be acceptable.

4) *Percentage of variance* shows a cumulative percentage of total variance extracted in relation to successive factors. A high cumulative percentage is evidence of the practical significance of the factors derived. In the social sciences, the explanation of a 60% variance is taken as being satisfactory

5) Application of the *eigenvalue greater than 1 rule* ensures that only those factors that have eigenvalues > 1 are extracted.

4.5.1 Factor structure of the Knowledge Management Scale

Based on the above criteria, the factor analysis procedure was performed to determine the psychometric properties of the Knowledge Management Scale. An analysis of 34 items identified five dimensions with eigenvalues > 1.00, consisting of 9.034, 1.875, 1.453, 1.285, and 1.092, respectively. The measure of sampling adequacy was found to be .897, which exceeded the meritorious value of 0.8 (Hair et al., 1998). Communalities ranged from 0.602 to 0.780, thus exceeding the prescribed 0.60. Of the original 34 items, 10 items were dropped, with the remaining 24 items loading satisfactorily on the five factors, with factor loading values ranging from the lowest of .467 to the highest of .801, as Table 4.8 below shows.

Table 4.8: Five Factor Rotated Structure of KM Scale

Item label		Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
S2b4	Handbooks change	.735				
S2b3	Updated handbooks	.730				
S2b5	Knowledge documented	.725				
S2b6	Methods described	.694				
S2a6	Trainings updated	.517				
S2c1	Mentors assigned		.761			
S2c5	Peer reviews		.746			
S2c4	Experiences shared		.612			
S2c6	Job rotation		.594			
S2c2	Informal chats		.576			
S2c3	Professional meetings		.520			
S2d6	Learning groups		.491			
S2d2	Open discussions		.479			
S2e2	Research findings			.773		
S2a1	Professional networks			.686		
S2e1	Consultancy work			.669		
S2a5	Research work			.632		
S2e4	Creative know-how				.801	
S2e5	Knowledge promotion				.751	
S2e3	New client programs				.741	
S2a4	Staff recruitment					.790
S2b2	Learnt lessons used					.629
S2a3	Journal purchases					.577
S2a7	Benchmarking others					.467
Eigenvalues		***9.034***	***1.875***	***1.453***	***1.285***	***1.092***
Percentage variance explained		***37.64%***	***7.82%***	***6.06%***	***5.35%***	***4.55%***
KMO measure of sampling adequacy:		***.897***				
Level of significance:		***000***				

Reliability analysis of the Knowledge Management Scale

The Cronbach's alphas obtained for the five factors of the Knowledge Management Scale are shown in Table 4.9 below.

Table 4.9: Reliability analysis of the Knowledge Management factors

Factor	*Number of items*	*Cronbach's alpha*
Factor 1	5	.85
Factor 2	8	.84
Factor 3	4	.75
Factor 4	3	.84
Factor 5	4	.72

The Cronbach's alphas of the five factors of the Knowledge Management Scale were found to be .85, .84, .75, .84, and .72, respectively. The five factors can, respectively, explain the variance of 37.64%, 7.82%, 6.06%, 5.35% and 4.55% obtained. Further, the KMO, which measures the sampling adequacy, was found to be .897 significant at .000 (see Table 4.10 above).

Renaming of the knowledge management variables

It is important to note that in the original knowledge management study (Filius et al, 2000) from which the questionnaire for this was adapted, a determination of the psychometric properties of the factors was not performed, therefore it is possible that some of the items could have an association with other items on a different knowledge management practice especially when deployed in a different context like the higher education in Uganda.

The first factor that emerged from the analysis has five items with satisfactory loadings. Four of these items (s2b4, s2b3, s2b5, s2b6) represent the original items of *knowledge documentation.* Only one item s2a6- "staffs regularly follow courses to remain up-to-date" was included in this factor. This item seems to imply that before employees are sponsored for training, there is need for proof (documented) that this individual lacks that

knowledge/skill and therefore has to undertake the training in order to remain up-to-date. It can therefore be argued that this item is associated with the documentation practice. Therefore factor 1 of the knowledge management scale is named ***knowledge documentation.***

The second factor that emerged from the analysis has eight items. Six of these were originally meant to estimate knowledge transfer practices. They are S2c1, S2c5, S2c4, S2c6, S2c2, S2c3) only two items S2d6- "learning groups where members can share their experiences and strategies" and S2d2-"problems, failures and doubts are discussed openly" were originally meant to estimate knowledge creation activities. These two items focus on *learning groups* and *open discussions* respectively which are both platforms for knowledge sharing and transfer. Put together with the previous six items of knowledge transfer, they constitute a factor called ***knowledge transfer*.**

The third factor that emerged from the analysis had four items loading satisfactorily on it. These are S2e2, S2a1, S2e1, and S2a5. Two of the items were originally meant to measure knowledge application (S2e2, S2e1) while two were originally meant to measure knowledge acquisition (S2a1, S2a5). The first item s2a1-"members of this institution are *active* in external professional network and associations" and s2a5-"our institution *does research* to explore future possibilities and new knowledge". The former seems to refer to utilisation/use/apply of knowledge in professional associations while the latter implies the research knowledge or research capability that is *used* to explore new knowledge. Both of them therefore have an application component. Combined with the other two items from the original knowledge application scale, they constitute a factor called ***knowledge application***.

The fourth factor has three items (s2e4, s2e5, and s2e3). All of these were curved out of the original factor meant to estimate knowledge application practices. Item s2e4-"we use existing know-how in a creative manner for new applications"; s2e5-"members promote new knowledge internally…" and s2e3- "experiences of students and other clients are used to improve our programmes and courses". The key terms that seem to connect these

three items are *"new"* and *"improve"*. These items seem to be referring to an activity that brings about new knowledge, different knowledge, and better knowledge (implied in new courses and programmes). Taken together, they constitute a new factor named ***knowledge generation.***

The fifth factor on the knowledge management scale has four items (S2a4, S2b2, S2a3, and S2a7). Three of these items S2a4, S2a3, and S2a7 were initially meant to estimate the knowledge acquisition practices. It is only 's2b2' that appears odd among them. On scrutinising this item, s2b2-"failures and successes are evaluated and lessons learn are set down", it reveals a component of learning from mistakes so that they are not repeated, and from successes so that they are benchmarked. In each of these cases, knowledge is acquired; consequently the fifth knowledge management factor in named ***knowledge acquisition.***

4.5.2 Factor structure of the Organisational Learning Scale

The factor analysis procedure was also used to determine the psychometric properties and factor structure of the Organisational Learning Scale. As shown in table 4.10 below, the analysis of 21 items identified three factors with eigenvalues > 1.00. A factor can be considered as a standalone provided that it has at least three items loading on it with values above .40. In the current study, only three eigenvalues were found to be greater than 1, indicating that only the following distinct dimensions could be extracted: 6.669; 1.342; and 1.037. Of the original 21 items, seven were eliminated, the remaining 14 items loaded satisfactorily on three factors, with factor- loading values ranging from the lowest of .423 to the highest of .834. The examination of communalities showed a range from the lowest of .580 to the highest of .822, which is within the acceptable range. Table 4.10 below shows the factors extracted their loading values.

Table 4.10: Three Factor Rotated Structure of Organisational Learning Scale

Item label		*Factor 1*	*Factor 2*	*Factor 3*
S3h6	Support to employees	.795		
S3h5	People control resources	.782		
S3h4	Initiatives recognised	.773		
S3h3	Resources for training	.749		
S3h2	Lessons learned to staff	.681		
S3g3	Recommendations acted upon	.674		
S3h1	Individual performance gaps	.423		
S3f5	Interchange of views		.786	
S3f6	Trust building		.776	
S3f4	Mutual feedback in teams		.764	
S3f1	Help each other to learn		.668	
S3h12	Actions in line with values			.834
S3h11	Opportunities to learn			.821
S3h8	Meets outside needs			.571
Eigenvalues		***6.669***	***1.342***	***1.037***
Percentage of variance explained		***28.79%***	***20.01%***	***15.82%***
KMO measure of sampling adequacy		***.897***		
Level of significance		***.000***		

Reliability analysis of the Organisational Learning Scale

According to Ary et al. (2002), the reliability of an instrument is the degree of accuracy and consistency with which it measures whatever it is designed to measure. Other authors, such as Sekaran (2003), define reliability as an indication of the degree of stability and consistency with which the instrument measures the concept studied, which enables the appropriateness of the instrument to be assessed. An instrument cannot be valid unless it is reliable.

In addition to the test–retest method, the study used the Cronbach alpha estimate to establish the reliability of the Organisational Learning Scale and other scales used in the study. Cronbach's alpha for the three factors of the Organisational Learning Scale is shown in Table 4.11 below:

Table 4.11: Reliability results of the organisational learning factors.

Factor	*Number of items*	*Cronbach's alpha*
Factor 1	7	.86
Factor 2	4	.83
Factor 3	3	.77

The Cronbach's alphas of the three factors are .86, .83, and .77, respectively, meaning that they are well above the stipulated levels of .70 for social research (Nunally, 1967). The three factors explain a variance of 28.79%, 20.01% and 15.82%, respectively. Further, the Kaiser-Meyer-Olkin Measure of Sampling Adequacy, which measures sampling adequacy, is found to be .897 significant at .000.

Renaming of the variables

From the extracted factor structure of the Organisational Learning Scale, alternative relationships and items emerged differently to how they had appeared in the initial alignment. The first factor on the Organisational Learning Scale (see Table 4.8) had seven items, six of which belonged to the original factor of ***institutional learning***. Only item s3g3 ("the institution acts on recommendations") belonged to the team learning variable. By loading with other items on the institutional learning factor, the conclusion could be drawn that the item was associated with institutional items, rather than with the team variables, where it was originally located. Such a dimension was, therefore, named 'institutional learning'**.**

The second extracted factor retained the character of the initial items designed to measure individual learning. Only item s3f3 ("people are rewarded for learning") of the original individual learning category was dropped. Therefore, the second dimension extracted was retained as 'individual learning'.

The third factor extracted contained the following three items which were meant to measure institutional learning: s3h12 ("*leaders ensure that actions are consistent with*

values"); s3h11 (*"leaders continuously look for opportunities to learn"*); and s3h8 (*"the institution works with outside community to meet mutual needs"*). The items loaded separately from the original institutional scale, which meant that they represented a different dimension. As all three items seemed to focus on the role of leaders in promoting the learning of the institution, it was therefore deemed appropriate to call the dimension 'leader-driven learning'.

On the whole, although three factors emerged from data, they are not precisely the same as those of the original authors. One factor (team learning) was dropped and a new factor named *'leader driven learning'* emerged which possibly signifies the level of importance attached to role of institutional leaders in promoting learning of higher education institutions in Uganda. The absence of the team learning dimension in higher education institutions data should not come as a surprise and it is consistent with previous researchers' findings. For example, it is argued that universities have a poor team learning reputation (Bui and Baruch, 2010) coupled with a tendency for individualism that has been responsible for the absence of a framework for collaboration among various specialisations in higher educational institutions. In fact, Bui and Baruch (2010: 234) posit that "team learning is a real challenge for higher education".

The variables included in this study for further analysis are presented in the table below:

Table 4.12: Variables retained for analysis

Variable label	*Variable name*
KM	**KNOWLEDGE MANAGEMENT**
KNDC	Knowledge Documentation
KNTR	Knowledge Transfer
KNAPP	Knowledge Application
KNGN	Knowledge Generation
KNACQ	Knowledge Acquisition
OL	**ORGANISATIONAL LEARNING**
ISTL	Institutional learning
IL	Individual learning
LDL	Leader-Driven learning

4.6 Restatement of the propositions and modified research framework

The propositions presented in sections 2.16 and 2.17 of the current thesis were based on the existing literature in the field. After collecting data from higher education institutions, on which a factor analysis procedure was performed, new variables were found to have emerged, whereas others had to be renamed. The propositions, consequently, have to be restated and the original conceptual framework, which was originally presented in Figure 2.7, modified to fit the variables identified. The propositions are restated as follows:

1) *Proposition One: Knowledge management practices influence institutional learning.*

2) *Proposition Two: Knowledge management practices influence individual learning.*

3) *Proposition Three: Knowledge management practices influence leader-driven learning.*

4) *Proposition Four: An interdependent relationship exists between knowledge management and organisational learning defined by at least one distinct dimension.*

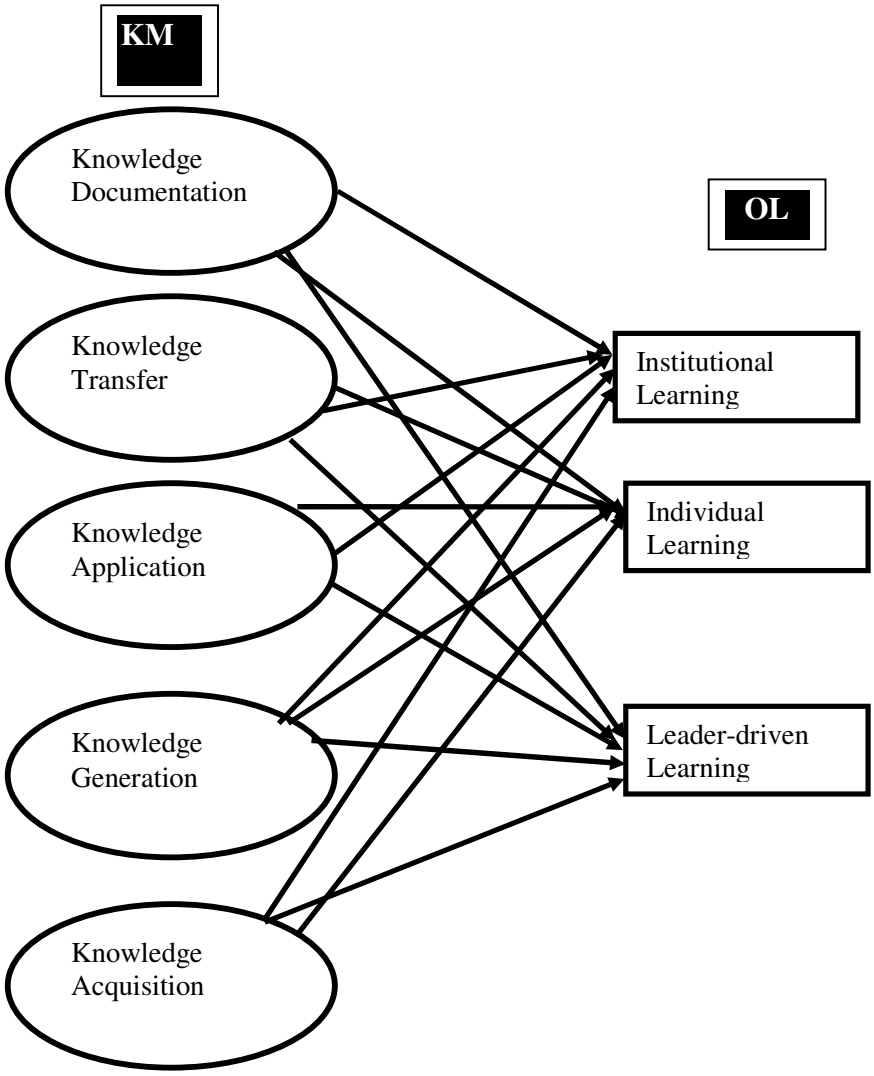


Figure 4.1: Modified research framework.

4.7 Variability of knowledge management activities and organisational learning among the surveyed institutions

In order to determine the differences between the six surveyed institutions in terms of organisational learning and knowledge management practices, a detailed assessment of the variations was conducted followed by a test of Analysis of Variance (ANOVA).

4.7.1. Assessment of variations of knowledge management and organizational learning responses across the six institutions

Table 4.13 below gives an overview of the respondents' perceptions on each of the factors in their respective institutions. The scores could range from 1 (strongly disagree) to 7 (strongly agree). The average scores of items are reported in addition to the mean scores of all variables in each of the institutions. Only the items that were retained after factor analysis were included in this phase. The overall mean score of items in the KM section of the questionnaire was 4.7. As shown in the table, the most common knowledge management activities across all the six institutions are:

1) Conducting research
2) Training staff
3) Hiring new academic staff
4) Doing consultancy work
5) Improving courses they deliver
6) Subscribing to journals
7) Regular meetings

All these are relevant to higher educational institutions because they represent their core functions of training and research. These activities portray the traditional role of academic institutions that is to teach, continuously improve on course programmes, and conduct research to inform the teaching and for publishing. Recently, consulting work has become more common in higher education institutions as an outreach service to the community but mainly as a means of supplementing incomes of both the academic staff and the institution.

On the other hand, the least common knowledge management activities across all the six institutions are:

1) Peer reviews
2) Informal knowledge sharing
3) Learning groups
4) Assigning mentors to new staff
5) Open discussion on problems

The least common knowledge management activities reflect the formal nature in which KM activities are perceived in these institutions. Activities that are considered more useful in an informal set up are not taken seriously in the surveyed institutions. For example, peer reviews that have the potential of supporting a new lecturer to improve in his/her work are surprisingly less common. The same applies to mentorship programmes for new academic staff.

The descriptive procedure explained above was repeated for the organisational learning items on the questionnaire. As in the previous case, only items that loaded satisfactorily on OL scale in the factor analysis were retained for this analysis. The overall mean score on items was 4.62. As shown in table 4.13 below, the most common organisational learning activities across all the six institutions:

1) External linkages with communities
2) Supporting learning opportunities
3) Leaders actions
4) Mutual learning support

The most common organisational learning activities relate to the institutional leaders' roles in promoting organisational learning. High scores on external linkages imply that the institutions prioritise knowledge gains from networking with external community. Supporting learning opportunities is a policy matter which the leaders put in place to build institutional knowledge assets through training opportunities. As part of promoting organisational learning, leader's actions are deemed very critical especially in building the value system that cherishes learning in the organisation. Lastly the mutual learning support allows knowledge sharing for enhanced learning.

The least common organisational learning activities across the six institutions in the sample are:

1) Support for taking calculated risks
2) Building trust among each other
3) Implementing staff recommendations.

This result is not surprising because in higher education institutions in Uganda, staffs are not given an opportunity to take risks as part of their learning process. In fact some members of academic institutions face disciplinary committees for engaging in activities that can put the institution at risk. Trust building is very critical for organisational learning and the low scores are a reflection of the institutions inability to capitalise on existing social capital within the institutions. Low scores on implementation of staff recommendations imply that the incentive for generating new ideas and being innovative is curtailed with attendant negative consequences to the learning of higher educational institutions.

Table 4.13: Overall knowledge management responses according to institution

	Mean	*UMI*	*MAK*	*KYU*	*NKZ*	*IUI*	*MBS*
KNOWLEDGE DOCUMENTATION		**4.95**	**4.68**	**3.97**	**5.27**	**4.70**	**5.42**
Our institution informs all members of changes in procedures, handbooks, etc.	4.86						
Our institution has up-to-date handbooks and work guidelines that are frequently used.	4.61						
Our organisation has documented specific knowledge and skills of individuals.	4.66						
Experts make explicit those methods which they use in a step-by-step description.	4.54						
Staff members regularly take training programmes and seminars to remain up to date.	5.26						
KNOWLEDGE TRANSFER		**4.36**	**4.05**	**4.01**	**4.59**	**4.35**	**4.50**
New members are assigned mentors, who help them find their way in the organisation.	4.09						
We have inter-colleagual (peer) reviews to discuss methods of working.	3.99						
Colleagues inform one another regularly about projects and positive experiences.	4.67						
Job rotation occurs, based on one's know-how, thereby distributing knowledge.	4.20						
Much knowledge is distributed in informal ways, such as in the corridors, tea-rooms, etc.	3.95						
Regular meetings are organised, in which professional matters are discussed.	5.06						
Learning groups provide opportunities for members to discuss their experiences and strategies.	3.82						
Problems, failures, and doubts are discussed openly at our institution.	4.18						
KNOWLEDGE APPLICATION		**5.34**	**5.18**	**4.24**	**4.47**	**4.24**	**5.61**
Members promote new knowledge externally in the market by means of the dissemination of research findings.	4.89						
Members of this institution are active in external professional network and associations.	5.04						
Making knowledge available through consultancies attracts attention at our institution.	5.21						
Our institution undertakes research to explore future possibilities and new knowledge.	5.31						
KNOWLEDGE GENERATION		**4.86**	**4.89**	**4.16**	**5.24**	**4.96**	**5.54**
We apply existing know-how in a creative manner in new applications.	4.86						
Members of staff promote new knowledge internally within the institution.	4.96						
Experiences of students and other clients are used to improve programmes and courses.	5.15						
KNOWLEDGE ACQUISITION		**5.20**	**4.87**	**4.54**	**5.62**	**5.36**	**5.54**
If needed, our institution hires new staff members with required knowledge.	5.24						
Failures and successes are evaluated and lessons learnt are recorded.	4.86						
If we lack important sources of knowledge, such as journals, my institution buys them.	5.13						
We consider competitors as a source of knowledge from whom we can learn to develop new approaches to training.	5.16						

Table 4.14: Overall organisational learning responses according to institution

	Mean	*UMI*	*MAK*	*KYU*	*NKZ*	*IUI*	*MBS*
INSTITUTIONAL LEARNING		**4.30**	**4.26**	**3.60**	**4.49**	**4.48**	**5.39**
My institution supports employees taking calculated risks.	4.05						
My institution gives employees control of resources which they need to accomplish their work.	4.42						
My institution recognises employees who take initiative.	4.46						
My organisation measures the results of the time and resources spent on training.	4.40						
My organisation makes its lessons learned available to all its employees.	4.33						
In my institution, teams are confident that the institution will act on their recommendations.	4.29						
My organisation measures gaps between current and expected performance.	4.57						
INDIVIDUAL LEARNING		**4.50**	**4.43**	**4.40**	**4.94**	**5.14**	**5.13**
In my institution, whenever employees state their view, they also ask what others think of it.	4.78						
In my institution, employees spend time building mutual trust.	4.21						
In my institution, employees give open and honest feedback to one another.	4.56						
In my institution, employees are given time to support learning.	4.61						
In my institution, employees help one another to learn.	5.21						
LEADER-DRIVEN LEARNING		**5.21**	**4.86**	**4.86**	**5.55**	**5.16**	**5.19**
In my institution, the leaders ensure that organisational actions are consistent with organisational values.	5.04						
In my institution, leaders continually look for opportunities to learn.	5.10						
My institution works together with the outside community to meet mutual needs.	5.35						

In terms of overall KM practices across the six institutions, the figure below shows that Institution KYU exhibits the lowest levels on all KM dimensions of knowledge documentation (KNDC), knowledge acquisition (KNACQ), knowledge transfer (KNTRA), knowledge generation (KNGEN) and knowledge application (KNAPP). This may be explained by the fact that KYU is a new university, which was created by merging several colleges. Institution MBS shows high levels of all knowledge management practices with the exception of knowledge transfer, a dimension that recorded the lowest scores across all institutions. Details of selected case analysis are presented in chapter seven.

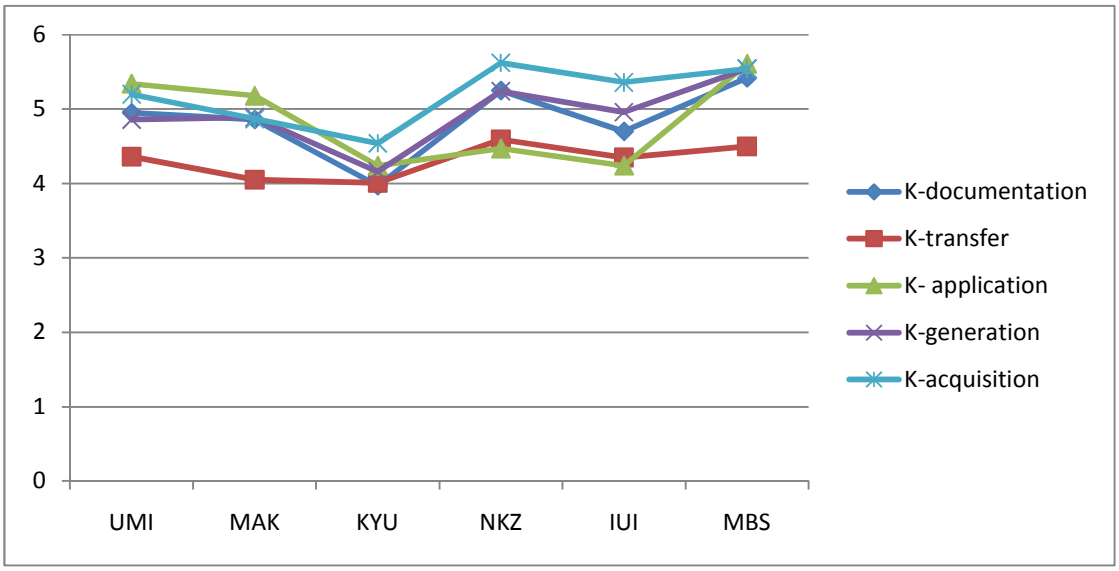


Figure 4.2: A comparison of knowledge management practices across the six institutions surveyed

In terms of organisational learning scores across the surveyed institutions, Figure 4.3 below shows that KYU, as in the previous case, exhibited lower scores on the three levels of institutional, individual and leader-driven learning. In all six institutions, leader-driven learning obtained the highest score, indicating that, in all the institutions, the role of a leader in regards to organisational learning is considered to be of paramount importance.

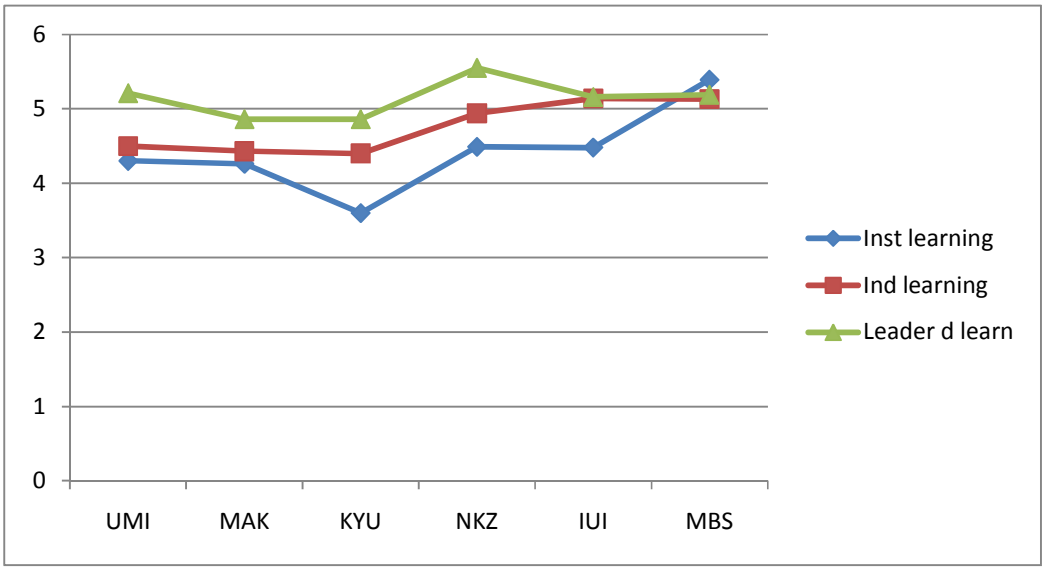


Figure 4.3: A comparison of organisational learning across the six institutions surveyed

ANOVA test

Analysis of variance (ANOVA) is a data analytic technique which is performed in order to determine whether differences exist among sampled institutions. SPSS, Version 12.0, was used to conduct the ANOVA (one-way) tests on the knowledge management and organisational learning activities across the six institutions surveyed.

The interpretation of the results obtained in the test was based on the F-value and the significance levels. If the F-value was found to be significant (< .005), the conclusion was drawn that the perceptions of knowledge management and organisational learning practices across the sampled six institutions varied. If the F-value was found not to be significant, the conclusion was drawn that the perceptions of knowledge management practices across all the institutions surveyed did not vary. Table 4.15 below shows the findings of the ANOVA tests.

Table 4.15: Results of ANOVA tests of knowledge management and organisational learning in the sampled institutions

		Sum of squares	df	Mean square	F	Sig.
INST LEARN	between groups	70.262	5	14.052	9.657	.000
	within groups	379.790	261	1.455		
	Total	450.052	266			
IND LEARN	between groups	28.063	5	5.613	3.653	.003
	within groups	399.512	260	1.537		
	Total	427.574	265			
LEAD LEARN	between groups	35.983	5	7.197	5.342	.000
	within groups	350.237	260	1.347		
	Total	386.221	265			
KN DC	between groups	51.940	5	10.388	8.115	.000
	within groups	337.943	264	1.280		
	Total	389.883	269			
KNTRA	between groups	11.070	5	2.214	1.739	.126
	within groups	332.271	261	1.273		
	Total	343.341	266			
KNAPP	between groups	77.593	5	15.519	14.155	.000
	within groups	289.433	264	1.096		
	Total	367.026	269			
KNGEN	between groups	43.511	5	8.702	5.441	.000
	within groups	414.238	259	1.599		
	Total	457.748	264			
KNACQ	between groups	34.222	5	6.844	5.565	.000
	within groups	324.707	264	1.230		
	Total	358.929	269			

Table 4.15 above shows that all F-values for organisational learning were significant, implying that there were significant differences among the six different institutions in terms of organisational learning. With respect to knowledge management practices, the ANOVA test revealed significant differences among the sampled institutions in terms of knowledge documentation, application, generation, and acquisition. However, the F-value for knowledge transfer was not found to be significant, indicating that no differences among the six institutions were detected in terms of knowledge transfer. Knowledge is a people- based process, with its transfer depending on the willingness of the individuals concerned to share such knowledge. As the results of the interviews will show in Chapter Seven, the level of motivation regarding the sharing of knowledge was

found to be low across all the surveyed institutions, resulting in their being unwilling to share their knowledge. In addition, most lecturers were found to rotate from one institution to another and back again, leading to their perception of knowledge transfer not differing significantly.

4.8 Summary

Chapter Four focused on the analysis and presentation of quantitative data. In the chapter, factor structures of the variables were determined and presented, with the Organisational Learning Scale revealing three factors: institutional, individual, and leader-driven learning. The Knowledge Management Practices Scale was factor analysed and revealed five factors, of which the following four corresponded to the original authors' factors: knowledge documentation; knowledge acquisition; knowledge application; and knowledge transfer. The fifth factor was named 'knowledge generation', due to the fact that the items which loaded on it had more to do with 'new' information and knowledge. These factors are used for further analysis in the current study. The most common activities for both knowledge management and organisational learning were identified by way of comparing the means. With the help of ANOVA tests, significant differences among almost all the specified knowledge management and organisational learning activities were found across all six institutions, except in relation to the knowledge transfer dimension, which did not exhibit a significant difference among the institutions participating in the study.

CHAPTER FIVE
RESULTS OF THE QUANTITATIVE ANALYSIS

5.1 Introduction

The overall objective of the current study was to determine the interdependence between knowledge management and organisational learning, and to identify the underlying dimensions of such interdependence in higher education institutions in Uganda. To accomplish such an objective, it was deemed necessary, firstly, to determine the influence of knowledge management practices on organisational learning, and, secondly, to explore the dimensions of interdependence between the two knowledge-based concepts. Accordingly, empirical propositions were developed, which were tested both quantitatively by means of hypothesis testing, and qualitatively, in terms of the results of key informants' interviews. The results of the interviews are presented in Chapter Seven of the current thesis. The present chapter presents the results of quantitative analysis, based on reformulated propositions. After presenting results relating to the influence of knowledge management on organisational (institutional, individual and leader-driven) learning practices, those results relating to the determination of the underlying dimensions of the interdependence between knowledge management and organisational learning are discussed.

As was highlighted in Chapter Three, the three main statistical techniques used to arrive at the findings of the current study are correlation analysis, regression analysis and canonical correlation analysis. Correlation and regression analyses were used to test propositions 1 to 3 (see section 4.6), whereas the canonical correlation analysis was used to test the fourth proposition. Results of the correlation analysis are presented first.

Correlation coefficients were calculated using Pearson's Product Moment, with the help of SPSS, Version 12.0 (see Table 5.1). Correlation analysis determines the relationships between two or more variables or sets of variables, and shows the levels of significance of the relationship. Such analysis also shows both the direction of the relationship between the variables and the magnitude of the relationship. However, the analysis does

not show causation. Hussey and Hussey (1997: 230) emphasise such a point in their postulation that "since a correlation between two variables does not prove existence of a causal link between them, two casually unrelated variables can be correlated because both relate to a third variable". The interpretation of the relationship among variables in the current study was based on the classical "five rules of thumb" proposed by Bartz, (1999: 184), who states as follows in relation to correlation coefficient (r):

1) between 0 to .20 indicates a *very low correlation*;
2) between .20 to .40 indicates a *low correlation*;
3) between .40 to .60 indicates a *moderate correlation*;
4) between .60 to .80 indicates a *strong correlation*; and
5) between .80 to 1.00 indicates a *high correlation*.

The results of the correlation are presented in Table 5.1 below, indicating that the correlations between all five knowledge management practices and organisational learning at different levels range from low to slightly moderate levels of correlation. None of the correlations was either strong or very high.

Table 5.1: Pearson correlation coefficients between knowledge management practices and organisational learning variables

	Organisational learning variables		
Knowledge management practices	Institutional learning	Individual learning	Leader-driven learning
Knowledge documentation	.261**	.077	.249**
Knowledge transfer	.153*	.513**	.208**
Knowledge application	.314**	-.113	.133
Knowledge generation	.254**	.183*	.178*
Knowledge acquisition	.231**	.215**	.324**

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

5.2 Proposition 1: Knowledge management practices influence institutional learning

To test Proposition One, the results of both the correlation and regression analyses were used. The correlation results are presented in Table 5.1 above. In carrying out the regression analysis, the knowledge management set of variables was treated as the independent variables, whereas institutional learning was treated as the dependent variable. The correlation between knowledge management practices and institutional learning was as follows: knowledge documentation $r = .261$, $p < 0.01$; knowledge transfer $r = .153$, $p < 0.05$; knowledge application $r = .314$, $p < 0.01$; knowledge generation $r=.254$, $p < 0.01$; and knowledge acquisition $r = .231$, $p < 0.01$. The fact that all correlation coefficients were positive and significant indicated that all knowledge management practices were positively related to institutional learning. Such a finding implies that when practices for managing knowledge improve, institutional learning also improves. However, since all the coefficients were found to range from low to moderate correlation (Bartz, 1999), it was deemed necessary to conduct a regression analysis in order to determine the existence of a causal influence of knowledge management practices on institutional learning. The procedure for multiple regression analysis involved treating institutional learning as the dependent variable (γ) and knowledge management practices as the independent variables (X1–X5). Figure 5.1 below depicts the relationship.

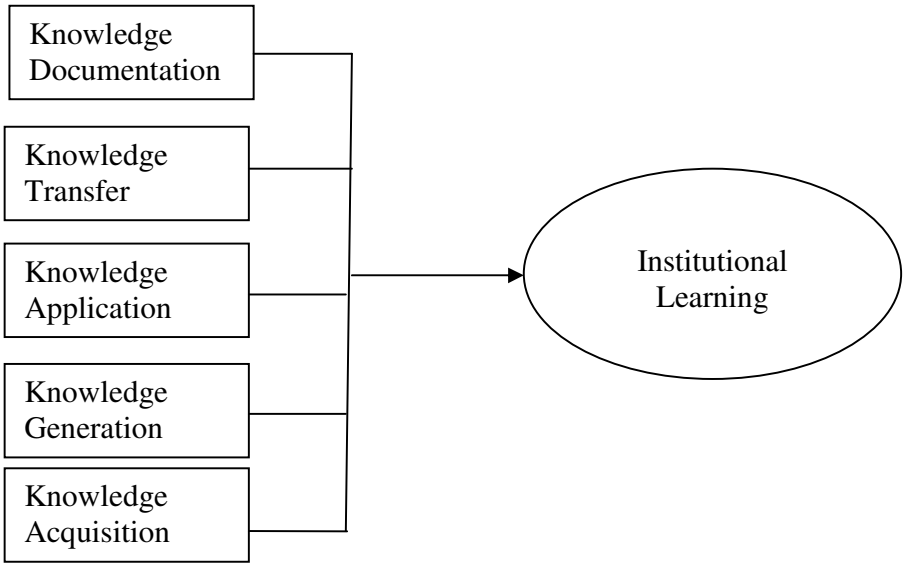


Figure 5.1: Relationship between knowledge management practices and institutional learning

The main reason for conducting a multiple regression analysis was to determine whether the regression coefficients of the given predictor set of variables (knowledge management) were statistically different to zero. When the coefficients are significant, it proves that the respective predictor variables are relatively important in predicting the criterion variable.

The results were interpreted using non-standardised beta coefficients and the R-square. Un-standardised coefficients show a change that is observable when the variables are in raw form. They are not standardised in the sense that they have different means, and different standard deviations. The higher the beta coefficients of the independent (predictor) variables are, the more predictive power they have on the dependent (criterion) variable, if the coefficient is significant. The R-square, in contrast, indicates the percentage of variance in the dependent variable, which is explained jointly by the independent variables (Hair et al., 1998). The results of the multiple regression analysis are presented in Table 5.2 below.

Table 5.2: Results of regression analysis in terms of dependent variable: Institutional learning

Predictor	***Beta***
Knowledge documentation	.247[a] (4.200)***
Knowledge transfer	.152 (2.590) **
Knowledge application	.298 (5.046) ***
Knowledge generation	.229 (3.963) ***
Knowledge acquisition	.213 (3.666) ***
R	*.542*
R Square	*.294***
Adjusted R Square	*.276*

Notes:
[a] Unstandardised co-efficiencies are reported; t-values are in parentheses; *p < 0.05; **p < 0.01;***p < 0.001

The results of the multiple regression analysis, which are presented in Table 5.2 above, show that the model generated accounted for 29.4% of the variations in institutional learning significant at 0.001 levels. The other results of the analysis were, briefly, found to be as follows:

1) Knowledge documentation had a positive influence on institutional learning (β = .247) at 0.001 level of significance.
2) Knowledge transfer had a positive influence on institutional learning (β = .152) at 0.01 level of significance.
3) Knowledge application had a positive influence on institutional learning (β = .298) at 0.001 level of significance.
4) Knowledge generation practices had a positive influence on institutional learning (β =.229) at 0.001 level of significance.
5) Knowledge acquisition showed a positive influence on institutional learning (β = .213) at 0.001 level of significance.

These results, therefore, support Proposition One, which states that knowledge management practices influence institutional learning.

5.3 Proposition 2: Knowledge management practices influence individual learning

The correlations between all knowledge management practices and individual learning practices, showed mainly a low level of relationship, with the exception of one, which indicated a moderate relationship. None of the correlation coefficients was either strong or very high. Their respective correlations (see table 5.1 above) were knowledge documentation r = .077 non-significant; knowledge transfer r = .513, $p < 0.01$; knowledge application r =.-113 non-significant; knowledge generation r = .183, $p < 0.01$; and knowledge acquisition r = .215, $p < 0.01$.

Next, a regression analysis was conducted to ascertain the influence of knowledge management practices on individual learning. Individual learning was treated as a dependent variable (γ), with all the five knowledge management practices being represented as independent variables (X1–X5). (See Figure 5.2 below)

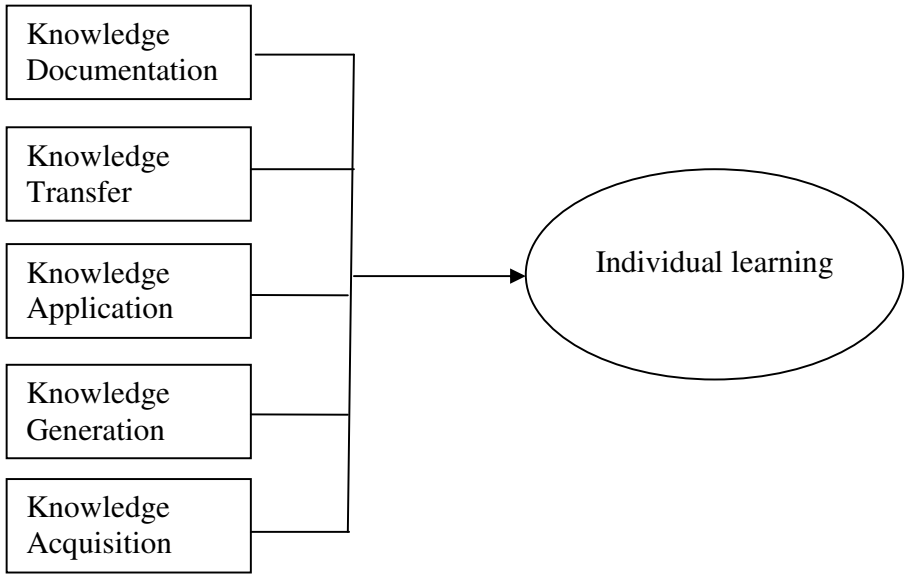


Figure 5.2: Relationship between knowledge management practices and individual learning

As in the previous case, the results were interpreted using un-standardised beta coefficients and the R-square. The higher the beta coefficient of the independent variables is, the more predictive power they have in terms of the dependent variable, if it is significant. The results of the multiple regression analyses are presented in Table 5.3 below.

Table 5.3: Results of regression analysis in terms of dependent variable: Individual Learning

Predictor	***Beta***
Knowledge documentation	.090[a] (1.586)
Knowledge transfer	.507 (8.928) ***
Knowledge application	-.118 (-2.064)
Knowledge generation	.179 (3.204) ***
Knowledge acquisition	.189 (3.369) **
R	*.597*
R square	*.356****
Adjusted R square	*.340*

Notes:
[a]Unstandardised co-efficiencies are reported, t-values are in parentheses; *p < 0.05; **p < 0.01; ***p < 0.001

The results of the multiple regression analysis presented in Table 5.3 above show that the model accounted for 35.6% of the variations in individual learning, significant at 0.001. The rest of the results were, briefly, found to be as follows:

1) Knowledge documentation had a non-significant positive influence (β = .090) on individual learning at higher educational institutions.
2) Knowledge transfer had a positive influence on individual learning (β = .507), significant at 0.001 level of significance.
3) Knowledge application had a negative, though non-significant, influence on individual learning (β = -.118).
4) Knowledge generation practices had a positive influence on individual learning (β = .179) at 0.05 level of significance.
5) Knowledge acquisition had a positive influence on individual learning (β = .189), at 0.05 level of significance.

Such results, therefore, partially supported Proposition Two, which stated that knowledge management practices influence individual learning.

5.4 Proposition 3: Knowledge management practices influence leader-driven learning

The results produced in Table 5.1 indicate that the correlation between knowledge management practices and leader-driven learning, overall, showed a significantly low level of relationship: knowledge documentation $r = .249$, $p < 0.01$; knowledge transfer $r = .208$, $p < 0.01$, knowledge application $r = .133$ non-significant; knowledge generation $r = .178$, $p < 0.05$; and knowledge acquisition $r = .324$, $p < 0.01$. Most of the correlations, apart from knowledge application, were positive and significant. Such a finding implies that a positive relationship exists between knowledge management and leader-driven learning, resulting in the existence of a relationship between the two being confirmed.

Correlation coefficients, however, should to interpreted with caution, since they focus only on a pair of variables, rather than on the whole set of variables. As in the previous two cases, all the coefficients ranged from low to moderate correlation, a regression analysis had to be conducted to test the causal relationship among the different knowledge management practices and institutional learning. A multiple regression analysis was executed, in which institutional-level learning was entered as a dependent variable (γ), with all five knowledge management practices representing the independent variables (X1–X5), as is shown in Figure 5.3 below.

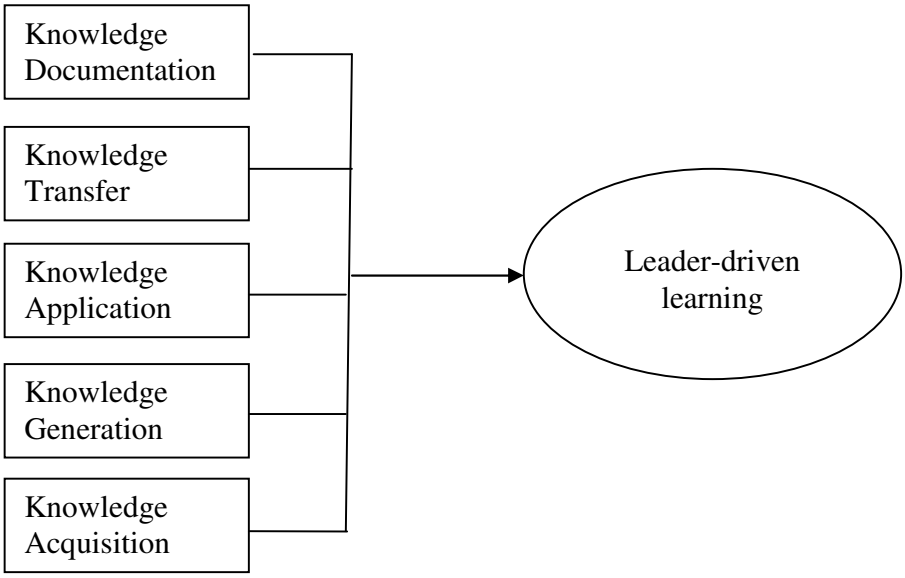


Figure 5.3: Relationship between knowledge management practices and leader driven learning

The results of the current regression analysis were also interpreted using non-standardised beta coefficients and the R-square, as occurred in the previous cases. The higher the beta coefficient of the independent variables, the greater is the predictive power that they have on the dependent variable, if it is significant. The results of the multiple regression analysis are presented in Table 5.4 below.

Table 5.4: Regression coefficients: Dependent variable: Leader-driven learning.

Predictor	***Beta***
Knowledge documentation	.237[a] (3.934)***
Knowledge transfer	.202 (3.356) **
Knowledge application	.123 (2.030) *
Knowledge generation	.161 (2.714) **
Knowledge acquisition	.298 (5.023) ***
R	.500
R square	.250***
Adjusted R square	.231

Notes:
[a]. Unstandardised co-efficiencies are reported; t-values are in parentheses; *p < 0.05; **p < 0.01; ***p < 0.001

The results of multiple regression analysis presented in Table 5.4 above show that knowledge management practices accounted for 25% of the variations in leader-driven learning, significant at 0.001. The remaining results obtained in the analysis are, briefly, as follows:

1) Knowledge documentation had a significant positive influence on leader-driven learning (β = .237) at 0.001 level of significance.
2) Knowledge transfer had a significant positive influence (β = .202) on leader-driven learning at 0.01 level of significance.
3) Knowledge application had a positive, though weak, influence (β = .123) on leader-driven learning at 0.05 level of significance.
4) Knowledge generation had a significant positive influence (β = .161) on leader-driven learning at 0.01 level of significance.
5) Knowledge acquisition had a significant positive influence on leader-driven learning at 0.001 level of significance, with a beta coefficient of .298

Results of both the correlation and regression analyses presented in the preceding sections showed a relationship between knowledge management practices and organisational learning. However, the dimensions of such a relationship were not clear. Section 5.5 attempts to determine such dimensions with the help of the canonical correlation analysis, while simultaneously testing Proposition Four of the study.

5.5 Proposition Four: An interdependent relationship exists between knowledge management practices and organisational learning in higher education institutions defined by at least one distinct dimension

In order to determine the dimensions of interdependence between organisational learning and knowledge management practices, the canonical correlation analysis technique was applied to the data. The use of such a multivariate technique facilitates the study of interrelationships among sets of multiple variables (Hair et al., 1998). Such a procedure was executed using syntax in the SPSS programme, Version 12, and by entering variable set 1, representing the knowledge management variables (knowledge documentation,

transfer, application, generation, and acquisition), and variable set 2, representing the organisational learning variables (institutional, individual, and leader-driven learning), resulting in the production of canonical correlation output. Interpretation of the results was based on the classical rule of thumb, as follows:

1) Canonical loadings with a value greater than .30 were interpreted as acceptable minimum loading value (Lambert and Durand 1975).
2) Canonical correlations and their levels of significance.

A canonical correlation analysis was run, with tables 5.5 and 5.6 presenting the results of the analysis.

Table 5.5: Canonical correlations and their levels of significance

Number	*Canonical correlation*	*Wilk's λ test*	*Chi-sq*	*DF*	**Sig.**
1	**0.832**	**0.252**	**275.006**	**15.000**	**.000**
2	**0.413**	**0.818**	**40.082**	**8.000**	**.000**
3	0.116	0.987	2.705	3.000	.439

Table 5.5 above clearly indicates that only two canonical variates were found to be significant at 0.001. The first canonical variate produced a correlation of 0.832, a Wilk's λ of 0.252, chi-SQ of 275.006, and $p < 0.000$. The second canonical variate on the other hand produced a canonical correlation of 0.413, a Wilk's λ of 0.818, chi-SQ of 40.082, and $p < 0.000$. The results further show that, the first canonical correlation, $R_{c1} = 0.832^2$, contributed 69.2% of the variance (R_{c1}^2), whereas the second canonical correlation contributed 17.1 % of the shared variance, (R_{c2}^2) = 0.413^2. The third canonical variate, which produced a correlation of 0.116, a Wilk's λ of 0.987, and chi-SQ of 2.705, was not found to be significant. Based on Hair et al. (1998), analysing those canonical variates whose canonical correlation coefficients are statistically significant beyond a certain level, usually 0.05, is the most common practice. From the above findings, only two functions were found to have significant canonical correlation coefficients, 1 and 2, at 0.000. The third canonical function was, therefore, dropped from further analysis.

Table 5.6: Canonical loadings of knowledge management and organisational learning on canonical variates

	Canonical variates	
	1	**2**
Canonical correlations	0.832	0.413
Squared canonical correlations	0.692/69.2%	0.171/17.1%
Knowledge management practices		
Knowledge documentation	**-.390**	.357
Knowledge transfer	-.622	**-.684**
Knowledge application	-.207	**.718**
Knowledge generation	**-.420**	.120
Knowledge acquisition	**-.523**	.102
Organisational learning levels		
Institutional learning	-.565	**.637**
Individual learning	-.607	**-.768**
Leader-driven learning	**-.578**	.250

Since the purpose of the analysis was to determine the dimensions of the inter-relationship between the two sets of variables (knowledge management and organisational learning), rather than prediction and causation, the absolute values of the canonical loadings were interpreted. Such a procedure was in line with Thorndike's (1976: 250) contention that "it is a well known feature in factor analysis that the loadings on a factor may all be reversed in sign without disturbing the solution. This may also be done in pairs of composites in canonical analysis".

Due to the fact that several variables within the two sets were either moderately or strongly correlated, the interpretation was based on the correlations of the variates, meaning on the structure coefficient, rather than on the standardised regression weights of the variables in the canonical variates. The standardised canonical weights represent the independent contribution of the variable to the composite formed by all variables in the set. A variable might have a small weight, due to the fact that it has a high correlation with a different variable in a given set (Thorndike, 2000). Canonical loadings are concerned with correlations of variables to a particular canonical root. Consequently, it is possible to have two items loading substantially on more than one canonical root.

However, once a large weight is assigned to one canonical root, the others remain redundant. Following the cut-off point of the canonical loadings greater than .30, four out of the five variables from the knowledge management subset were meaningfully correlated with the first canonical variate. Knowledge transfer loaded meaningfully on both the first and the second canonical roots, but it was considered under the latter root in order to derive meaningful interpretation. For the first canonical variate, knowledge acquisition (-.523), knowledge generation (-.420), and knowledge documentation (-.390) loaded significantly in that descending order.

From the organisational learning variable set, all three variables, namely institutional learning (-.565), individual learning (-.607) and leader-driven learning (-578), were meaningfully associated with the first canonical variate. Owing to the fact that institutional and individual learning loaded sufficiently on both canonical roots, for interpretation purposes the two are considered under the second variate, in terms of which they posted a larger loading value. Therefore, only leader-driven learning is considered under the first canonical root.

Three variables from the knowledge management set, namely knowledge application (.718), knowledge transfer (-.684), and knowledge documentation (.357), were meaningfully associated with the second canonical variate, though knowledge documentation was considered under the first canonical variate, where there was a larger absolute loading value. Knowledge generation and acquisition had loadings of less than .30. Of the organisational learning variable set, institutional learning (.637) and individual learning (-.768) were meaningfully associated with the second canonical variate. Diagrammatically, such a relationship is illustrated in Figure 5.4 below.

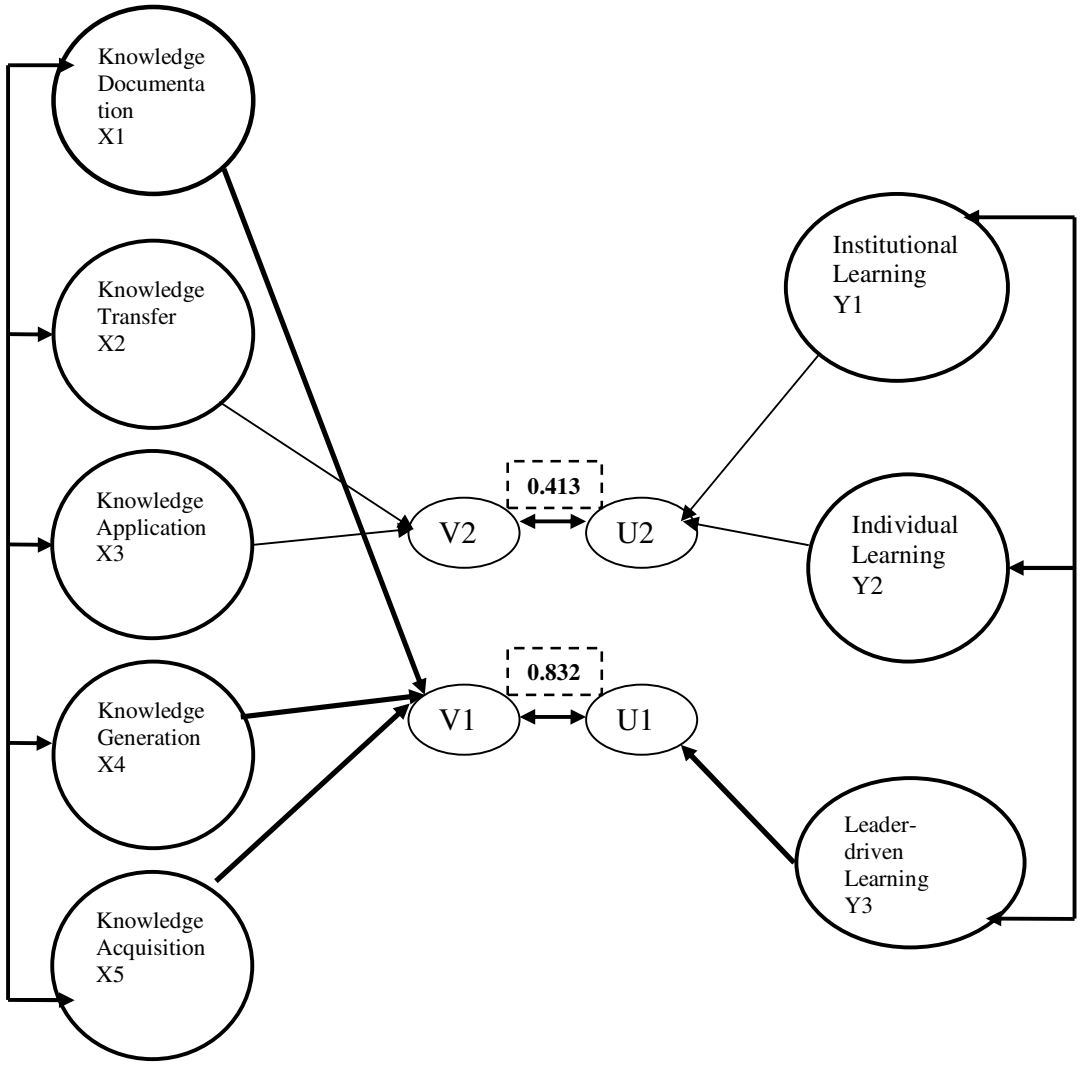


Figure 5.4: Schematic framework showing the relationship between variables in the Canonical Correlation Analysis

Figure 5.4 above shows the diagrammatic representation of the canonical correlation results between the two sets of variables, one representing the knowledge management variables (X1–X5) and the other the organisational learning variables (Y1–Y3). Such

variables are knowledge documentation, transfer, application, generation and acquisition for the knowledge management set, which was treated as the predictor set. The organisational learning set, which contained institutional, individual and leader-driven learning, was treated as a criterion set. The circles labelled V and U respectively represent the linear combinations or canonical variates for the variables on the left and those on the right. More specifically, V1 and U1 represent the first canonical variate for variable set X and variable set Y, respectively, whereas V2 and U2 respectively represent the second canonical variate for variable sets X and Y. The lines connecting the X sets to the V sets and the Y sets to the U sets represent loading on the first two pairs of variates which were found to be significant. Owing to the fact that the third set of canonical variates was not significant, it was omitted from further analysis. The canonical correlation analysis technique maximises the relationship between variable sets X and Y on the variates V and U, which maximises the correlation between V and U. Such a selection implies that canonical correlation analysis helps to identify those variables which are closely linked to the underlying canonical variate or dimension.

In Figure 5.4 above, the first canonical function is represented by V1 and U1, while the second canonical function is represented by V2 and U2. Some variables from the two (predictor and criterion) sets appeared in both canonical functions, though their loading on the respective variates differed, which gave each variate a unique or "different meaning based on the variables with the highest canonical loadings" (Hair et al. 2006: 240). As findings from the canonical correlation analysis indicate, there are two distinct variates which represent the two dimensions that underlie the inter-relationship between predictor set X (knowledge management) and criterion set Y (organisational learning).

In keeping with the above findings, Proposition Four, which states that there is at least one distinct dimension that signifies the interdependence between knowledge management and organisational learning, is supported. In fact, two dimensions, represented by two canonical variates, were identified

5.6 Summary

Chapter Five presented the results of the quantitative analysis, based on the three techniques applied in the study, namely correlation analysis, regression analysis and canonical correlation analysis. Although the results from the correlation were mixed, results of regression analysis indicated that knowledge management practices influences organisational learning significantly. In addition, the results from the canonical correlation analysis showed the existence of interdependent relationships between knowledge management and organisational learning, based on two distinct dimensions. Following on the presentation of the results of quantitative analysis in relation to the testing of propositions in the current chapter, Chapter Six explores how the qualitative data for the current study were collected and analysed in order to meet the objectives of the study.

CHAPTER SIX

QUALITATIVE DATA ANALYSIS

6.1 Introduction

As highlighted in Chapter Three of the current thesis, it was deemed necessary to carry out interviews with key informants in order to complement the results obtained from the quantitative survey, which were presented in the previous chapter. The conducting of such interviews was done in conformity with the triangulation approach applied in the study. The design of this study in majorly quantitative, but in keeping with the mixed methodology approach highlighted in table 3.3 of Chapter Three, there was need to undertake a qualitative phase to supplement on the findings of the quantitative phase. The thirteen interviews with respondents drawn from a university, a business school and a management development institute were of particular importance in providing a deeper understanding of the knowledge management and organisational learning phenomenon in higher education institutions in Uganda. The respondents consisted of the following full-time staff members:

1) three members of teaching staff and one officer representing management at the university;
2) one top administrator, two librarians, one senior lecturer in the Faculty of Business, and one research fellow at the Business School; and
3) two managers and two senior academic staff at the Management Development Institute.

Table 6.1 below shows the distribution of participants among the participating institutions.

Table 6.1: Distribution of the key informants

Institution type	*No. of academic staff representatives*	*No, of managerial representatives*	*Total*
University	3	1	4
Business school	4	1	5
Management development institute	2	2	4
Total	**9**	**4**	**13**

For purposes of maintaining their confidentiality, the respondents requested that they remain anonymous. The librarians and research fellows were categorised as academic staff, because their activities are more related to academic work. Educational institution managers were considered useful to the study, as such employees are both in charge of the implementation of policies and influential in the development of policies affecting the employees of the institutions. Their views also tend to be more balanced than are those of academic staff.

6.2 The interview process

All the interviews were conducted at the office premises of the key informants, so that they were at ease when answering the questions. Only one informant (a senior manager of one of the institutions) requested to be interviewed at a different workshop venue. The interviews on average lasted 1 hour and 30 minutes. The shortest interviews, consisting of one lasting forty-five minutes and the other one hour, were conducted with two senior administrators. The shortness of such interviews was due both to their not having much to say about knowledge management and organisational learning, as well as being too busy with their work schedules.

The interviews were semi-structured, with the researcher asking questions relating to specific variables of the study. On receiving answers to questions asked, additional questions were asked to clarify any point in the answer provided which required explanation. All interviews were conducted by the researcher, though the research assistant assisted with note taking.

Despite repeated requests that the respondents allow their interviews to be audio-taped, all the respondents refused to allow for such audio-taping. The only option remaining was to take notes during the interviews, which slowed down the interview process considerably. Some information might also have been omitted as a result of such a limitation on the interviewing procedure, although the research assistant's involvement in the interviews helped minimise the loss of data.

Since the researcher relied on taking notes during the interviews, some of the responses had to be taken down in shorthand in order to keep up with the pace of the interviews. The use of abbreviations in the note taking required that, immediately after the interview, a write-up of the interview had to take place, in order to avoid missing out on some of the data. The process was facilitated by the use of a contact summary form, as proposed by Miles and Huberman (1994), which was created for each informant. The use of such forms facilitated the capturing of the discussion of important issues which were raised in the interview, and which proved relevant to the study. In addition, the use of such a form was useful for matching data to the codes used in the analysis. A copy of the form was attached to each interview write-up for ease of reference (see Table 6.2 below).

Table 6.2: Example of the contact summary form

Name of respondent: *Date of the interview:* *Telephone:*
1) Main issues or themes emerging from the interview:
2) Information received on each of the targeted interview questions:
3) Interesting or illuminating comments from the respondent:
4) Concerns about the interview:

6.3 Qualitative data analysis

In the current study, the data were analysed concurrently with their collection. Such a method of analysis sharply contrasted with that of quantitative data, which were analysed after the entire data collection process had been completed. The method used helped to keep the threads of information which were collected intact, avoiding loss of meaningful data. The researcher benefited from the feedback, especially regarding emerging trends in the data, provided by colleagues who were also undertaking their PhD studies at a number of different universities.

The adoption of such a procedure for the qualitative data analysis followed that which is recommended by Miles and Huberman (1994), in which codes are generated to describe the data. According to Miles and Huberman (1994: 56), codes are “tags or labels for

assigning units of meaning to the descriptive or inferential information compiled during the study". The codes used for analysis in the current study originated with the conceptualisation of the main variables of the study, as presented in the literature in Chapter Two. Such a procedure is consistent with that of Miles and Huberman (1994), who recommended that codes can be created prior to the conducting of fieldwork, which is based on the conceptual framework of the study. The initial codes, which are commonly referred to as a start list, were modified, where possible, to fit the emerging patterns in the data. The start list codes were confirmed by reading and rereading the interview write-ups and the contact summary forms in order to detect the patterns emerging in terms of the use of similar phrases, in reference to the same concept. Such a procedure was followed by writing up notes for reference, listing recurring ideas, and drawing diagrams depicting activities related to certain knowledge management and organisational learning practices. Keen attention was paid to the vocabulary used by the informants in order to identify the underlying topics or concepts to which they referred.

Pattern coding entails the scrutinising of codes in order to identify any repetition of ideas which might imply the presence of a common theme across many informants. According to Miles and Huberman (1994: 69), pattern coding is useful in that it allows "the reduction of large amounts of data into smaller numbers of analytic units; the involvement of the researcher in analysis during data collection, so that later fieldwork can be more focused; the elaboration of a cognitive map, which is an evolving, more integrated schema used for understanding local incidences and interactions; and the laying of the groundwork for cross-case analysis, by highlighting common themes and directional processes in multi-case studies."

In order to devise useful pattern codes for further analysis, those ideas and concepts which were articulated by the informants were linked to the respective codes, and clustered together to form themes. The generated themes were linked together using a flow chart, which helped to illustrate their interrelationships.

The interview write-ups were photocopied in triplicate, with the master copy being kept in the research folder, while the duplicate copies were used for cutting up into relevant chunks of information, which were linked and stapled together, in terms of the ideas and information which they contained, for ease of retrieval and analysis. In the process of analysis, such information was related to certain themes of the study, serving as the groundwork upon which further analysis could be based on the answers to the research questions. Each chunk of information was placed in a bundle labelled with a corresponding code.

Qualitative analysis uses different types of codes, with the most common being a priori or inductive codes. In the case of a priori codes, the researcher uses already existing codes on the data collected, whereas in the case of inductive codes, researchers develop codes as they code the data. In the present study, a priori codes were used. Such codes were developed, based on the existing literature, and, during the analysis, the intention was to watch out for those themes which related to the codes. In the analysis, inferences were drawn from a number of conceptual models, including specifically from Watkins and Marsick's (1993) model of organisational learning activities and Filius et al.'s (2000) model of knowledge management practice.

Consistent with the a priori coding, the interview notes containing responses related to each of the dimensions were coded based on the coding list presented in Table 6.3 below.

Table 6.3: Initial codes used in the analysis

CODE	*Meaning*
KM TRANSFER	To refer to activities related to the transfer of knowledge
KM ACQUIRE	To denote all words to ideas connected to the acquisition of knowledge mentioned by the interviewee
KM DOCUMENT	To refer to processes, or activities mentioned by the respondent that have a connection to knowledge documentation
KM APPLY	To refer to any words, ideas, or phrases used by the respondent that imply the application of knowledge
KM CREATE/GENERATION	To denote the words, and ideas used by the respondent that have something to do with the creation of knowledge, new information
IND LEARNING	To denote ideas or words used by the interviewee that makes reference to the learning that occurs at individual level
TEAM LEARNING	To denote any reference made by the respondent that is connected to the learning that occurs at team level
INST LEARNING	To refer to any learning mentioned by the respondent that has something to do with the learning that occurs at the institutional or organisational level.

Follow-up interviews were conducted to identify those activities which were consistent with leader-driven learning, a new dimension that earlier emerged from factor analysis.

Relationships among themes within the data were then identified and presented in the form of tables, which were generated by creating categories from themes identified. For example, in the first level of the knowledge transfer category, other levels, such as what activities constituted knowledge transfer, were also present. The same iterative procedure was applied to all the themes which emerged from the data.

The study applied a multiple case analysis. Though, initially, the researcher had intended to use four institutions in this phase of the study, during the follow-up phase, the respondents at the private university involved in the study could not be reached for more details, because it was closed for the holidays, and the few employees who were at the university at the time could not fulfil the criteria for being key informants. The information which had been obtained from the university was therefore excluded from further analysis, because it could not be validated. The data from the key informants were

analysed in each of the remaining three cases, and later compared across the participating institutions.

6.4 Summary

Chapter Six discussed how the key informant interviews were conducted, highlighting a number of techniques which were used to analyse the qualitative data. Emphasis was placed on the coding exercise, as well as on the identification of relationships between various codes, in order to arrive at a meaningful interpretation of the data gleaned. Chapter Seven presents the results of interviews on a case-by-case basis and thereafter a cross case analysis is presented.

CHAPTER SEVEN

RESULTS OF INTERVIEWS WITH KEY INFORMANTS

7.1 Introduction

The major objective of Chapter Seven is to present the results of the key informant interviews in order to fulfil the triangulation approach adopted for the study. Using information from the write-ups generated from interview data, the meanings of comments made by respondents were analysed in order to provide answers to the research questions for the study. The findings from the key informant interviews are presented in a narrative and descriptive form. In other words, the results are presented in the form of a verbal description of trends and themes, with quotations being taken verbatim from the interview write-ups.

A qualitative investigation was undertaken into three different educational institutions: a university, a business school, and a management development institute, each of which is regarded as a separate case study. Consistent with Chenail's (1995) approach, background information was obtained on each of the case studies in order to create a clear picture of the data context. In each of the case studies presented, the respondents' general understanding of the field of knowledge management is discussed, followed by an examination of their perceptions on knowledge management practices and activities implemented by their institutions. The respondents' understanding of organisational learning, including the learning levels within each institution and the learning activities implemented is then explored. The interdependence of knowledge management and organisational learning, as seen from the respondent's perspective, is discussed to round off the case study.

7.2 Case Study One: Management development institute – the UMI

Four respondents were interviewed from the UMI, of whom two were members of the academic staff, whereas the other two formed part of the management team.

7.2.1 Background information

The UMI is a semi-autonomous public institution, which was established in 1969 as an Institute of Public Administration under the Ministry of Public Service. Initially, its mandate was to conduct in-service training for public servants, who were replacing the previously employed expatriates, who were leaving the country after independence. After the enactment of the UMI Act in 1992, the Institute acquired agency status, with a high degree of autonomy under the Governing Board. In 2001, under a new Act of Parliament, the Universities and Other Tertiary Institutions Act (UOTIA) categorised UMI as one of a number of degree-awarding institutions.

The UMI is organised under two major directorates:

1) the Directorate of Programmes and Student Affairs; and
2) the Directorate of Finance and Administration.

Whereas the former Directorate is responsible for training programmes, ranging from ordinary diplomas and postgraduate diplomas to masters programmes, with other units residing under the Directorate being the Global Distance Learning Centre, the Research Unit, and the Projects Unit, the latter Directorate, which provides an overall administrative support function for the Institute's activities, includes the Human Resource and Administration Department, and the Finance Department. The UMI operates in three regions of Uganda, with a separate outreach centre in the western and northern region, as well as on the main campus in central Uganda. In terms of its mission, the UMI is supposed to promote sustainable management capacity through training, which accounts for 80% of its revenue, with consultancy work accounting for 15% and research accounting for 15%. At the time at which the current thesis was written, consultancy work and research were being revitalised by means of the establishment of several independent overseeing units.

Most of UMI's clients, in respect of its training programmes, come from the private sector, due to its evening courses having become increasingly popular since they were first introduced in 1999. A smaller percentage (10%) of clients comes from the public sector. Almost all of the clients work, due to UMI's policy to admit only those applicants

with a working experience of not less than two years. In terms of information communication technology infrastructure, all academic staff have desktop computers, which are connected to the local area network and the intranet. It was revealed that, although the intranet has been in place for more than three years, it tends to be under-utilised. Though all staff members had undertaken training on how to use the network, such usage remained very limited. The local area network was primarily used for largely ephemeral matters, rather than for knowledge transfer and the exchange of ideas, for which it was intended.

The respondents revealed that, despite there being evidence of an open-minded culture, new staff were not assigned a mentor to facilitate their transition to the UMI, being left very much to themselves after an initial orientation.

7.2.2 Understanding of knowledge management

The respondents at UMI showed a reasonably sound understanding of knowledge management, with one respondent describing knowledge management as: *"A management technique aimed at ensuring that the organisation prospers through the use of knowledge generated by that organisation."*

The respondents made repeated reference to such key terms as 'information capture', 'information distribution', the 'sharing of ideas' and the 'searching for knowledge'. A synthesis of such terms served to confirm that the respondents perceived a veiled connection between knowledge management and information technology, with knowledge management being considered as dealing with information distribution by means of the use of information technology tools, as well as with the protection of knowledge by means of encrypting and coding. Their overall perception that knowledge management was largely technology-based might be attributed to the increased use of information technology in knowledge management initiatives during the past decade.

One respondent commented that, although the idea of knowledge management had not yet been popularised in their institution, it was deemed an important driver for success,

especially in an era which has undergone so much liberalisation of higher education. The absence of a knowledge management officer was identified as one of the reasons why knowledge management as a concept was not yet popular at UMI. Emphasising such a, another interviewee reported: *"There is need for some responsibility centre for KM here. We need a knowledge management officer to be recruited so that knowledge management can be integrated in all Institute processes."*

Regarding who was responsible for knowledge management at UMI, a respondent representing senior management revealed that the information communication technology manager was in charge of some of the knowledge management-related matters. Such allocation of duties was a reflection of the respondent's perception that knowledge management matters tended largely to be associated with information communication technology. Such a perception reflects the belief, which was held by the first generation of knowledge management theorists that most organisations invested heavily in information technology equipment in a bid to encourage knowledge sharing among employees.

Knowledge management practices at UMI

Interviews conducted for the purpose of data collection are grounded in knowledge management practices, according to Filius et al. (2000). However, during the interviews for the current study flexibility was introduced by the inclusion of practices other than those suggested in the literature. From responses, it was possible to discern several activities which were linked to particular knowledge management practices. The following sections present a discussion of such activities at UMI.

Knowledge acquisition

From the interviews, it was evident that the most common ways in which UMI acquires knowledge are by means of training, conference attendance, purchasing, and the recruitment of new staff.

1) Knowledge acquisition: Training

The respondents reported that a number of their colleagues were undertaking both long-term courses, ranging from masters to PhD programmes, as well as short-term courses. UMI sponsors employees, in addition to granting them study leave to attend to their course obligations. However, UMI sponsors employees on part-time programmes only, in order that they may contribute to Institute activities during the course of their studies. Most training at masters' level is undertaken in Uganda, with relatively few costs for the Institution. PhD programmes are mainly undertaken either in Europe or in South Africa. At the time of the study, four employees were undertaking their PhD studies in the UK, and another four were studying through various universities in South Africa. The respondents also highlighted the importance of short-term training as a means of acquiring knowledge. Attendance at short courses is only permitted if the employee concerned can show that they have a training need in that particular area, and that the Institute would gain from their attending such a course. The respondents confirmed that a number of requests to attend short courses had not been approved, due to lack of evidence of potential knowledge gain from such courses.

The respondents viewed local and foreign, short and long-term training as a major source of knowledge acquisition at UMI, though such training is not explicitly regarded as a knowledge management activity, but rather as one of a number of different ways in which staff might be kept updated.

2) Knowledge acquisition: Conference attendance

The respondents saw conference attendance, especially of international conferences, as a means of acquiring knowledge. The most popular international conferences attended by UMI staff included the annual conferences of the International Association of Schools

and Institutes of Administration (IASIA) and of the African Association of Public Administration and Management (AAPAM). In respect of local conferences, one respondent remarked that some of them were poorly organised, leading to wastage of time without much benefit being gained in terms of knowledge. According to the respondent, *"I find it a waste of time attending some of our locally organised conferences. They are poorly managed and generally are not useful in improving one's knowledge."*

The respondents revealed that, as a consequence, local conferences tended to attract relatively little interest from staff, although they were seen as a source of acquiring some knowledge. A major drawback in attending local conferences was that such attendance did not secure incentives for those attending them, unless they presented a paper at such a conference. At local conferences, participants were sponsored in terms of their per diem attendance, thus benefitting from the opportunity to interact with internationally renowned scholars in a specific thematic area. Such opportunities enhanced the possibility of networking, as well as of exploring joint publication possibilities.

UMI requires that academic staff members present a minimum number of conference papers, in addition to other requirements, before they stand the chance of being promoted, which has given rise to a renewed desire in academic employees to respond to calls for papers from work-related conferences. Those who are granted the opportunity to attend conferences are required to write reports, which are circulated among all UMI staff, about what transpires at the conferences, so that those who did not have the same opportunity can also benefit from the knowledge sharing.

3) Knowledge acquisition: Purchasing

According to the respondents, purchasing knowledge takes the form of subscribing to journals, daily bulletins, newspapers and newsletters, as well as the purchasing of books for the library, which is used both by the trainers and the students. The library at the Institute, though small, is well stocked with management books, including some trainers' manuals. However, it was noted that some volumes were dated, showing delays in

updating such information sources. One academic staff member confirmed that, although the library is stocked with most of the reference books required for his teaching, he finds it easier to get more information from the internet, arguing that *"From the Internet, you get up-to-date and well-researched materials that make my teaching easier."*

Due to such shortcomings, a representative of senior management remarked that library usage by academic staff was limited, resulting in some of the books on the shelves not being utilised. The references given to the students sometimes did not include the new editions which were available in the library.

4) Knowledge acquisition: Recruitment of new staff

New hires were perceived as a form of grafting knowledge from those who had been identified as possessing such knowledge. Although the rate of employee turnover at UMI was generally low for academic staff, the respondents revealed that at least every six months a recruitment exercise is taken to secure new academic staff. Such recruitment takes one of two forms: The first form consists of those staff who are hired on a contractual basis, normally for a period of five years, renewable after successful performance. The second form consists of associate consultants, who are commonly referred to as 'part-timers', who are hired when the programme in which they have expertise is being conducted. A respondent from senior management commented that *"It is economical to maintain associate consultants, because they do not draw salary and other contractual benefits like gratuity, and they are paid only for the hours they teach."* Although such an argument is made on the basis of efficiency, it is also true that 'part-timers' lack a strong attachment to the Institute, and therefore feel less obliged to uphold quality standards in teaching. The head of department who is responsible for developing a new course is also responsible for requisitioning any new staff who are required for the course.

Knowledge transfer at UMI

In the context of the current study, knowledge transfer was deemed to encompass knowledge-sharing activities among staff at the institutions surveyed. Knowledge transfer

in UMI was perceived as taking place through the following avenues: information technology, team teaching, and project work or task forces.

1) Knowledge transfer: Information technology

The respondents revealed that UMI had invested moderately in its information communication technology infrastructure, as was reported earlier in subsection 7.2.1, with all academic staff members being equipped with a desktop computer connected both to the local area network and the intranet. The respondents contradicted one another when they were asked about the extent to which such an infrastructure had enabled knowledge transfer. Whereas a member of the academic staff maintained that the local area network was being used effectively in knowledge transfer activities, the respondent from senior management complained that the local area network was being used for ephemeral issues, rather than for the communication of knowledge which was intended to improve UMI processes. A follow-up interview, which was conducted to resolve such a contradiction revealed that the local area network was not so much being used as an avenue for knowledge exchange, but rather for complaints and for administrative matters.

2) Knowledge transfer: Team teaching/co-facilitation

Team teaching or co-facilitation, in terms of which two or three lecturers jointly deliver a lecture, is occasionally used as a means of knowledge transfer. Such joint teaching provides an opportunity to learn from one's colleagues. One respondent remarked that the use of such an approach first came about as a result of training on consultancies, in terms of which a client required that a tailor-made training programme be co-facilitated by at least two trainers. However, the respondents stated that such a method of knowledge transfer was not widely embraced at UMI, due to the fact that it led to a duplication of resources, which was exacerbated by understaffing, as well as there being no assurance that the co-facilitator benefits from participating with fellow lecturers in such an exercise.

3) Knowledge transfer: Project activities

Project activities, such as consultancy teams and task forces, were reported to be one of the means by which knowledge is transferred at UMI. When assembling a team for a consultancy project, the Projects Unit (which is the unit responsible for implementing consultancies) draws expertise from different departments, thus enabling team members to share ideas while executing the assignment.

Other forms of projects are those related to research, in terms of which a team of academics jointly develops a research proposal and undertakes research together. UMI also has a history of decision-making involving engagement in work processes after consultations. In relation to such decision-making, the respondents confirmed that taskforces were regularly constituted to study certain proposals. As in the case of consultancy teams, taskforce members are also encouraged to share their knowledge, skills and experiences.

Knowledge documentation at UMI

The interviews were also concerned with the way in which knowledge was documented at UMI. Different terms were used by the respondents to refer to such a practice, including 'knowledge capture', 'knowledge storage', and 'knowledge protection'. However, 'knowledge protection' also intimated a competitive dimension, in terms of which knowledge is treated as an aspect which should be kept away from others, especially those who are not authorised to access such knowledge. Knowledge documentation is considered a critical aspect in knowledge management, because such documentation facilitates transforming individual knowledge into organisational knowledge. Documentation activities identified by informants were found to constitute three main categories: reports; handbooks; and computer-based documentation, such as the intranet.

1) **Knowledge documentation: Reports**

The respondents from UMI expressed the view that capturing knowledge in the form of reports is the most common avenue of documenting knowledge. However, they were concerned that there was no clear follow-up on some of the critical issues raised by specific departments in course reports. To underscore such a limitation, one academic staff member argued as follows:

> *"Writing reports has become like a ritual, where recommendations in the report are not taken up by management for implementation. This is especially so with student evaluation reports. Students raise very important issues regarding how the courses should be managed, and areas that need improvement, but no action is taken, and no feedback is given to participants".*

Such a scenario substantiates the argument that documented knowledge is not retrieved to guide decision-making processes. Such a perception was echoed by another respondent, who regretted that "*on some occasions, the Institute sets up a taskforce to address an issue which was handled by a previous taskforce, but the report was neither implemented nor internalised by the members of the Institute."* Due to such needless duplication of effort and taskforce fatigue, staff members tend to be reluctant to participate in subsequent taskforces.

Though most reports are printed out and distributed as hard copies to members of staff, some are merely posted on the local area network. However, as noted earlier, many such reports remain unread, due to the poor reading culture. According to one respondent, staff members sometimes ask for information which is right in front of them on their desks.

The National Documentation Centre (NDC), which is located at the Institute, acts as a knowledge repository for both government documents, such as the Constitution, budget reports, and national development plans, and UMI documents, to which the public has access. Other reports, including research reports written by students on masters' programmes or academic staff, are of an academic nature. The method used for dissertations, in terms of which a student is required to deposit two hard copies of their

research reports and one soft copy with the Higher Degrees Department, has proved effective. Hard copies of such dissertations are placed in the documentation centre for accessing by the public and other interested members of the academic community, whereas soft copies are supposed to be uploaded on to an electronic system, which, however, is not yet operational.

2) **Knowledge documentation: Course handbooks**

Regular updating of training handbooks and manuals has proved to be one of the most popular ways of documenting knowledge at the UMI. The respondents confirmed that, once a year, the Directorate of Programmes convenes to review and update the content of training programmes, based on market needs. Updated courses are compiled into course handbooks and training manuals. Although such a process is highly participatory, it was not clear from the respondents how such documents are accessed by UMI members. The respondents noted that, normally, the course manager or head of department is the contact person from whom information about new courses can be obtained. Clearly, an effective mechanism for disseminating such documents to all UMI members, as well as to current and potential clients, is required.

3) **Knowledge documentation: information technology-enabled documentation**

As has already been stated, some documents, such as strategic plans and business plans, are uploaded on the intranet for ease of accessibility. UMI operates a fully internet-connected resource centre, at which both lecturers and students can access electronic journals and other resources. Other databases are available for students, alumni, and other stakeholders, such as suppliers and service providers. The respondents reiterated their concerns about the poor utilisation of computerised databases to access knowledge and information.

Knowledge creation at UMI

The informants used various terms to refer to knowledge creation activities, including 'knowledge generation', 'knowledge development' and 'knowledge production'.

Knowledge creation at UMI takes two main forms: research activities, and consultancy projects.

1) **Knowledge creation: Research activities**

Applied research is undertaken at UMI by both graduate students and academic staff, using case study methodology. Despite the research culture being one of the three pillars of the Institute, such a culture has still not been fully embraced. Some of the reasons given for such a state of affairs included a lack of funding and an excessive workload. In a bid to spur on the research culture, UMI has allocated research funding on an annual basis for each academic staff member, though the production of research reports is still minimal.

2) **Knowledge creation: Consultancy projects**

An increasing number of lecturers are taking part in consultancy projects, partly as a way of augmenting their earnings, but also partly due to the creation of the standalone unit, which deals with consultancy projects. Such involvement has resulted in improved knowledge generation, especially for purposes of linking theory to practice and for developing case studies for use in teaching. One of the respondents commented that *"consultancy has become very popular recently, because it is a lucrative activity. It boosts one's income, but it [also] helps us to link the theoretical knowledge we have to the practice in the field."*

The fusing of theoretical knowledge and practical experience is probably one of the best ways of creating new knowledge. The most common form of consultancy work at UMI consists of organisation development interventions, in terms of which consultants visit organisations to analyse organisation-specific problems and to develop interventions to improve organisational effectiveness. The other form of consultancy work takes the form of training, in terms of which tailor-made courses are developed and delivered to meet specific clients' needs. In actual fact, according to a senior staff member of UMI, staff performance is rated on three aspects: training, research and consultancy work.

Knowledge application at UMI

Knowledge at UMI is applied through three main channels, namely teaching/training, the supervising of student research, and consultancy work.

1) Knowledge application: Teaching/training

Knowledge is applied through teaching/training, in connection with which one respondent noted that *"[i]n applying our knowledge, we endeavour to pass on the relevant information to our students, and guide them through their research projects."*

Lecturing constitutes more than 80% of UMI activities, with the remainder constituting research and consultancy. In recent years, the number of courses on offer has increased in response to market demand. In addition, UMI has expanded to other regions of the country, coupled with the introduction of weekend programmes at all three centres. One respondent remarked that: *"Although increased student intake has resulted in high revenue for the Institute, other avenues for knowledge application, like research and consultancy, have received less attention."*

2) Knowledge application: Supervising student research

According to the respondents, research supervision comes second in importance to lecturing in respect of knowledge application at UMI, with lecturers being assigned a minimum of five students to supervise. Although, previously, some lecturers were reluctant to take on students for supervision, such supervision has now been made a requirement for promotion. The quality of research supervision largely depends on how much time the lecturer concerned sets aside for supervision.

3) Knowledge application: Consultancy work

At UMI, knowledge is also applied by means of the core activity of consultancy work. Staff performance is evaluated on their consultancy work, along with their side training and research. According to one of the respondents, though most of their colleagues are

willing to participate in consultancy projects, such projects have not been secured by UMI for some time, due both to uncompetitive bids having been presented by the Institute and to potential clients preferring to make use of private sector consultancy firms.

Table 7.1 Summary of activities in each KM practice at UMI

Knowledge acquisition	***Knowledge transfer***	***Knowledge documentation***	***Knowledge creation***	***Knowledge application***
1.Hiring 2.Purchasing 3.Conferences 4.Training	1.IT enabled 2.Team-teaching 3.Joint projects	1.Reports 2.Handbooks 3.IT based	1.Research 2.Consultancy	1.Lecturing 2.Student supervision 3.Consultancy 4.Training

7.2.3 Organisational learning at UMI

The respondents concurred that organisational learning was perceived to occur at individual level first, then at team level, and, lastly, at institutional level. In support of such a perception, one informant remarked: *"We cannot talk of an organisation when there are no individuals. Likewise, it is not right to assume organisational learning without individual learning."* Such thinking is in line with that of Kim (1998), who asserts that, for organisational learning to occur, it has to take place at both an individual and team level first.

The respondents were also unanimously in agreement that they did not believe that UMI is a learning organisation. Examples were cited of where the Institute has failed to take advice from its major stakeholders, including especially from its students, regarding improvement of course delivery. One respondent indicated the following example of UMI's failure to learn as an organisation:

> *"At the end of every module, we get feedback from our participants (students) on how to improve course delivery. These recommendations are not acted upon, and the students raise the same issues over and over again. If we were a learning organisation, such things would not happen".*

Organisational learning activities at UMI

In terms of specific activities which are carried out by UMI to enhance organisational learning, specific mention was made of the debriefing meetings, which are regularly held by academic staff members. At such meetings, those staff members who have attended conferences or workshops have the opportunity to debrief those of their colleagues who did not attend such events. Despite such an initiative effectively promoting the sharing of learning, scant implementation of such learning takes place, resulting in one senior member of UMI regretting that

> *"This process has become like a ritual lately. Members just go there to listen. Some members do not even comply [with the requirement that they make such presentations], and there is no action plan to put in practice what has been learnt from the presentations. Members quickly return to their old ways of doing things, even after having been exposed to better practices...It is a mindset problem [that] people need to change"*

Though the term 'change' resonates well with those organisational learning experts who believe that learning is essentially a change strategy, such change is clearly only taking place to a limited extent.

Despite organisational learning processes not being properly documented at higher education institutions, the responses indicated that learning occurs on three different levels, namely the individual, team and organisational level.

1) Organisational learning: Individual level

The three major activities taking place on an individual level at UMI are continuous professional development, workshops, and self-sponsored training programmes. Most continuous professional development (CPD) interventions are sponsored by UMI in terms of such programmes of study as the PhD, the Association of Chartered Certified Accountants (ACCA), the Chartered Institute of Marketing Associations (CIMA), and the Chartered Institute of Purchasing and Supply (CIPS). According to the Institute's policy, members of staff who are sponsored on such programmes are bonded for various periods, ranging from one to four years, depending on the duration and cost of the programme

concerned. A member of senior management remarked that *"[t]here is high demand for sponsorship on CPD programmes, and this has put a strain on the Institute's financial resources"*. Consequently, interested individuals are advised to try other sponsorship agencies.

The respondents also confirmed that workshops are a major source of learning, especially when they are well organised and facilitated by experts in the field. At least once every three months, UMI sponsors one person from each department to attend such workshops. In addition, some staff members have embarked on self-sponsored training as a way of improving their knowledge base. Normally, such programmes of choice are attended in the evening outside conventional working hours, though the Institute grants the staff attending such programmes leave of absence during examination periods. Overall, individual learning was taken to be synonymous with training, with both the Institute and individuals playing different roles in achieving such learning.

2) Organisational learning: Team level

It is interesting to note that although the factor analysis results in chapter five of this thesis did not confirm the team learning variable, some activities associated with team learning were identified by the key informants. In addition to the debriefing meetings described above, UMI holds peer review sessions, at which academic staff present their research proposals and conference papers for discussion and vetting. Other team learning activities identified by the respondents included those involving task forces, project teams and co-facilitation, as has already been discussed in the previous sections on knowledge transfer.

3) Organisational learning: Institutional level

Institutional learning at UMI mainly takes the form of strategic alliances and partnerships, in which members of top management, more particularly the Director General, play a key role. Strategic alliances mentioned include some with reputable institutions in Europe, to which academic staff members are sent on study tours. During such tours, the staff members concerned are expected to learn about organisational

processes which they can implement at the Institute on their return. In addition, in terms of collaborative arrangements which are jointly conducted with the same institutions, training programmes are devised with the aim of reinforcing the learning experiences shared with their academic partners.

4) Organisational learning: Leader-driven

At UMI, leader-driven learning is mainly manifested through collaboration with other national and international institutions, as well as by means of the creation of favourable policies. The leadership at UMI was reported to be active in developing regional networks, such as the African Management Development Institutes Network (AMDIN), which is responsible for bringing together all management training institutes in Africa, and the African Association of Public Administration and Management (AAPAM). In terms of an international collaborative agreement with the Institute of Housing and Urban Development Studies (IHS) in the Netherlands, some staff members gained exposure to course development strategies, especially benefitting in terms of learning more about the training of trainers, as well as about paper presentation. One respondent remarked that *"by way of collaborations built by our Director General, I was able to benefit from a training programme, and I have maintained a network of professionals we met in that training"*.

Top management is also known to promote learning through championing policies which facilitate the acquisition of knowledge, including policies regarding study leave. One respondent, however, commented that only some employees have benefitted from such a policy, showing that it seems that such a policy has been selectively applied.

Table 7.2 Summary of OL activities at UMI

Individual	***Team***	***Institutional***	***Leader-driven***
1. CPD 2.Workshops 3.Self-sponsored	1.Peer review 2.Team teaching 3.Team tasks 4.Meetings	1.Strategic alliances 2.Partnerships	1.Favourable policies 2.Collaborations 3.Training scholarships

7.2.4 Relationship of knowledge management and organisational learning

At UMI, there is some perception that knowledge management practices and organisational learning are interrelated. One respondent remarked that, in real terms, organisational learning cannot be realised, unless it is supported by strong knowledge management initiatives. Conversely, knowledge cannot be managed unless it has been learnt.

Those knowledge management activities which were identified by informants included how knowledge is acquired, and how it is distributed or shared. Other activities relate to how knowledge is generated or created, and to how it is utilised or applied. In terms of the naming of such activities, it is plausible to conclude that learning is the ultimate concern for all knowledge management activities.

In terms of the organisational learning point of view, those initiatives which were identified by the informants reflect the thinking that, in order for organisations to learn, knowledge must be acquired, generated, and utilised at all levels in an organisation. Such thinking implies an appreciation of the fact that the process of learning cuts across all three levels: individual, team and organisational. Such an understanding was reflected in one respondent's comment that *"learning is about knowledge, and for knowledge to be of any use, it must have been learnt, and applied… you cannot apply the knowledge you have not learned."*

Among the respondents, there was an overriding perception that knowledge management and organisational learning shared similar objectives in *"protecting knowledge in organisations and helping organisations to generate new knowledge through learning"*.

To sum up the position of knowledge management and organisational learning in higher education institutions, the senior administrator argued:

> *"It is no longer a question of whether higher [education] institutions are managing their knowledge well, or if they are even learning organisations, it is a*

question of how [much] faster they can learn, and how best they can harness the intellectual resources within their boundaries".

7.2.5 The linkage between Knowledge management and organisational learning

In respect of possible areas of convergence between knowledge management and organisational learning, two of the respondents found difficulty in identifying such areas, though they insisted that a strong inter-relationship exists between the two. The other respondents pointed out those activities which are deliberately undertaken by leaders and managers at the various higher education institutions. According to the respondents, though institutional activities could be seen as linking the two initiatives together, managerial actions sometimes are responsible for delinking them too. One informant remarked: *"I feel it is upon the leaders to ensure that knowledge management and organisational learning practices go hand in hand, rather than having disjointed efforts for each."*

The same view was echoed by another lecturer, who commented that:

> *"Management has the capacity to influence a lot of things in our institution, if they wish that learning takes place, they put resources in place for it to occur, knowledge will then be acquired, created and stored, if they do not regard it as a priority, it will not happen……"*

The linkage between knowledge management and organisational learning was also explained in terms of related policies and strategies which are aimed at enhancing learning and knowledge sharing, with the key terms here being *'policies'* and *'strategies'* related to learning which seem to explain the linkage between knowledge management and organisational learning.

7.3 Case Study Two: University – KYU

At KYU, four people accepted the request to be interviewed for purposes of the current study, three of whom were members of academic staff (including a librarian), and one a member of the management team.

7.3.1 Background information

KYU, which is one of the more recently established public universities in Uganda, has, as its main aim, the intention to promote and advance knowledge and to develop skills in science, technology and education. KYU was established in terms of the Universities and Other Tertiary Institutions Act (UOTIA) of 2001. The University is a result of a merger of three former institutions, namely Uganda Polytechnic Kyambogo (UPK), the Institute of Teacher Education (ITEK), and the Uganda National Institute of Special Education (UNISE). KYU currently has six faculties, those of Arts and Social Sciences, Education, Engineering, Science, Special Needs Rehabilitation, and Vocational Studies. Such an arrangement reflects the underlying culture of differentiation between the original constituent units which went to make up the university, with the faculties being a mirror image, in terms of their distinct nature, of the previous colleges and polytechnics which amalgamated into the University, indicating some resistance to the concept of a new framework of an integrated institution.

KYU offers diplomas, undergraduate degrees, postgraduate diplomas and degrees, in addition to short certificate courses. At the time at which the current thesis was written, the student population at KYU exceeded 20 000 overall. KYU has limited information communication technology infrastructure, with some members of academic staff not being equipped with their own computers, and some with computers not having access to the internet, the local area network, or the intranet.

7.3.2 Understanding of knowledge management

The respondents at KYU did not exhibit a good understanding of the nature of knowledge management, although they claimed to have read about it. One of the respondents remarked that *"Knowledge management is not taken seriously here. Nobody cares about leveraging the knowledge resources in this university. Most people are knowledgeable, but their knowledge is not effectively tapped to benefit the university."* Another respondent agreed that knowledge management is not taken to be a vital aspect of university work, blaming this on a lack of a knowledge management-dedicated employee at the university. The same informant argued that: *"Knowledge management is a fad meant for business companies mainly, not for a training institution like ours, but with time, we shall catch up."* In the light of such reasoning, it can be seen how little importance is attached to knowledge management at the University. Such thinking also shows the inability of the respondents to link their understanding of knowledge management to the current operations of the institution. In addition, it shows an absence of a clearly articulated strategy for managing knowledge at the University. In contrast, the librarian underscored the importance of effective knowledge management practices at an academic institution such as KYU, alluding to some of the benefits to be gained from such practices as enhanced organisational memory, easy access to information, and efficient distribution of knowledge across all departments and faculties at a university.

Knowledge management practices at KYU

Using Filius et al.'s (2000) framework, as with the previous case study, it was possible to identify a number of activities associated with knowledge management practices at KYU.

Knowledge acquisition

According to the respondents, it was evident that, at KYU, knowledge acquisition is mainly associated with external sources, including those which are accessed via training, conference attendance and the purchasing of training materials. Such an approach to knowledge acquisition seems to reflect a certain narrow-mindedness, as it is generally

known that knowledge acquisition refers also to that knowledge which is contained in internal sources, such as past experiences, on-the-job rotation, and assignments.

1) **Knowledge acquisition: Training**

According to the respondents, their primary source of acquiring knowledge came from maximising the training opportunities to which they were exposed. Although some lecturers had benefited from training opportunities, the prioritisation of who receives training was not clear, with some employees from previous colleges feeling left out of training opportunities. As the funding for staff development activities was inadequate, most of the training taking place at the time study was undertaken was mainly sponsored by such international agencies as the Netherlands Organisation for International Corporation in Higher Education (NUFFIC). Postgraduate training, especially at master's and PhD level, is in great demand. Those staff members who were absorbed from the previous colleges lacked the prerequisite qualifications of master's and PhD to become university lecturers.

2) **Knowledge acquisition: Conferences**

KYU supports employee attendance at mainly scientific conferences, seminars and workshops, with two of the respondents acknowledging having attended at least one conference a year during the previous two years. As previously noted, the criteria for selection for such attendance is unclear, as some employees have attended a number of different conferences, whereas others still have to be offered such an opportunity. As one interviewee complained: *"We just hear that so and so has gone for a conference. When they come back, we are not informed. Next time, they are the same people [going] again".*

In addition, no mechanisms were in place for those individuals who attended such conferences to share their experiences of such conferences with their colleagues. Knowledge sharing occurs largely in informal ways, depending on the willingness of the individuals involved to share. Only the closest colleagues of those attending conferences seemed to benefit from hearing about what had transpired at the conferences.

3) **Knowledge acquisition: Purchasing**

According to the respondents, KYU subscribes to a number of journals and publications. By cooperating with other libraries at other universities, the library at KYU has been able to access some international peer-reviewed journals, though some of the stock is out of date. Weeding out and replacement of old volumes is an ongoing process, which depends on the available funding for such an item. In addition to purchasing printed sources, Book Aid International has provided some stock for the library.

Knowledge transfer at KYU

Knowledge transfer at KYU has mainly taken the form of technical assistance from external partners and multidisciplinary research projects. Limited internal knowledge transfer takes place between the staff, due to the historical peculiarities existing between the three original units, which merged to establishment the new university.

1) **Knowledge transfer: Technical assistance**

Long-standing technical assistance programmes with the governments of, among others, Nigeria and Cuba, entail, in the former case, sending professors in Mathematics, Sports Science and Food Science, and, in the latter case, sending professors in Electronic Engineering and Electronics to KYU. Such assistance is aimed at providing a learning platform for local KYU lecturers to assimilate knowledge and expertise, but differs in reality. When the technical assistance team members arrive, they embark on actual lecturing in specific course units to which they have been assigned, without any consideration for pairing them with their Ugandan counterparts in a dyadic relationship, which should result in the learning of the latter. No counterpart programme exists, and no team teaching or co-facilitation takes place. No formal mentoring programme allows for knowledge transfer. Effective knowledge transfer tends only to be effective when social bonds are built up between an expert and a novice. In the above instance, given the fact that such social bonds are not given an opportunity to develop, knowledge transfer essentially occurs between the visiting academics and the students, rather than between

the visiting academics and the lecturers concerned, which would be a more sustainable solution.

Knowledge transfer among collaborative entities requires complementary synergies in terms of expertise and knowledge on the part of the entities concerned. Such transfer also requires sufficient absorptive capacity on the part of the receiving partner. In a situation where both such elements are lacking, as in the case of KYU, the strategic imperative of such cooperation is diminished.

2) Knowledge transfer: Research projects

Multidisciplinary research projects, limited to scientific thematic areas, are another form of knowledge transfer which was reported as occurring at KYU, though little research was being undertaken at the University during the time in which the current thesis was written. One respondent blamed such a paucity of research on "*inadequate staffing*". On cross-checking this response, it was found that the available staff are continuously engaged in teaching, having little time to devote to research. Due to the fact that the original institutions of which the current University is comprised were at a lower level than that of a university, the research competencies of the academic staff tend not to be well honed. The university setting, in terms of which research is a key performance indicator, requires that such, as yet, underdeveloped skills to further developed. Insufficient research funding was also cited as another reason for the low levels of research currently being undertaken at the university. With such minimal levels of research being undertaken, relatively little knowledge is being transferred by means of such a route.

Knowledge documentation at KYU

The limited activities engaged in for documenting knowledge at KYU consist of research report writing and curriculum reviews

1) **Knowledge documentation: Research report writing**

According to the respondents, writing research reports is one way of documenting knowledge which is employed at KYU. Although minimal research is undertaken at KYU, owing to the reasons highlighted above, the hard copies of completed research projects are bound and stored in the library, with a few being uploaded onto the internet for ease of retrieval. Some of the published reports are also placed on the library shelves. Only some research findings are published either as textbooks or as refereed journals. Most of the respondents blamed such a poor publication record on the lack of resources in the case of book publications, and on the lengthy procedures involved in coming to press in the case of peer-reviewed journal publications. One respondent stated that the relatively poor quality of the manuscripts also negatively affects the rate at which such research is published.

2) **Knowledge documentation: Curriculum reviews**

Though curriculum reviews are supposed to take place regularly, one respondent claimed that he could not recall the last time that they had reviewed the curriculum for their courses. The different departments are meant to review the curricula of those courses which they offer in order to maintain relevancy to the market and to keep up to date in their teaching. Updated versions of courses are circulated to members of the relevant faculty in the form of hard copies, which act as a guide to academic staff in the preparation and delivery of their teaching.

Knowledge creation at KYU

According to the respondents, knowledge creation at KYU mainly takes the form of research activities.

1) **Knowledge creation: Research activities**

Research conducted at KYU is both applied and basic, with the latter constituting the major portion of such research. Basic research includes experimental research, which was found to be ongoing in the Science Faculty. Some studies had been undertaken in collaboration with other institutions, especially with those based in such developed

countries as the USA and Canada. Such research is, however, extremely limited, in that it comprises less than 5% of the total amount of research conducted at KYU. Applied research is conducted by students both at undergraduate and postgraduate level. However, the amount of research work undertaken at KYU is still limited. As reported in the earlier section on knowledge acquisition, staff members tend to complain about the inadequate staffing, the heavy workload, and the inadequate funding available to support research. One respondent complained that:

> *"Despite the fact [that] research is one of the promotional criteria in this university, people are not given the opportunity to conduct research. Even if one wants to use his/her own leave for research purposes, it is sometimes denied, on the grounds that there are no staff members to stand in for them".*

Although the respondents acknowledged that research is a means of creating knowledge, much still needs to be done at KYU in this regard. The establishment of a solid research fund, as well as the recruitment of more academic staff, in order to reduce the workload of existing staff, so that they could devote more time to research, would expedite the creation of knowledge at the University.

Knowledge application

According to the respondents, knowledge is applied at KYU either internally or externally.

1) **Knowledge application: Internal application (lecturing and student supervision)**

Internally, knowledge is applied in the form of lectures and the supervision of students' research work. The respondents concurred that lecturing constitutes more than 90% of knowledge application at KYU, with most of the remaining knowledge application taking the form of the supervision of research students. One respondent clarified such a situation in the following way:

> *"Lecturing covers a wide range of activities beyond just going to the lecture theatre. We prepare notes, conduct actual teaching, set examinations, evaluate*

student performance, and counsel those with problems. In doing all these, we are applying the knowledge we possess".

Knowledge application in terms of such supervision does not directly benefit the University, as the primary beneficiaries are the students, who are supposed to acquire sufficient knowledge to equip them for work. Nevertheless, KYU is a secondary beneficiary of such supervision, because, when the quality of graduates from the University is high, the institution inevitably becomes a university of choice for new applicants. In Uganda, however, where the number of higher education providers is relatively low, future student intake tends to be affected more by the geographical proximity and cost of programmes offered than it is by the quality of the graduates themselves.

Supervising students undertaking research is another avenue of knowledge application at KYU reported. Research is undertaken at two levels, namely undergraduate and postgraduate. The respondents, however, pointed out that the former has become unpopular with students, since they have a choice between that and submitting a written term paper. Although allowing such students to submit a term paper might have helped to lighten the load on overburdened lecturers, such an option has serious implications regarding the promotion of a research culture at the University. Students who miss out on the research component at undergraduate level find it relatively difficult to cope with research work at the postgraduate level, it has been found.

2) **Knowledge application: External application (internship and community outreach)**

In terms of the external perspective, KYU applies knowledge by means of conducting an internship programme for secondary school teachers, as well as community outreach programmes, which are based in the two previous colleges (ITEK and UNISE) which were merged to form the University.

The teacher training internship programme which resorts under the Faculty of Education is conducted to enable the lecturers to supervise student teachers at those schools at

where they elect to carry out their internship. During the related sessions, lecturers traverse the entire country, having the opportunity to assess the interns' performance, and to discuss with school management the best way to utilise the interns' knowledge during the period of their assignment to the school.

Community outreach programmes are hosted by the Faculty of Special Needs Rehabilitation and Vocational Studies at KYU. The main areas of community outreach consist of training people who are visually or hearing challenged. The respondents reported that such training is perceived as making a major contribution to the community. One respondent claimed that *"KYU has made its biggest contribution in terms of assisting the disadvantaged members of society, more than any other educational institution has done. It is a way of giving back to the community."*

Table 7.3 Summary of activities in each KM practice at KYU

Knowledge acquisition	***Knowledge transfer***	***Knowledge documentation***	***Knowledge creation***	***Knowledge application***
1.Training 2.Conferences 3.Purchasing	1.Technical assistance 2.Research projects	1.Reports 2.Curriculum reviews	1.Research	1.Lecturing 2.Student supervision 3. Internships 4. Outreach

7.3.3 Organisational learning at KYU

Though the respondents concurred that 'organisational learning' is not a commonly used term in their daily work, there was no consensus regarding whether organisations, as entities, learn. The respondents emphasised the fact that *"organisations do not learn, but it is the individual in the organisation that learns"*. They argued that, for organisations to learn, strategies must be put in place to ensure that individual learning benefits the organisation. Such an argument supports the notion that organisations acquire learning through individual members, who are expected to embed their learning in organisational processes. Such thinking is similar to that of Fiol and Lyles (1985), who assert that, although individual learning is important to organisations, organisational learning is not simply a sum of each member's learning.

The respondents tended to assume that organisational learning has much to do with training, and with providing learning opportunities to staff. They were seen to perceive organisational learning as occurring if staff members are given training opportunities. As the literature suggests, organisational learning exceeds training opportunities, encompassing strategies which organisations put in place to navigate through the ever-changing environment. In fact, learning may occur even in the absence of training courses.

Organisational learning activities at KYU

The perceptions of respondents regarding which activities are undertaken at KYU to promote individual, team, institutional, and leader-driven learning are as described below.

1) Organisational learning activities: Individual learning

Consistent with the perception held by respondents from KYU that organisational learning is roughly synonymous with training, the respondents highlighted the training opportunities which were provided to individual staff members as one way of promoting learning at an individual level. However, one respondent observed that funding was insufficient for all academic employees to receive training:

> *"We have been lucky to get scholarships for further studies from various foundations, like [the] Ford Foundation and Rockefeller Foundation, which have enabled some of our colleagues to acquire further studies up to PhD level. We have a staff training policy, but cannot fund it, because of budget constraints"*

Another respondent also equated organisational learning with training staff members, but added that there is no money to "*send academic staff to upgrade, because training is not considered a major priority"*.

Long-term training programmes are covered mainly by scholarships, which are offered by development partners and other foundations. Workshops and conferences, though considered useful for promoting individual learning, are not as common as is training for long programmes.

2) Organisational learning activities: Team learning

Relatively little team interaction takes place at KYU, with the only mechanism for team interaction being reported to be by means of departmental meetings, which are held irregularly, due to overbooked schedules and understaffing. Meetings are considered as a major form of bringing teams together to review their departmental performance and to learn from their experiences with a view to improving their teaching and learning. As a result, the inability to hold regular and meaningful meetings limits the amount of team learning which is achieved. The few meetings which are held tend to degenerate into the issuing of administrative edicts, which limits the opportunity for team learning. In fact, one informant said that *"departmental meetings would be the best avenue for team learning, if they did not mainly concentrate on administrative issues"*.

3) Organisational learning activities: Institutional learning

At institutional level, it was revealed that, at KYU, learning activities are in the form of strategic alliances and both local and international partnerships being built for the channelling of technical assistance. Two respondents confirmed that they had participated in study tours and exchange visits with other partnering institutions. Another respondent, in addition to revealing that he had benefitted from a joint research project, in which KYU had cooperated with another university in the developed world to undertake major research stated:

> *"… Our university benefited a lot; as a result, our department received a research grant. Results of the findings have been circulated in [i.e. throughout] the whole university, so that others can learn from it. In that way, I can say that our institution has learnt"*

4) Organisational learning activities: Leader-driven learning

As a result of the factor analysis, a new learning dimension emerged, termed 'leader-driven learning'. Although the interviews were conducted within the original framework of three learning levels, follow-up interviews were necessary for confirming which activities take place at KYU in terms of leader-driven learning. The only specific activities which emerged for such a variable in terms of KYU were collaboration with

other institutions and visiting lecturers, who are subject to invitation by KYU top management.

Table 7.4 Summary of OL activities at KYU

Individual	*Team*	*Institutional*	*Leader-driven*
1.Long-term training	1.Meetings 2.Joint research	1.Strategic alliances 2.Partnerships	1.Collaborations 2.Visiting lecturers

7.3.4 The relationship between knowledge management and organisational learning

Although the respondents at KYU were unable explicitly to delineate the relationship existing between knowledge management and organisational learning, they were able to confirm that such a linkage existed. One respondent revealed that such a linkage resides within the ambit of knowledge, in terms of the following: *"In knowledge management, the purpose is to make proper use of the knowledge existing in the organisation, while, in organisational learning, the purpose is to learn more, thereby accumulating more knowledge."*

The general perception of the respondents was that the two approaches are logically conjoined, since they both deal with the same issue of knowledge resources in the organisation. The interdependence of knowledge management and organisational learning can also be traced through those activities which are implemented in respect of each of the knowledge-based approaches. For example, the activities mentioned under knowledge acquisition apply to both knowledge management and organisational learning practice, because they involve the attainment of knowledge.

The other element of interdependence which is cited was in terms of the objective of the two approaches, to which one respondent referred as the focus. Both initiatives aim at improving the performance of an institution by means of putting in place strategies for managing existing knowledge in order to accumulate more knowledge for improved

client service. The situation was clarified by one respondent, who stated: *"Both approaches aim at the same issues… knowledge, how to capture it, and nurture it, and make good use of it, for the benefit of the organisation and its customers."*

The holding of such a view seems to confirm the perception that knowledge management and organisational learning focus on how to utilise the current knowledge bases, so as to leverage organisational performance to satisfy clients' needs. Such a view also has a competitive undertone, in the sense that satisfying customers is seen as an issue which is relative to other institutions in the same sector. In short, the understanding of interdependence which emerged from the interviews could be seen to encompass three main aspects: the content of the approaches, consisting of knowledge, the activities implemented for both, and the objectives for both knowledge management and organisational learning.

7.3.5 The linkage between Knowledge management and organisational learning

The dimensions of the linkage were determined from the interviews, with one KYU respondent stating the following:

> *"The search for this linkage must be traced in the activities of people, what people do to promote these practices…., because people are the custodians of knowledge. They keep it in their minds. Transferring such knowledge to other team members is basically in their control…. If people choose not to share knowledge, nothing can take place in that field and, as a result, other team members [and ultimately the organisation] cannot learn"*

As people control the knowledge which they possess, organisations do not own their employees' knowledge, which they have at their personal disposal. Such knowledge is termed 'tacit knowledge', which people can choose to place at the disposal of, or to withhold from, the organisation. Learning occurs through people, and knowledge sharing takes place through and by people in the organisation. Therefore, the actions of the employees within the organisation hold the key both to how knowledge is managed, and to how the organisation learns. At the same time, it has been argued that the first-

generation knowledge management initiatives, which were dogged by failure, emphasised the role of information technology over that of humans. People choose to learn, and they choose to unlearn. Such an argument was supported by another respondent, who said that the knowledge management–organisational learning debate rests on the willingness and ability of individuals to *learn* and to share *knowledge* which they have acquired. The organisation can only, at best, put in place a good working environment which is conducive to people sharing knowledge freely.

7.4 Case Study Three: Business school – MBS

The data which was gathered from MBS was collected by means of interviews with five respondents, four of whom were academic staff and one who represented the management of the business school.

7.4.1 Background information

MBS, which is a public business school, is the only one of its kind in Uganda. Though it is affiliated to the largest and oldest public university in Uganda, it enjoys a high level of autonomy, which can be seen in its having an independent governing council and principal. According to one respondent, MBS has a mission to *"enable the future through creation and provision of knowledge"*. Initially established as a constituent college of a large public university in 1997, the structure of the business school was changed in 2001 to transform MBS into a public tertiary-level institution. By taking over one of the national colleges of commerce, the college adopted the character of a business school. In addition to its Graduate Research Centre (GRC), MBS comprises the following four faculties: Commerce, Management, Computing and Management Science, and Marketing and Hospitality Management. MBS is a leading provider of business education, and prides itself on, and is a champion for, entrepreneurial development. MBS offers training at both doctoral and master's level, as well as undergraduate bachelor's degrees, diplomas and certificate qualifications.

7.4.2 Understanding of knowledge management

The respondents exhibited a clear understanding of what knowledge management entails, due to MBS offering a course unit on knowledge management. According to one respondent, *"We are in the knowledge business...Our success depends on the extent to which we manage our knowledge"*. However, no employee at MBS seemed to have been designated in charge of knowledge management matters. The senior administrator argued that *"knowledge management is everyone's concern, especially the members of teaching staff who are knowledge workers, but management supports all knowledge management initiatives proposed by staff"*. Several activities were found to be geared towards specific knowledge management practices at MBS.

Knowledge management practices at MBS

As in the previous case studies, the knowledge management framework proposed by Filius et al. (2000) was used to probe knowledge management activities at MBS. Those activities which related to particular themes were collated and matched with specific knowledge management practices, as is revealed below.

Knowledge acquisition

The respondents stated that knowledge acquisition at MBS takes five major forms: training; participation in professional associations; conference attendance; staff recruitment; and subscribing to journals.

1) **Knowledge acquisition: Training**

Staff training at MBS is highly prioritised, with a large number of the teaching staff undertaking training at various levels, including the doctoral level. Some doctoral training studies, which are sponsored by international partners, are undertaken in foreign countries. MBS sponsors largely the tuition of those members of staff who register abroad for their doctoral studies.

The minimum qualification for appointment as a lecturer at MBS is a doctorate. MBS offers two doctoral programmes, comprising a doctorate in Philosophy and a doctorate in Business Administration, for which some of MBS's staff are enrolled. MBS gives a tuition waiver to any staff member enrolling for any programme offered by the business school. One interviewee who had benefited from participating in such a sponsorship scheme remarked: *"I feel valued, because the institution has invested a lot in me by way of sponsorship. Because of that, I need to work my best to prove that my training was not a waste of their resources."*

A number of short-term performance improvement courses were also reported to have been conducted, especially in the fields of research methodology and consultancy skills development.

2) Knowledge acquisition: Conferences

A number of teaching staff at MBS have participated in workshops, both locally and internationally. MBS hosts an annual international management conference, at which teaching staff are encouraged to present conference papers and progress reports on their doctoral studies. All universities in Uganda are invited to participate in such conference, though relatively few staff members from other universities have attended them in the past. Despite such poor attendance from other universities, such conferences are highly valued by the academic staff at MBS, who tend to constitute over 30% of the attendance at such events.

In addition to using the conference to profile MBS, according to one respondent:,

> *[t]his conference brings together eminent personalities in the field of management. It also serves as a team-building event for all members that participate either as organisers or as delegates, but, more importantly, the delegates benefit a lot in terms of knowledge and building networks.*

Attendance at foreign conferences carries an incentive in terms of international exposure and allowances, which are offered to delegates. As a result, attendance at such

conferences is preferred over that at locally organised ones. However, few staff members benefit from attending international conferences due to resource constraints, with the prospective delegates normally being advised to seek sponsorship from other agencies. Those staff members who do not attend such conferences benefit from hearing about what transpired at them in terms of the following: *"Delegates write reports for management, including recommendations to be implemented, but clearly there is no formal follow-up"*. Accordingly, those who benefit from such international conference attendance are largely the delegates to the conference themselves.

3) Knowledge acquisition: Professional associations

MBS encourages its entire staff to associate with their professional associations in their particular fields by paying the membership fees for those full-time teaching staff who are registered with such associations, including the Institute of Chartered Secretaries Association (ICSA), ACCA, the Institute of Chartered Public Accountants of Uganda (ICPAU), Chartered Institute of Purchasing and Supplies (CIPS), and Chartered Institute of Marketing (CIMA). Some such associations hold annual and biannual seminars, which are deemed beneficial to attend both by individuals and MBS. Registered members of professional associations regularly receive newsletters outlining innovations in their field, thus allowing for knowledge acquisition, as well as updates on the latest trends in their field. In addition to benefitting from such associations keeping employees abreast of new developments in their respective fields, MBS also benefits from the teaching of such employees incorporating the new knowledge which they gain in their teaching, so that the students gain access to the latest information as well. The image of the school is also promoted in the professional bodies concerned, which forms a solid basis for the formation of strategic alliances between the two.

4) Knowledge acquisition: Recruitment

As a means of filling gaps in missing knowledge in different subject areas, MBS continuously recruits from the labour market. In addition, a number of part-time members of staff 'moonlight' at several universities within close proximity of the school. Despite

such efforts, a senior administrator remarked that *"[t]here are a number of vacant lecturing positions which are not filled, due to lack of qualified candidates. We aim at maintaining over 80% filled establishment, but it is not possible."*

Another challenge for recruitment was MBS's low staff retention capacity. The employment turnover figure of 5% per annum is substantial, compared with the 4% average turnover in the education industry in Uganda as a whole. Such a turnover negatively impacts on the teaching function at the school, especially against the backdrop of some of those who have left during the five years prior to the current study having benefited from staff development programmes, thus impacting in terms of knowledge attrition as well. The respondents blamed such a turnover on the relatively low remuneration packages received, as well as on the acrimonious relationship which used to exist among some of the staff and the management at the school. Notwithstanding the aforementioned, persistent efforts are made by management to fill existing gaps in staffing, as and when they are detected.

5) Knowledge acquisition: Journals and publications

According to the respondents, MBS ensures that it subscribes to a number of online databases in order to access electronic journals. Some such journals are accessed through a consortium of universities, who operate in terms of a block subscription. Other publications are found in the school libraries, which are regularly replenished through direct purchase or grants. The annual budget allocation for book purchases is managed by the school librarian, to whom the faculties furnish their book requirements, and who organises the procurement of such stock. Due to some departments not forwarding their book requests in time, major delays occur in the restocking of the libraries.

The respondents indicated that they rarely use the library to access reading materials, since it is always full of students. However, they do have first priority in borrowing books from the library, which they can then use in their offices. Observing a number of volumes in some of the respondents' offices, it was confirmed that the majority of such books were on loan from the library. In terms of personal preference, the respondents

indicated that they tend to favour journals over textbooks, reasoning that the former tend to contain more recent and well-researched information. One respondent stated that *"textbooks contain largely theoretical content, and it is not updated regularly. But journals, most of the articles have empirical evidence backing the theory, the fact that they have been peer reviewed, gives a sense of credibility of the content."* Such a statement implies that the lecturers should have constant access to electronic journals for use in their work. A drawback that was identified in this regard was that not all the subject areas are covered in the literature, which sometimes compels the lecturers to resort to using textbooks for teaching purposes.

Knowledge transfer at MBS

According to the respondents, the transfer of knowledge at MBS takes mainly three forms: conferences, joint projects, and informal interactions.

1) **Knowledge transfer: Conferences and workshops**

As reported in terms of knowledge acquisition, workshops and conferences tend to be the major avenue for knowledge transfer. In addition to the attendance of local and international workshops, the respondents identified internal workshops, which are organised by faculties as a means of transferring knowledge. Although such workshops are not regularly held, the research findings which are presented at the workshops, in addition to the papers which are presented on topical issues, help to secure validation of the studies concerned. In addition, external academics are often invited to participate in the workshops, as well as to present papers at them. According to one respondent, though some lecturers tend to shun internal workshops, they are eager to attend external workshops, when nominated to do so. The existence of such a trend may be linked to the envisaged opportunities for exposure which are offered by external workshops, in comparison with internal ones.

2) **Knowledge transfer: Joint projects**

The joint projects which are undertaken at MBS fall mainly in the fields of research and consultancy. Joint research is a common practice at the school, especially between seasoned researchers and new entrants to the research realm. Although such is not a

deliberate policy of the school, research novices tending to seek out the advice of experienced researchers for purposes of jointly publishing journal articles or chapters of books has emerged as an institutional norm. The life span of such paired relationships, into which lecturers appear to enter willingly, normally outlasts specific research projects. A lecturer may participate in more than one research team (or so-called 'research club') concurrently, as the more research teams with which one is involved, the greater is the possibility of gaining new knowledge.

Another aspect of joint projects is consultancy work, with teams being constituted with the intention of bidding for, and winning, consultancy projects. Most of the consultancies which are conducted by the lecturers at MBS do not directly benefit the school, because such work takes place on a private basis. Although lecturers may participate in a number of different consultancy projects, officially consultancy activity contributes less than 1% of MBS's revenue. As noted earlier, uncompetitive remuneration packages have fuelled such a practice, in addition to the search for opportunities to apply the knowledge which lecturers possess.

3) **Knowledge transfer: Informal interactions**

According to the respondents, informal gatherings are normally held during tea breaks, providing an opportunity for teaching staff to meet and to exchange ideas about their work, though the school staffroom was reported to have only limited capacity. Other informal gatherings take place in the form of unscheduled and unstructured meetings in the campus compound and at get-together functions. Informal gatherings were said to have become very popular at MBS recently, especially in the light of the fact that formal meetings generally tend not to be well attended, with the former being highly rated in terms of knowledge transfer. In connection with such meetings, one interviewee remarked:

> *"We are supposed to have meetings on a regular basis, but this does not happen, because everybody claims to be too busy to spare time, but if you have a burning issue, you approach a colleague who can assist you to sort it out".*

According to the respondents, formal meetings tend to be very rigidly structured, which inhibits free thinking and the sharing of ideas. One respondent remarked: *"During meetings, we do the listening, while the chairman directs on what is supposed to be done, but when we meet informally, we discuss issues of common interest and those that affect us openly."*

In line with the above statement, two main issues of interest can be identified. The first is the possibility that formal meetings are not properly managed. The second pertains to the social relations existing among the staff. Both such issues might indicate a working environment which does not support social cohesion.

4) **Knowledge transfer: Team teaching**

The main purpose of promoting team teaching at MBS is to ensure that the junior academic staff members acquire teaching skills from their senior counterparts. Respondents reported that this practice is not properly enforced, and the onus is on both the junior and senior academic staff member to ensure that such a practice in implemented.

Knowledge documentation at MBS

The respondents confirmed that MBS documents knowledge in three forms: computerised databases, reports, and lecture notes.

1) Knowledge documentation: Computerised databases

According to the respondents, the computerised databases mainly consist of those containing information on staff competencies or subject specialisations. Documenting information online is helpful in a number of ways: firstly, when it comes to allocating new course units to lecturers; secondly, during the allocation of student supervisors; and lastly, in the identification of researchers to join particular research teams or projects. However, in connection with MBS's failure to update such databases regularly, one respondent remarked: *"It has been a while since the database was last updated. A*

number of people have since acquired higher qualifications and new skills in different fields, but they are not yet reflected."

At MBS, the updating of staff databases is the responsibility of the information technology officer. When a lecturer completes an assigned training course, the human resources manager receives the information pertaining to the completion of the course, but does not update the database. The lack of communication between the information technology officer and the human resources manager results in delays in the updating of staff skills. The lecturers also do not assiduously check that their computerised records are kept up to date.

2) Knowledge documentation: Reports

Documented reports are mainly of a research and academic nature, with the former being deposited in the library, mainly in hard copy form. However, not all researchers comply with such a requirement. Those who undertake research under the auspices of the MBS have a higher compliance rate than do those who undertake research projects of their own volition. Such a compliance rate is mainly due to the school having the capacity to impose sanctions for non-compliance in cases where it has vested interests. In most cases, individually solicited research projects are not brought to the attention of the school administration, which complicates the tracking and documenting of such knowledge. The speed at which such research is quickly outstripping school-funded research is an indication that lecturers are versatile in seeking research funding in the way in which they respond to calls for proposals. MBS encourages the development of a research culture by publicising calls for papers on the local area network, notice boards and the intranet.

Though documented knowledge should, ideally, be easily retrieved and accessible to all organisational members who require it, such does not seem to be the case at MBS. Much of the knowledge documented is not easily accessible, and, due to not all of it being in soft copy, the retrieval of such knowledge is cumbersome, as photocopying of the materials then becomes necessary.

3) **Knowledge documentation: Lecture notes**

Lecturers have been requested to create course handbooks containing all their teaching notes to facilitate another lecturer delivering the same content, in the event that the designated lecturer is not able to deliver a scheduled lecture. From MBS's point of view, such a procedure serves two purposes. Firstly, the teaching is standardised, and, secondly, with individual knowledge being externalised in this way, the school retains the knowledge concerned, even if the lecturer leaves the school. However, the lecturers appear to be reluctant to comply with such a request, and no strict enforcement mechanisms are in place to ensure that such a procedure is, in effect, followed. A respondent complained: *"We expected knowledge workers to know that sharing knowledge is a key pillar of their work, but this has not happened. There are no penalties to enforce the practice, because it is deemed voluntary on the part of lecturers."*

Some lecturers still believe that, by keeping a tight rein on their knowledge, they will be prove their indispensability to MBS, so that their services will be retained by the Business School. However, on an informal basis the practice appears to work well. Such a finding is highly relevant to the practice of knowledge sharing, as it emphasises the fact that, though people cannot be forced to share knowledge, once people trust one another sufficiently, the degree of knowledge sharing improves.

MBS also publishes two journals, to which the academic staff can submit articles. However, due to work pressure, the journals have not yet become an effective means of relaying research.

Knowledge creation at MBS

According to the respondents, knowledge creation activities at MBS take the form of participating in consultancy and research projects.

1) **Knowledge creation: Consultancy projects**

Consultancy work is the second prime function of lecturers at MBS. According to the respondents, most consultancy projects are carried by lecturers in their individual

capacity, though MBS has a policy of supporting individuals in their undertaking of such projects. Lecturers are given time off from normal school schedules to complete their consultancy assignments. Such projects help the lecturers to update their knowledge, in addition to allowing them the opportunity to apply their knowledge in the real world. The respondents confirmed that, although consultancy work was not originally their core activity, such work has increasingly become a priority for teaching staff. One respondent complained: *"Community interactions to foster development at the rural levels have been relegated in favour of consultancy work in companies that pay reasonably well to supplement income of academic staff."* The development of such a trend was due to the rising cost of living, which has not been matched by increases in government funding.

2) Knowledge creation: Research activities

According to the respondents, academic research aimed at publication is the main research activity pursued at MBS, followed by the research which is undertaken by students under the supervision of their lecturers. In terms of knowledge which is created for use in school activities, student research projects were regarded as being mainly academic, and aimed at attaining a pass mark. Although some students conduct solid research, with pertinent findings, little of such knowledge is captured for future use.

Knowledge application

According to the respondents, lecturing and student supervision are the main activities by means of which knowledge is applied at MBS.

1) Knowledge application: Lecturing

A key responsibility of lecturers at MBS is that they teach for over 40 hours a month. The respondents argued that such an onerous teaching load leaves little time for them to carry out other activities, such as research and community outreach. One respondent remarked: *"We almost teach continuously. There are three teaching sessions: day, and evening, and weekend sessions. When one is not [in] class, he is either marking examination scripts or compiling examination marks; there is limited time for lecture preparation."*

Such demands may impact adversely on the quality of the teaching, resulting in some of the graduates not doing as well as they should. Paradoxically, such teaching methods as case studies and role-play, which have been rated highly in terms of knowledge retention, require even more time for effective preparation and delivery.

2) Knowledge application: Student supervision

An average of ten undergraduate and five master's students are allocated to each lecturer for supervision. In their role as primary advisors to the students, lecturers are expected to be knowledgeable in the field in which a student does research, so that they can apply their knowledge in their guidance of the student's research projects. However, some lecturers have been found not to give adequate attention to their supervisees, due to their busy schedules. Student supervision is not treated as part of the teaching load, which detracts from the motivation levels of the lecturers concerned. One of the respondents commented: *"I am better off going to class to teach, because the hours are captured. Some students are slow and over-engage you for [a] long [time], yet that time is not accounted for."* Such a scenario implies that strategies for enhancing commitment to student research supervision have still to be devised.

3) Knowledge application: Consultancy

According to the respondents, consultancy projects constitute another avenue through which knowledge is applied. As seen in the previous section on knowledge creation, such an activity is mainly undertaken by lecturers in their individual capacity, and MBS as an institution does not seem to gain directly from consultancy projects undertaken by individual staff members.

Table 7.5 Summary of activities in each knowledge management practices at MBS

Knowledge acquisition	***Knowledge transfer***	***Knowledge documentation***	***Knowledge creation***	***Knowledge application***
1. Training 2.Associations 3.Conferences 4. Journals 5. Recruitment	1.Conferences 2. Joint projects 3. Informal 4.Team teaching	1.Databases 2. Reports 3.Lecture notes	1.Consultancy 2. Research	1.Lecturing 2.Student supervision 3.Consultancy

7.4.3 Organisational learning at MBS

Organisational learning is a prominent concept at MBS, which is partly indicated by the library stocking some works on the subject. Organisational learning is also taught at some postgraduate classes. Whether MBS can be categorised as a learning organisation was found to be a contentious issue. In relation to such a finding, one respondent remarked:

> *"Embracing OL culture has enabled the institution to survive in a highly competitive environment. Many of our courses are offered by various universities, but we still have high enrolment levels. This shows we have been able to satisfy the intellectual needs of our clients".*

However, the capacity to attract large numbers of applicants does not necessarily qualify an institution as a learning organisation. In actual fact, MBS has the advantage of having been associated with the oldest university in the country for decades. One respondent cautiously called MBS a learning organisation, arguing, in general, that the school has not always capitalised on those opportunities with which it has been provided. Knowing what organisational learning is, and practising such learning, are two different things.

Organisational learning activities at MBS

The respondents identified a number of activities pursued by MBS that enhance organisational learning at the school, namely individual, team, institutional and leader-driven learning.

1) Organisational learning activities: Individual-level learning

From an individual perspective, learning at MBS is said to occur in the form of self-directed initiatives and informal networks among the staff. According to the respondents, self-directed initiatives refer to those practices for which individuals accept the responsibility for self-upgrading, without waiting for the school to facilitate their learning. A number of lecturers have, reportedly, undertaken short-term training on their own initiative. Others have enrolled for e-learning long-distance training programmes,

indicating that such lecturers have found sufficient time to work while undertaking training. Informal networking was also reported to contribute to individual learning, which shows that some lecturers have trust in their colleagues to meet their learning needs, especially in respect of 'extra' skills, which are not necessarily subject areas. Some of the skills identified are those relating to research, report writing and consultancy work. Other forms of individual learning reported were continuous professional development (CPD) and workshops.

2) **Organisational learning activities: Team-level learning**

Learning at team level was reported to occur mainly in the form of learning by involvement in such projects as research and consultancy. Although many projects are undertaken by MBS lecturers, not every lecturer has an equal chance of participating in them, which is exacerbated by the fact that most of the projects are individually solicited. Such projects are normally undertaken by groups of people who are referred to as 'cliques'. Such exclusive groups are also referred to as 'expert circles', and are only accessible by means of eliciting the help of a 'godfather', already participating in the circle. Initiation to such a 'circle' entails doing a great deal of work at less than normal pay. The result is that some staff members miss out on the learning that takes place among those who participate in such projects. One respondent remarked: "*Some colleagues have made it in consultancy. They easily win bids, but they have their own people they use. This does not necessarily mean that they are the only ones with the expertise, but the market knows them already.*"

3) **Organisational learning activities: Institutional-level learning**

Partnerships and strategic alliances were the major activity identified as occurring at the institutional learning level. MBS has, over the past decade, entered into agreements with other institutions, especially with those in Europe and the USA. The Business School has benefited in form of exchange programmes and joint research projects, which have been conducted with partner institutions.

4) Organisational learning activities: Leader-driven learning

Leader-driven learning at MBS, reportedly, occurs through the personal contacts of the School's principal, who uses his personal contacts and public relations exercises to invite external lecturers to the school. Some visiting lecturers are appointed by the Business School for a certain period of time, whereas others lecture temporarily at the Business School in terms of a collaborative arrangement with other institutions, with whom a memorandum of understanding is signed.

In addition, it was also revealed that, through similar initiatives, some of the lecturers have accessed scholarships and research funding. Most of the activities reported under leader-driven learning relate to those identified under institutional learning, including the seeking for, and building of, meaningful strategic relationships with other institutions. One respondent insisted: *"These partnerships must be meaningful, in a sense that our school is able to benefit from them."* Other areas of activity in this regard include championing policies at the School that facilitate learning and supporting training interventions.

Table 7.6 Summary of OL activities at MBS

Individual	***Team***	***Institutional***	***Leader-driven***
1.Staff initiative 2.Informal networks 3.CPD 4.Workshops	1.Joint projects 2.Team tasks	1.Strategic alliances 2.Partnerships	1.Visiting lecturers 2.Scholarships 3.Favourable policies 4.Collaborations

7.4.4 The relationship between knowledge management and organisational learning

According to the respondents, as knowledge management and organisational learning are so similar in purpose, the two concepts should be regarded as being interrelated. In this regard, a senior academic staff member remarked:

> *"We cannot have one without the other, because one leads to the other. Knowledge is acquired through learning, and that knowledge needs to be*

properly managed in order to be useful to the organisation. If an organisation does not learn, it cannot talk of knowledge management".

Such a view presupposes that knowledge management and organisational learning are mutually supportive, and therefore interdependent.

Another respondent argued:

> *"In reality, learning occurs when knowledge has been acquired, so learning of both individual team members occur[s] when knowledge has been shared. Other organisations learn from their competitors, but this also is possible if the knowledge from competitors is properly captured and used in [the] organisation. Therefore, knowledge precedes learning".*

The above statement seems to support the view that knowledge management practices influence organisational learning, by pointing to the fact that, if knowledge management is not properly handled, organisational learning cannot occur. Another respondent, with a keen interest in organisational studies, emphasised the fact that knowledge management practices and organisational learning are "*intertwined"* with each other, and that the success of one depends on the other. He further stated that organisational learning without effective knowledge management practices to transfer, document, and apply that knowledge might not result in the desired benefits for the organisation. Similarly, knowledge management which does not aim at the learning of the organisation cannot help the organisation. He ended by stating: *"What higher institutions should be concerned with now is the issue of whether the way they learn influences how they manage their knowledge assets, or whether the way they manage their knowledge resources influences how they learn."*

The answer to such a question underlines the fundamental linkage between knowledge management and organisational learning, as well as being in line with Loermans' (2002) assertion that knowledge creation is the final outcome of the learning process, and that learning occurs when we talk of creating, sharing and using knowledge. Such thinking implies that the learning process cuts across all three levels: individual, team, and organisational. Such a position was confirmed by one respondent, who insisted that

"[l]earning is about knowledge, and for knowledge to be of any use, it must have been learnt, and applied… You cannot apply the knowledge you have not learned".

Knowledge management and organisational learning were conceived by all respondents to have similar objectives. A one informant put it: *"They serve the same purpose of protecting knowledge in organisations, and helping organisations to generate new knowledge through learning."*

In line with such a quote, one seemingly pertinent activity of knowledge management which emerges is that of knowledge protection, an issue that had not featured prominently in the preceding discussion of knowledge management activities. Knowledge protection has been overemphasised in highly competitive private sector businesses, in terms of which patent rights and intellectual property rights tend to have received most of the attention.

7.4.5 The linkage between knowledge management and organisational learning

The respondents linked knowledge management to organisational learning from the motivational perspective, basing their assertion on the fact that, when people are motivated, they tend readily to share knowledge with colleagues, and they become more willing than they previously were to apply knowledge for the benefit of the organisation, as well as to learn new ways of doing their work. A senior administrator remarked:

> *"While it is true that such an interaction exists between knowledge management and organisational learning, it is the individual staff members (people) that play an important role in this relationship, which also depends on their level of motivation. It is worthwhile understanding the motive behind each initiative*".

The above respondent warned that the motivation to learn and to share knowledge should not be achieved at the expense of the organisation's short-term and long-term gains. Individuals might leave the organisation in search of *"greener pastures"*, after acquiring knowledge through institutional sponsorship. Lecturers have been known to seek employment elsewhere for better pay after acquiring higher qualifications while at a particular institution. Accordingly, though people hold the key to knowledge

management and organisational learning in organisations, they should be responsible enough to commit to the successful outcome of learning initiatives. People's contribution to knowledge management and organisational learning processes seems to manifest a significant linkage between the two. People have been considered to be the most important resource that any organisation has. They constitute a core component of an organisation, playing an important role in terms of their contribution to knowledge management processes.

Other possible linkages between knowledge management and organisational learning were based on the resources that institutions are willing to put into use to promote such approaches. For example, it was indicated that, depending on the amount of resources which are devoted to either knowledge management or organisational learning, it is possible for one to outstrip the other in terms of implementation. A respondent confirmed that, in terms of knowledge acquisition, substantial progress has been made in the number of lecturers that have acquired new qualifications, but wondered *"whether the training has translated into the learning of their institution"*. Closely related to the issue of resources is the issue of leadership of MBS. Linking knowledge management to organisational learning activities requires a *"foresighted leader"*, as one respondent stated: *"Top leadership formulate strategies and they provide resources for their implementation. They have the platform to rally behind the learning processes, and can put in place policies for both initiatives."* Another respondent commented that "*such leaders need to recognise the fact that knowledge becomes obsolete at a faster rate in this information era*".

Management plays an advocacy role in an organisation in emphasising the role of knowledge and learning in promoting the sustainability of the organisation. Leaders are also instrumental in creating a favourable environment for knowledge sharing. The respondents concurred that the leaders of institutions have a key role to play in synergising knowledge management and organisational learning activities. Accordingly, knowledge management and organisational learning can be seen to be linked in the level

of motivation of people, in the resources allocated to the activities enumerated, and in the foresight which is displayed by the leadership of the institution.

7.5 Cross-case analysis

Cross-case analysis was conducted to identify the similarities and differences among the different cases. As Miles and Huberman (1994) note, specific cross-case analysis techniques include the case-ordered effects matrix, the variable-by-variable matrix, causal models and causal networks. The current researcher applied a variable-by-variable analysis, due to the advantage that such analysis provided in terms of displaying the data across the matrix, which facilitated making a comparison across the three cases studied. In the following sections, a cross-case analysis of each of the variables is undertaken.

7.5.1 Knowledge management in higher education institutions, a cross-case analysis

Symbols are used to show the presence or absence of activities indicated by the key. A tick (√) indicates the presence of the practice in that institution, whereas a cross (x) represents the absence and (√-) indicates the less intensity such a practice. As can be seen in Table 7.7 below, UMI and MBS tend to implement more activities in respect of knowledge acquisition than does KYU. In particular, training was emphasised by all three institutions, though it should be noted that, whereas such training facilitates individual knowledge acquisition, deliberate strategies are required to embed the knowledge gained in the organisational systems concerned. The knowledge attrition, which was evident in the degree of employee turnover, led to the raising of two issues. Either the member of staff concerned felt deserving of better employment terms, owing to having improved qualifications, than those offered by the organisation, or else the opportunities to utilise newly acquired knowledge were not provided by the organisation. In either of such scenarios, the management of the institution should implement strategies directed at stemming knowledge attrition if training is to be considered meaningful as a tool for knowledge acquisition. UMI and KYU were seen to engage in fewer knowledge transfer activities than did MBS, whereas, in respect of knowledge documentation, UMI and KYU seem to engage in the same number of activities, with KYU lagging behind on such

a dimension, as it does on knowledge creation/generation activities. KYU scored higher on knowledge application activities than UMI and MBS, mainly because of its community outreach and internship supervision programmes, which neither UMI nor MBS has prioritised.

Table 7.7: A cross-case analysis of knowledge management in higher education institutions in Uganda

		UMI	***KYU***	***MBS***
Knowledge acquisition	*Training*	√	√	√
	Conferences	√	√	√
	Purchasing(journals, books)	√	√	√
	New hires	√	x	√
	Professional associations	x	x	√
Knowledge transfer	*Conferences*	√	x	√
	Information technology-enabled (intranet, LAN)	√	x	x
	Team teaching	√	x	√
	Joint projects (research)	√	√	√
	Technical assistance	x	√	x
	Internal workshops	x	x	√
	Informal interactions	x	x	√
Knowledge documentation	*Reports*	√	√	√
	Handbooks	√	x	x
	Information technology-enabled (databases)	√	x	√
	Curriculum reviews	x	√	x
	Lecture notes	x	x	√
Knowledge creation/generation	*Research*	√	√	√
	Consultancy	√	x	√-
Knowledge application	*Lectures*	√	√	√
	Research supervision	√	√	√
	Consultancy	√	x	√-
	Community outreach	x	√-	x
	Internship supervision	x	√-	x

Results of cross case comparison presented above almost correspond with what the quantitative survey results indicate. Section 4.7.1 of this thesis shows that, KYU consistently scored low averages on almost all knowledge management dimensions. For instance, in terms of knowledge documentation, quantitative data revealed that KYU had an average score of 3.97 which was the lowest among the five institutions surveyed. UMI and MBS scored 4.95 and 5.42 respectively on the same dimension. From the qualitative

perspective, when compared with other institutions studied, KYU implements fewer activities in support of knowledge documentation which are mainly in form of written reports and curriculum reviews. UMI and MBS on the other hand, in addition to reports and curriculum reviews, maintain regularly updated databases and course handbooks. Similarly, from the quantitative results, KYU had the lowest score on knowledge transfer (4.01) compared to 4.36 and 4.50 for UMI and MBS respectively. Such a finding is consistent with the qualitative tabular results that revealed KYU conducted fewer activities in support of knowledge transfer. Overall, from the quantitative data, knowledge transfer in all institutions surveyed had the least scores as shown in table 4.13; such a finding was supported by the qualitative data which revealed that key drivers for knowledge transfer like team teaching and informal interactions were not accorded priority across all institutions. Knowledge transfer at all three institutions surveyed was engaged in to the least extent of all the activities mentioned. Such a finding was to have been expected, given the fact that in higher educational institutions most academic staff "generally fly solo" (White and Weathersby, 2005: 292), apart from their engagement in a few collaborative tasks.

Both quantitative and qualitative data revealed that knowledge acquisition levels in the three institutions were relatively high (5.20, 4.54, and 5.54 respectively for UMI, KYU, and MBS). The three institutions seemed to apply similar strategies for knowledge acquisition except for KYU (evident in the lowest score) which did not prioritize new hires. A possible explanation for this is that by the time of this study, KYU was still in the formative stages, and involved in the integration processes of merging three colleges into one entity. The process of restructuring was on going to determine the possible human resource requirements before recruitment plans were put in place. The implication of low knowledge transfer scores among academic staff in higher institutions of learning in Uganda are indicative of a poor knowledge sharing culture and individualistic tendencies exhibited by some of the staff.

Knowledge generation activities among the three institutions did not reveal a consistent pattern shown by previous knowledge management practices in the qualitative data as

was the case for quantitative results. Research and consultancy were identified as the only activities undertaken in support of knowledge generation. Owing to the nature of such activities, knowledge generation was understood differently by key informants, whereby some respondents understood it to mean knowledge creation, and knowledge generation by others. Although quantitative results presented in table 4.13 indicated that MBS had a higher average score on knowledge generation followed by UMI and KYU with 4.86 and 4.16 respectively, qualitative data presents a different scenario. From the tabular results in table 7.7, UMI seems to be ahead of the other two institutions in terms of knowledge generation through research and consultancy which is not consistent with the quantitative results. The discrepancy however could have arisen due to the magnitude of implementation of such activities. For example, in MBS, consultancy is undertaken but it does not reflect the institutional character since it is largely undertaken on an individual basis. The same applies to KYU. Similarly, although research is undertaken at UMI, it is still in its formative stage and 80% of its operations are training based.

Qualitative findings revealed that KYU implemented more activities related to knowledge application compared to UMI and MBS. This result is however inconsistent with the quantitative findings that put MBS ahead of the three institutions in terms of knowledge application score. Such a discrepancy could be explained by two factors. First of all, although KYU has a number of activities for knowledge application that include lecturing, research supervision, community outreach, and internship supervision, they are conducted on a small scale. One respondent remarked that they regard community outreach as their core activities, but lack of resources has hindered their effective participation in such activity. The same view was echoed for internship supervision which is also held on a small scale. The second reason that may account for the discrepancy is that in the quantitative data, analysis was based on whether the respondents agree or disagree to the existence of such an activity, consequently, respondents gave blanket perception of the institutions on respect of the items appearing on the questionnaire.

Overall, both quantitative results and tabular data seem to indicate that MBS is ahead of the other two institutions in terms of knowledge management practices. Though UMI is

an average performer in terms of all knowledge management attributes, its holding a privileged position as the only MDI in Uganda, in addition to its reputation, have generated a degree of complacency. Such an attitude should be re-examined, as a refocusing on the competitive elements which prevail in the knowledge era is required. KYU is ranked last in implementation of knowledge management practices owing to the fact that it is still in formative stages and is expected to improve on this rating once it has stabilised in terms of streamlining its operations.

7.5.2. Organisational learning in HEIs in Uganda, a cross-case analysis

In terms of organisational learning, Table 7.8 below indicates that MBS was perceived as engaging in the most activities relating to the promotion of individual learning, followed by UMI, and lastly by KYU. Although the team learning dimension was dropped from the factor analysis phase, a number of activities relating to such a dimension were identified, with the highest number being reported at UMI, and the least at KYU. The UMI respondents might have reported what they perceived to be ideal practices for team learning, rather than on the actual practices themselves. Another reason for the responses received was that the degree of intensity and the usefulness of the reported activities in promoting team learning were not explored in full. At all three institutions, the channels for institutional learning were similar but the intensity of their application differs significantly among the participating institutions. The leader-driven learning dimension which emerged from the factor analysis necessitated follow-up interviews to determine the practices involved, with MBS appearing to have the highest number of attributes, followed by UMI, and lastly KYU.

Table 7.8: A cross-case analysis of organisational learning in higher education institutions in Uganda

		UMI	*KYU*	*MBS*
Individual learning	*CPD*	√	x	√
	Workshops	√	x	√
	Self-sponsored/initiative	√	x	√
	Long-term training	x	√-	x
	Informal networks	x	x	√
Team learning	*Peer reviews*	√	x	x
	Team teaching	√	x	√
	Team tasks(research/consultancy)	√	√	√
	Meetings	√	√	x
Institutional learning	*Strategic alliances*	√-	√-	√
	Partnerships	√	√-	√
Leader-driven learning	*Collaboration*	√	√	√
	Training scholarships	√	x	√
	Favourable policies	√	x	√
	Visiting academics	x	√	√

Such findings are consistent with the results of the questionnaire data presented in table 4.3 in chapter 4. For instance, in quantitative data, it was reported that KYU had the lowest scores among the surveyed institutions (4.40) compared to UMI and MBS that had 4.50 and 5.13 respectively on individual learning dimension. Consistent with triangulation of the findings, there are more avenues for individual learning at MBS than at any other institution in this phase of the study. MBS has four such avenues compared to three of UMI and only 1 for KYU see table 7.8. In addition, qualitative findings show that KYU implements only one major activity for individual learning which is long term training still on a small scale. It was also reported that staff training at KYU largely depends scholarships offered by international organisations and foundations like NUFFIC other than on their own resources. This curtails the extent to which members of academic staff benefit from training. The other two institutions in this phase of the study UMI and MBS seem to utilize a variety of avenues to enhance individual learning. These include Continuous Professional Development (CPD) mainly in the field of professional studies, sponsorship to workshops both local and foreign; self sponsored trainings in addition to long term training. It was evident at both institutions (UMI and MBS) that there is a deliberate strategy to develop staff competence through long term training, and a staff

development policy is in place to actualise this initiative. Funds are allocated on an annual basis to cater for staff development activities.

Further evidence of triangulation of qualitative and quantitative results can be found in the institutional learning avenues. From the tabular results presented in table 7.8, two main avenues identified were strategic alliances and partnerships that are both foreign and local. Such avenues cut across the three institutions. However, respondents reported that at both KYU and UMI, there is no partnership framework and that most alliances are a "once off event" for a specific assignment or project. Consistent with the qualitative results, quantitative results indicated that KYU had the lowest score (3.60) on institutional learning, followed by UMI (4.30) while MBS had the highest score at 5.39. The high ranking of MBS was attributed to the charismatic leadership of the institution whereby the Principal in actively engaged in seeking meaningful partnerships that benefit MBS. Low scores for both UMI and KYU was mainly attributed to lack of a partnership framework and follow up mechanisms with outside partners. Such nature of partnerships negatively affects benefits that accrue to parties involved. One respondent remarked that a partnership mechanism would guarantee sustainability of relationship with other parties resulting into greater benefits and more learning opportunities.

Leader driven leader learning dimension revealed four aspects from qualitative data presented in table 7.8 above. The four aspects include collaborative arrangements spearheaded by the institutional leader, training scholarships put in place by the institution to benefit members of the academic staff, formulating and supporting favourable policies for learning to take place, and searching for and facilitating visiting lecturers/professors. Findings show that MBS was well positioned on each of the four aspects, followed by UMI which was not at par with MBS only in one aspect of visiting academics, and lastly KYU that faced challenges of scholarships and formulating and implementing favourable policies for staff development. Consistent with the quantitative results presented in table 4.14, among the three institutions considered for the qualitative phase of the study, MBS and UMI scored almost the same value (5.19 and 5.21) respectively on leader driven learning dimension while KYU was a distant 4.86. It is

imperative to note here that by the time this study was conducted, KYU was undergoing a leadership transition which could have been reflected in the responses of the informants.

7.6. Interdependence between knowledge management and organisational learning

Depending on what the respondents understood by the term 'interdependence', some form of recognition of the interrelationship existing between knowledge management practices and organisational learning seemed to emerge from the interviews. The respondents seemed to regard 'interdependence' as meaning that two (or more) entities depend on one another for them both (or all) to be fully realised. Such a perspective makes sense, especially when it is considered in the light of the activities that were identified as falling under knowledge management, and in the light of the initiatives engaged in by the different institutions in terms of organisational learning, as was revealed in the interviews. Those knowledge management activities which were identified by the respondents included how knowledge is acquired, as well as how it is distributed and shared. Other activities recorded related to how knowledge is generated or created, as well as to how it is utilised or applied. In relation to all such activities, the conclusion that could be drawn was that learning was seen to be the key focus of all such activities. From the organisational learning point of view, the identification of the initiatives named by the respondents suggested that, in order for organisations to learn, the respondents thought that knowledge must be acquired, generated, and utilised at all levels in an organisation.

The purpose of higher education, and hence, that of higher education institutions, is to share, to distribute, to transfer, and to apply knowledge, which negates the importance of knowledge protection in such a context, in terms of both their individual and their national mandate.

The linkage between knowledge management and organisational learning at higher education institutions, a cross-case analysis

Table 7.9 below presents a summary of the responses obtained from the respondents at each of the participating higher education institutions, in respect of the possible dimensions of the interdependence between knowledge management and organisational learning in the higher education context.

Table 7.9: Proposed dimensions of knowledge management and organisational learning linkage: A cross-case analysis.

	UMI	*KYU*	*MBS*
Purpose/objectives	√	√	√
Activities/actions		√	
Focus of initiatives		√	
Policies implemented	√		
People		√	√
Leadership	√		√
Strategies	√		
Resources			√

A number of features, most of which were seen as being interrelated, were identified as possible dimensions of the linkage between knowledge management and organisational learning. One set of such features includes focus, purpose, policy, leadership, activities and strategies. The leadership of the institution was seen as driving the strategic agenda, which defines the direction that the particular institution wishes to take. Such a direction is operationalised in terms of the policies, goals (purpose), objectives and strategies concerned. The implementation of strategies requires certain activities to be undertaken. Institutional policies are largely associated with the leadership of the institution concerned, as can be seen in the following response received from a UMI respondent:

> *"Successful implementation of knowledge management and organisational learning strategies needs to be embedded in the overall institutional framework; this is where policies are generated. There may be policies, but the way the leaders of the*

institution implement them is another matter. Managers need to act in line with the policies, in order [to] benefit from these initiatives".

Taking all the above considerations together, they seem to point to a broad linkage of policies to the strategic focus of the institution concerned.

Both strategies and policies refer to the resources of an organisation, and as seen earlier, people constitute the most important resource that an organisation has. Since the first-generation knowledge management practitioners, who emphasised the information technology component of knowledge management, failed to deliver the desired results, more focus has been laid on the human resources of an institution, with it being recognised that the extent to which such resources are motivated, trained, and managed determines the success of knowledge management and organisational learning initiatives. Consequently, the human resources focus of an institution is deemed to be more closely associated with the linkage of knowledge management and organisational learning components than are other resources in an organisation. The people component, therefore, seems to account for a major portion of the linkage between knowledge management and organisational learning in an organisation.

7.7 Summary

The interviews conducted with the participants from the three participating institutions have shown that the higher education institutions concerned undertake a number of different knowledge management-related activities. Such activities can be grouped into the following five main categories: knowledge acquisition; knowledge transfer; knowledge creation; knowledge generation; and knowledge application. Many of the activities which fall under the above-mentioned categories were identified not only as being interrelated, but also as implemented implicitly, in terms of knowledge management practice. As far as organisational learning is concerned, there was a tendency to equate learning with training, despite organisational learning consisting of more than mere training. All the respondents concurred that the basic unit involved in organisational learning is the individual, at which level organisational learning starts.

In exploring the interdependence between knowledge management and organisational learning, the respondents pointed to two likely connections between the two concepts, with the first relating to those human resources which are the primary targets of related interventions, and the second relating to the strategic focus, and managerial activities. Human resources activities concern how people are managed, which, in turn, affects their willingness not only to share knowledge, but also to unlearn old ways in order to learn new ways. In contrast, the latter focuses on those actions which institutions implement with respect to guiding the institutions in their future or strategic intent.

CHAPTER EIGHT
DISCUSSION OF FINDINGS

8.1 Introduction

The main aim of this study was to examine the interdependence of knowledge management and organisational learning, and determine the dimensions of that interdependence. The previous four chapters of this thesis presented both quantitative and qualitative analysis and results from questionnaires and key informant interviews. This chapter discusses the results in line with the propositions of the study. First to be presented is the discussion on the impact of knowledge management practices on the three levels of organisational learning. This is followed by a discussion on the interdependence between knowledge management and organisational learning and the proposed dimensions of this interdependence. Finally, the chapter takes the discussion of this study beyond interdependence between knowledge management and organisational learning, to focus on its re-conceptualisation, by proposing an Organisational Knowledge Sustainability (OKS) perspective.

8.2 The influence of knowledge management practices on organisational learning

The discussion of the influence of knowledge management practices on organisational learning is based on the results of the correlation analysis, the regression analysis and the key informant interviews. Each of the knowledge management practices, namely knowledge documentation, knowledge transfer, knowledge application, knowledge generation, and knowledge acquisition, was correlated and regressed on each of the three organisational learning dimensions (institutional, individual, and leader-driven learning).

8.2.1 Knowledge management practices and institutional learning

Tables 5.1 and 5.2 in Chapter Five present the results of the correlational and regression analyses respectively in terms of the knowledge management practices and institutional learning. The results of each of the knowledge management practices in relation to institutional learning are discussed next.

Knowledge documentation and institutional learning

The correlational results in respect of knowledge documentation and institutional learning showed a low, though significant, correlation (.261). Such a result is confirmed by the regression analysis conducted for the study, which showed that knowledge documentation had a significant positive influence on institutional learning ($\beta = .247$, $p < .000$). Such a finding supports the hypothesis that knowledge documentation has a significant influence on institutional learning.

From the interviews which were conducted with the respondents, it was evident that the higher education institutions have various activities linked to knowledge documentation, including reports, handbooks, databases, curriculum reviews and updates, and lecture notes. Such activities are expected to perpetuate organisational memory, which, in turn, might result in institutional learning. The increased use of information technology contributes to the enhancement of organisational memory through the use of databases, local area network and the intranet. Though knowledge documentation contributes to institutional learning, according to most of the respondents, the underutilisation of the existing databases and documentation gives rise to concern. Consistent with Demarest's (1997) conceptualisation of knowledge embodiment, knowledge documentation corresponds to embedded systems, which is a learning dimension that represents institutional learning (Watkins and Demarest, 1993).

Similarly, in social capital theory and, more specifically, in terms of the structural capital dimension, knowledge institutionalisation is deemed to take place through documentation and organisational memory. The literature reviewed has also shown that the knowledge inventory (i.e. the documentation) has a significant influence on the learning ability of organisations (Su et al., 2003).The relationship between knowledge documentation and institutional learning seems to render credence to the assertion that as institutions document more knowledge, institutional learning improves.

Knowledge transfer and institutional learning

The correlational results between knowledge transfer and institutional learning show a very low, though similarly significant, relationship (.153). The regression results were also found to be significant ($\beta = .152$, $p < .01$), implying that only 15% of the change in institutional learning might be accounted for by knowledge transfer. The results from the key informant interviews showed that, on average, knowledge transfer was represented by the least number of activities. Such a finding supported the findings in terms of the descriptive analysis, which also indicated that knowledge transfer was practised the least of all the dimensions at higher education institutions (see Figure 4.3). For example, informal interactions, joint tasks, team teaching, and internal workshops, which are considered instrumental in knowledge transfer, were not highly practised across the institutions surveyed. Such a result was to have been expected, because the lecturers at higher education institutions tend to be more competitive than they are collaborative. Such researchers as White and Weathersby (2005: 292) contend that "academic life fosters autonomy, competition, critical judgement, intellectual scepticism, power distance and self interest", which are not supportive of interpersonal knowledge transfer.

The significant relationship found is, however, consistent with the results obtained by Yang (2007) in his study of the influences of knowledge sharing and transfer on organisational learning and effectiveness. His findings showed a significant positive relationship between knowledge sharing and organisational learning. Knowledge transfer is part of the socialisation process described by Nonaka (1994) in terms of the SECI model. Such transfer involves the sharing of tacit knowledge between individuals, which comes about as a result of working in the same setting. Huseman and Goodman (1999) argue that knowledge transfer requires physical proximity among organisational members. The result is also consistent with the social capital theory, which posits that the social relationships and interactions which develop between organisational members promote collaboration, which is a necessary condition for institutional learning to take place.

Knowledge application and institutional learning

Knowledge application showed a low correlation with institutional learning ($r = .314$). The regression results were significant ($\beta = .298$, $p < .001$), implying that about 30% variation in institutional learning can be accounted for in terms of knowledge application. From the interviews, it was revealed that, in higher education institutions, knowledge application takes the form of teaching and lecturing, carrying out research, supervising research students, doing consultancy work, performing community outreach and supervising internship supervision. Such activities, however, were not found to cut across all the institutions surveyed, and they were also not applied to the same magnitude in all cases. Knowledge application practices were also averagely implemented across all institutions. Institutional learning occurs when service delivery improves at institutions. Through teaching, consultancies and student supervision, lecturers are able to identify areas of improvement and to suggest ways in which such improvements can be effected. Learning is said to have occurred when process improvements have become embedded in institutional processes. For institutions to benefit from the knowledge of their members, the respondents noted that such knowledge must be applied to organisational processes and to improving the way in which such institutions execute their roles. Such a finding supports the argument that knowledge application positively influences institutional learning.

Consistent with the intellectual capital theory, employees' skills, knowledge and experiences (broadly referred to as human capital) can be useful in an institution to which they are applied. In line with such theory, individual tacit knowledge is integrated into organisational knowledge if it is externalised (Nonaka and Takeuchi, 1995). Such knowledge might be externalised by means of applying it to organisational activities, thereby promoting organisational/institutional learning.

Knowledge generation and institutional learning

Knowledge generation also showed a low correlation with institutional learning (.254). The regression results were found to be significant ($\beta = .229$, $p < .001$), implying that close to 23% variation in institutional learning may be explained by the rate at which

knowledge is generated in a particular institution. According to the interviews which were conducted with the key informants, the main avenues for knowledge generation in higher education institutions were research and consultancy work. Most of the research projects tend to be undertaken with the support of the institutions concerned, while consultancy work tends mainly to take the form of personal initiatives. As a result, research was found to contribute more to institutional learning than did consultancy work. In terms of social capital theory, knowledge generation can be equated to the structural capital dimension, which is represented by research and development (Ordenez de Pablos, 2006; Ungerer et al., 2006). In line with Bui and Baruch's (2010) postulation, higher education institutions tend to develop knowledge by means of study and research, and, if such knowledge is later shared by all the members at an institution, such knowledge may result in institution-wide learning. Similarly, when the results of research and development are institutionalised within the ambit of an organisation, such endeavour contributes to institutional learning. Research results can be embedded in institutional processes, such as in improving training techniques, in developing new courses, based on market demand, and in incorporating students' comments and evaluation in curriculum reviews.

Knowledge acquisition and institutional learning

Knowledge acquisition presented a low correlation with institutional learning in the current study. The relationship was, however, found to be both positive and significant ($r = .231$, $p < 0.01$). The results of the regression analysis also support the idea that, when acquisition of knowledge is prioritised, institutional learning may follow. The influence of knowledge acquisition on institutional learning was found to be both positive and significant ($\beta = .213$; $p < .001$). Higher education institutions which wish to promote institutional learning should continuously acquire and upgrade relevant knowledge.

According to the key informants, knowledge in higher education institutions is acquired by means of the purchase of, and subscription to, journals and textbooks. Other ways of fostering the acquisition of such knowledge include providing sponsorship for both short- and long-term training, and facilitating staff participation in professional workshops.

Training was rated as the most common way in which knowledge tends to be acquired. Based on the cognitive dimension of social capital theory, knowledge retention of training is facilitated by knowledge interpretation and the representation of ideas which is intended to enhance learning. Such knowledge retention is also related to Watkins and Marsick's (1993) continuous learning dimension. Once such knowledge is grafted on organisational processes and routines, it may result in institutional learning. Such a finding is consistent with King et al.'s (2008) knowledge cycle model, in terms of which knowledge acquisition is said to result in organisational learning. The absence of mechanisms for ensuring that acquired knowledge is translated into institutional knowledge poses a challenge to higher education institutions in Uganda.

8.2.2 Knowledge management practices and individual learning

The results of knowledge management practices on individual learning are discussed in this subsection of the dissertation. Such practices consist of knowledge documentation, transfer, application, generation and acquisition.

Knowledge documentation and individual learning

Knowledge documentation presented a non-significant relationship with individual learning in the current study. The regression results were also found not to be significant. Such a finding suggests that, in higher education institutions, knowledge documentation practices might not be linked to individual learning. According to the descriptive data collected, knowledge documentation scored the second lowest score of the knowledge management practices. Such a finding probably explained why documentation was found not to contribute significantly to individual learning. Nonetheless, two inferences can be made in relation to such a relationship in the higher education context in Uganda. Firstly, though not significant, the beta coefficient is positive, implying that the relationship between the two is positive. Secondly, academic institutions in Uganda are known for their poor documentation practices. As reported by the key informants in the study, manuals, databases and handbooks are not regularly updated, with processes and procedures hardly being documented. In fact, departments commonly utilise different guidelines from those of other departments at the same university. One respondent

pointed to the *"lack of uniformity in university processes* [arising out of poor documentation and probably dissemination] *has forced some departments to find ways of making their work easy"*. Thirdly, information communication technology is one of the factors that enable knowledge documentation. At some institutions where the research was conducted, it was evident that not all academic staff members had a computer connected to the internet, the local area network and the intranet. The contribution of knowledge documentation to individual learning can be judged from the ease with which such knowledge is retrieved. When there is only poor, or limited, access to documented knowledge, the possibility that knowledge documentation practices do not substantially influence individual learning is high.

Knowledge documentation falls under the externalisation mode of the knowledge conversion model propagated by Nonaka (1994), in the sense that tacit knowledge can be converted into explicit knowledge through manuals, analogues, and models. In the current study, it was proved that externalisation, which involves documenting knowledge and making it more accessible, does not have a significant influence on individual learning. Such evidences was reinforced by the findings from the key informant interviews, in which it was revealed that attempts to have teaching materials branded as institutional property and shared across the institution were met with stiff resistance from some academic staff members. Such staff members reasoned that they needed to maintain a certain degree of ownership and control over the teaching notes which they had developed.

Knowledge transfer and individual learning

The results of the correlation indicated that the relationship between knowledge transfer and individual learning was moderate ($r = .513$, $p < 0.01$), with the regression analysis showing significant influence of knowledge transfer on individual learning ($\beta = .507$; $p < 000$). Such a result confirms the proposition that knowledge transfer has the capacity to influence about 50% of individual learning. Such a proposition implies that institutions which have strategies in place for interpersonal knowledge transfer are likely to foster individual learning. The interviews with key informants revealed that the most common

ways of transferring knowledge in higher education institutions are participating in internal workshops and promoting informal interactions among others. Although such a finding did not apply to all the institutions in the study, it is, nevertheless, is evidence that knowledge transfer is instrumental in individual learning. Such a finding is consistent with the relational dimension of social capital. According to Nahapiet and Ghoshal (1998), those social relationships which individuals develop over time by means of continuous interaction result in social capital. Knowledge sharing and transfer within organisations is based on such capital. By implication, as individuals interact, share, and exchange ideas, their learning is enhanced. Although the level of significance was found to be moderate, the direction of such a positive relationship was consistent with Argyris and Schön's (1978) postulation. Argyris and Schön (1978) assert that organisational learning occurs through individuals, which implies that, when knowledge is transferred and shared among organisational members, it increases the number of avenues available for knowledge circulation. As a result, the learning of such members tends to improve, and the number of opportunities for enhancing individual learning also increases. Knowledge transfer and individual learning, therefore, may be assumed to move in the same direction.

Knowledge transfer greatly depends on the existence of a sharing culture. In contrast, a culture which is characterised by individualism and selfishness might lead to the undermining of knowledge transfer. Such a tendency towards individualism was evident in the key informant interviews, with one respondent commenting: *"….most people here are selfish, and believe that sharing their knowledge with colleagues will diminish their importance"*.

Some of the respondents expressed a fear that sharing knowledge might render them so 'powerless' that they might risk losing their jobs. Such a fear is based on the belief, which is generally borne out by real-world evidence that people who know more tend to be more powerful than those who know less. In keeping with the perception that knowledge equals power, this phenomenon tends to result into knowledge hoarding (Du Plessis, 2007). As a consequence, such individuals tend to use knowledge as a tool for

exercising their power to secure their job in an organisation. Though such a practice may benefit individuals in the short run, it may be detrimental to the organisation in the long run. Further evidence of the minimal level of knowledge transfer and sharing that was found to prevail was revealed by the mean score for knowledge transfer in terms of the descriptive statistics being the lowest recorded of all knowledge management practices examined at the higher education institutions surveyed.

Knowledge application and individual learning

Neither the correlation nor the regression results showed a significant relationship between knowledge application and individual learning, contrary to the hypothesised relationship. The implication of such results is that knowledge application activities in higher education institutions do not necessarily lead to improved individual learning. In an educational setting, the concept of 'knowledge application' refers, at least in part, to knowledge use or utilisation by means of lecturing and consultancy work. The key informant interviews showed that lecturing tends to take up about 80% of the lecturers' time; as a consequence, students are the main beneficiaries of knowledge application. In addition, though, through knowledge application, lecturers update their knowledge in order to improve on their lesson delivery. Knowledge application would result in improved individual learning if the academic staff were to perceive it to be a way of enriching their knowledge bases. The perception that the recipients of the staff's services are the only beneficiaries from such services runs counter to Demarest's (1997) postulation that knowledge use results in both organisational and individual benefits. Demarest's model was, however, conceived in a different environment and might not, therefore, be totally applicable in higher education institutions and in a developing country where the knowledge content and processes differ.

Knowledge generation and individual learning

The correlation between knowledge generation and individual learning was found to be low ($r = .183$, $p < 0.05$), with the regression analysis results showing that knowledge generation significantly influenced individual learning ($\beta = .189$, $p < 0.01$). The implication of such a finding is that those institutions which have the capacity to generate

knowledge are more likely to experience improved individual learning. Such a finding was to have been expected, considering the fact that knowledge generation activities are undertaken by individuals. The interviews identified research and consultancy work as the main activities in this respect. As indicated in the earlier discussion, research tends to be undertaken as joint projects under the auspices of the institution, with only some lecturers being proactively engaged in searching for appropriate research opportunities and funding. Consultancy, in contrast, is mainly driven by individual interest. By means of such activities, individuals tend to generate new knowledge and enhance their existing knowledge, resulting in individual learning. In addition, consultancy work was found to be undertaken mainly in the area of organisational development and training. The individual is the central focus of all such channels, meaning that individual learning improves through knowledge creation.

Such a finding is consistent with the structure capital dimension (Nahapiet and Ghoshal, 1998), especially with the research and development category and the knowledge construction aspect of Demarest (1997). As constructing knowledge and carrying out research are made possible through individuals, individual learning is accelerated by means of engaging in such activities. Individuals are, in turn, expected to embed their learning in organisational routines in such a way that it becomes organisational knowledge.

The focus of knowledge generation is on the individual level in higher education institutions, as is the case other organisation, because, as Fiol (1994) argues, knowledge in groups and in organisations depends on individually held knowledge. As a result, any activity which is aimed at generating knowledge should result in improved individual learning. Such thinking is consistent with Nonaka's (1994) model of knowledge creation, which posits that an organisation cannot, by itself, create knowledge, but that individual knowledge is the basis of organisational knowledge creation. Such a relationship makes sense, considering the fact that organisations create knowledge through their individual employees. Various interventions, such as training, research and participation in projects, are critical for enhancing individual learning. Essentially, higher education institutions

are in the business of knowledge creation (Rowley, 2000), either in the form of carrying out research to create more knowledge, or in the form of training and lecturing, which is aimed at enhancing the learning of students. Both such processes meet at the level of the individual academic staff member, with consequent alignment of knowledge creation with individual learning. As a result, knowledge generation practices contribute to the unlocking of the individual's potential to learn.

Knowledge acquisition and individual learning

Results of both the correlation and regression analysis show that knowledge acquisition practices tend to have a significant influence on individual learning ($\beta = .189$; $p < 0.01$). By implication, such practices have the capacity to predict the variation in individual learning in terms of significance. Knowledge acquisition at higher education institutions takes various forms, ranging from the purchasing of journals and books, to both local and foreign training, the conducting of workshops and conferences, and recruiting. The analysis of such activities reveals that the individual remains the primary component of the learning process in such a context, making it plausible to assume that knowledge acquisition practices positively influence individual learning. Further evidence of such an influence was echoed by the respondents, who argued that knowledge is acquired and managed for the purpose of enhancing learning, first at an individual level, and, subsequently, at the team and institutional levels. Knowledge acquisition was found to be one of the knowledge management practices with a high mean score (5.06 on a scale of 7), indicating that higher education institutions tend to focus on acquiring knowledge.

Consistent with Huber's (1991) organisational learning framework, organisations tend to learn by means of knowledge acquisition, information distribution, information interpretation, and organisational memory. According to Demarest (1997), knowledge construction, which constitutes two components of knowledge generation and acquisition, takes two forms, one in terms of the scientific paradigm (such as innovations and research), and the other in terms of the social paradigm. In essence, therefore, when scientific knowledge is acquired, it should be blended with the social dimension of individuals so as to construct knowledge to put it to meaningful use. Such a process

occurs by means of the interaction between social entities of the organisation, with the individual serving as the central unit. As the process advances, individual learning takes place. Further support for this finding is presented by Hedberg (1981: 16), who asserts that "organisations do not have brains but they have cognitive systems and memories. As individuals develop their personalities, personal habits and beliefs over time, organisations develop worldviews and ideologies. Members come and go, and leadership changes, but organisation's memory preserves certain behaviours, mental maps, norms and values over time." Such thinking is related to the cognitive dimension of the social capital theory. Organisations use individuals as learning conduits, by acquiring knowledge through the individual's learning processes. The only condition which is attached to the process is that institutions must have mechanisms for embedding individual learning in organisational systems.

8.2.3 Knowledge management practices and leader-driven learning

Leader-driven learning is a unique dimension, which emerged from the data relating to higher education institutions. Such learning reflects the importance that members of academic staff attach to institutional leadership in promotion of organisational learning. Leader-driven learning is that type of learning which derives its existence from the actions and roles performed by leaders. Little research exists in regards to such a learning dimension, especially in terms of the higher education institutional context. As in the previous subsections on knowledge management practices, a discussion of the relationship between such practices and leader-driven learning accords with the correlation and regression analysis, as well as with the findings resulting from the key informant interviews. Overall, the knowledge management practices surveyed were found to present both positive and significant relationships with leader-driven learning, with the exception of knowledge application, whose correlation was not significant. The following sections of this chapter present discussions on each of the knowledge management practices and their respective influences.

Knowledge documentation and leader-driven learning

The correlation results indicated a significant low relationship between knowledge documentation and leader-driven learning ($r = 249$), with the regression analysis presenting a positive and significant result ($\beta = 237$; $p < .000$). Such findings meant that there was a positive relationship between knowledge documentation and leader-driven learning. According to the key informants in the study, a number of activities identified leader-driven learning were collaborations, training scholarships, the creation of favourable policies, and the encouragement of visiting academics. Leaders of higher education institutions were perceived as consisting of departmental heads, faculty deans, and the overall institutional heads, consisting of the vice chancellor, the director general and the principal, in the case of the university, the management development institute, and the business school, respectively.

Knowledge documentation requires heavy investment, especially in terms of purchasing information communication technology equipment and updating manuals, handbooks and other training materials. One of the institutions surveyed had, reportedly, been unable to develop standardised training manuals, due to lack of funding. Leaders play an important role in securing resources to meet the requirements of the institution, including those which are related to the documentation of knowledge. Budgeting processes start at the departmental level, with approvals being processed through the dean, and, ultimately, the top management of the institution concerned. The inference can, therefore, be drawn that knowledge documentation and leader-driven learning are related. Consistent with the knowledge externalisation phase of Nonaka and Takeuchi's (1995) model, institutional leadership is critical for ensuring that tacit knowledge is externalised and embedded in organisational processes.

Knowledge transfer and leader-driven learning

Knowledge transfer presented a positive significant, though low level, relationship with leader-driven learning ($r = .208$; $p < 0.01$). In terms of such a finding, interpersonal knowledge transfer and sharing is associated with leader-driven learning in higher education institutions, though not at a high level. The regression analysis results,

however, showed a significant influence of knowledge transfer on leader-driven learning ($r = .202$; $p < 0.01$).

According to the respondents, the low levels of colleagueship among academic staff undermine learning transfer. Knowledge transfer is part of the socialisation process, which is described by Nonaka (1994) in the SECI model. Such transfer involves the sharing of tacit knowledge among individuals, as a result of their working together. Some scholars have argued that, due to the stickiness of knowledge (Szulanski, 1996); its transfer requires a favourable environment, in which organisational members feel eager to share personal experiences with colleagues. Such an environment has to be nurtured by the organisation's leaders. In line with the relational dimension of social capital, knowledge transfer takes place in a social context, in which the degree of trustworthiness (Levin and Cross, 2003) among members is perceived to be high. An environment that nurtures trust among employees is created by institutional leadership, which accounts for the linkage between knowledge transfer and leader-driven learning. Institutional leaders can also lead by example through sharing their experiences with the rest of the faculty, so as to promote a knowledge-sharing culture.

Knowledge application and leader-driven learning

Knowledge application showed a non-significant relationship with leader-driven learning. The regression analysis results also show a weakly significant influence of knowledge application practices on leader-driven learning, despite the coefficient being positive ($\beta = .123$; $p < .05$). Such a finding, however, is relevant to higher education institutions, in the sense that knowledge application by lecturers does not directly link with leader-driven learning. The main practices which were identified under leader-driven learning included the forming of strategic partnerships, the seeking out of scholarships, and collaborative efforts. Such activities seem to link only weakly with knowledge application in the higher education institutions, which is more than 80% dominated by teaching, student supervision and community outreach. However, such a positive influence might be motivated by the creation of an enabling environment, which motivates staff to exert

more effort in executing their tasks, deploying staff (Syed-Ikhsan and Rowland, 2004) and vying for promotions.

Knowledge generation and leader-driven learning

The correlation results indicate a very low bivariate relationship between knowledge creation practices and leader-driven learning ($r = .178$; $p < 0.05$). Although the correlation was found to be so low, it was in the proposed positive direction, indicating that knowledge generation and leader-driven learning tend to move in the same direction. The regression analysis showed that there was a significant positive influence of knowledge generation on leader-driven learning ($\beta = .161$; $p < 0.05$).

Such a finding is supported by the results of the key informants' interviews. Knowledge generation at higher education institutions, reportedly, occurs by way of research and consultancy, resulting in those research outcomes and case studies which are developed becoming integrated within institution memory, which, in turn, enhances institutional learning. Knowledge generation is supported by institutional leaders. Ungerer et al. (2006) argue that knowledge development, which may be taken to be similar to knowledge generation, becomes a reality when the key leadership of the organisation clearly articulates knowledge intent through planned and organic practices. Similarly, Demarest (1997) considers knowledge construction to be the most important process in knowledge management. Guided by the strategic intent of the organisation, the leader is expected to determine both the knowledge content to be generated and the means of generating such content. As previously stated, the institutions surveyed had endeavoured to implement policies aimed at promoting the research culture, including those relating to the creation of a research fund, and to the granting of leave to lecturers to undertake research. The implementation of such policies made it possible, by means of the active role played by higher education institution leadership, to view research as an important activity at their institutions. Consistent with the thinking related to research and development in terms of structural capital in social capital theory (Alexopoulos and Monks, 2004), knowledge generation is perceived to be a strategic issue which calls for the attention of leaders, thereby making a positive relationship between the two plausible.

Knowledge acquisition and leader-driven learning

Knowledge acquisition presented a low correlation with leader-driven learning, though the relationship was significant and positive ($r = .324$; $p < 0.01$). The implication of such a correlation is that a low level of knowledge acquisition practices in higher education institutions is associated with low levels of leader-driven learning. The positive direction concerned implies that both knowledge acquisition and leader-driven learning move in the same direction. The results of the regression analysis also support the idea that, when the acquisition of knowledge is prioritised, the amount of leader-driven learning is likely to increase. A positive significant influence of knowledge acquisition on institutional learning ($\beta = .298$; $p < .000$) was found. According to the key informants in the study, knowledge in higher education institutions is acquired through the purchasing of journals and textbooks, in addition to the funding of training programmes. The leader's role in such activities is critical, in view of the responsibility that they have for the development and approval of resources to be used in knowledge acquisition, as well as for implementing those staff development policies which support staff training.

In addition, it was found that some aspects of leader-driven learning entail searching out scholarships, collaborations and the building of strategic networks. Through such activities, leaders gain new insights and develop contacts, such as in the case of visiting lecturers, who, in turn, help the institutions to acquire more knowledge, though knowledge acquisition can be undermined by knowledge attrition. The increasing employee turnover rate at higher education institutions puts the institutions at risk of losing the knowledge which such institutions have acquired through staff training. Consequently, the leadership of an organisation is expected to design and implement policies aimed at employee retention, in order to minimise knowledge attrition.

8.3 Interdependence between knowledge management practices and organisational learning

To ascertain the interdependent nature that exists between knowledge management and organisational learning, and to explore the dimensions of such an interdependence, the

canonical correlation analysis procedure was conducted. As the results discussed in Chapter 5 show, two significant canonical correlations were obtained from the analysis, which jointly explained approximately 86% of the variance of the two sets of variables. The variance explained by each was computed by squaring their respective canonical correlations (Thorndike 2000), with the first canonical correlation that is 0.832 explained 69.2% (0.832^2); similarly, the second significant correlation was 0.413 thus explaining 17.1% (0.413^2). Since the third canonical correlation was not significant, it was dropped from further analysis.

From the knowledge management set, knowledge documentation, knowledge generation and knowledge acquisition were mostly associated with the first canonical variable (r = -.390; r = -.420 and r = -.523, respectively). With respect to the organisational learning set, although all three dimensions were associated with the first variate, only leader-driven learning was mostly associated with having a larger absolute loading value, when compared to its loading on the second variate. All the correlations were negative. Accordingly, it appears that, in higher education institutions, lower levels of knowledge documentation, knowledge creation and knowledge acquisition are associated with lower levels of organisational learning. However, consistent with Thorndike's (2000) contention that canonical loadings may be reversed in sign without disturbing the solution, the interpretation of such findings is based on the absolute values concerned.

Findings from the first canonical variate seem to confirm the assertion that knowledge management is an implementation strategy for organisational learning, which implies that, in order to succeed in organisational learning, knowledge management strategies have to be implemented. More specifically, however, such findings show that knowledge documentation, knowledge acquisition and knowledge generation are critical for learning to take place. Those higher education institutions which lack deliberate strategies for knowledge generation, such as establishing learning groups, supporting research endeavours, and promoting consultancy activities, are likely to experience low levels of organisational learning.

In respect of knowledge documentation, those institutions which fail to embed individual knowledge into organisational routines, processes and systems may exhibit low levels of learning. The interviews conducted suggested that knowledge documentation tends to occur only to a limited extent in the higher education institutions surveyed, with reports being underutilised, which effectively curtails organisational learning prospects. The intellectual capital argument, especially in the light of the structural capital perspective, presupposes that organisations look for ways of embedding individual knowledge into organisational routines. Individual knowledge should be transformed into organisational knowledge (Bontis, 1999; Ungerer et al., 2006), which could then be used to promote the learning of others. In the same vein, Nonaka and Takeuchi's (1995) knowledge conversion model, especially the externalisation mode, emphasises converting individual tacit knowledge into more explicit modes, such as processes, manuals and handbooks for ease of reference. Documented knowledge in particular becomes essential to an institution on individual staff members leaving the organisation, especially in the light of the increasing employee turnover in higher education institutions in Uganda. By documenting knowledge through embedding it in organisational processes, procedures and systems, new entrants to the organisation have an opportunity of expeditiously learning from what their predecessors developed.

Knowledge acquisition is another variable in the predictor set which presented a meaningful correlation with the first canonical variate. Such a correlation suggests that higher educational institutions which exhibit low levels of knowledge acquisition practices will tend to have correspondingly low levels of leader-driven learning. Knowledge acquisition processes in a higher education setting were found to involve activities related to the purchasing of knowledge resources, such as the subscribing to research journals and the purchasing of textbooks. Additional activities included encouraging the academic staff to participate in professional networks and associations, and to attend workshops, seminars and training programmes. Based on the World Declaration on Higher Education, higher education institutions should clearly prioritise those issues relating to the promotion and development of research in establishing their programmes and structures. Whereas research is recognised as being of strategic

importance to higher education institutions in developed countries, such is not the case in developing countries, such as Uganda, which was the site of the current study. Most higher education institutions in Uganda used largely to depend on the government for all their funding needs, including their research funds, but such funding has been so drastically reduced that it cannot now adequately cover research expenses. As a result, relatively little research is being conducted, and the little that is being conducted is supported by various research foundations, who also direct the research agenda according to their own interests.

Two out of the five variables from the knowledge management set, namely knowledge transfer and knowledge application, were mostly associated with the second canonical variate. Their canonical loadings were found to be r = .718 for knowledge application, and r = -.604 for knowledge transfer. In terms of the organisational learning set, two of the variables were meaningfully associated, being institutional learning, with a positive loading of r =. 637, and individual learning with a loading of r = -.768. Such a finding suggests that organisations with effective knowledge transfer/sharing and knowledge application strategies are likely to secure corresponding improvements in individual and institutional learning.

According to the key informant interviews, a number of activities support knowledge transfer/sharing, including knowledge sharing through team teaching, informal interactions, and participating in project activities. Other mechanisms for knowledge distribution, as some respondents call such an activity, were through the use of information technology, specifically computers. Although formal meetings were identified as being among the avenues for knowledge sharing, the respondents argued that informal meetings had proved to be more effective for sharing knowledge. Such a finding was consistent with that of Karkoulian, Halawi and McCarthy (2008), who found that informal interactions were more effective for the success of knowledge management. Spinello (2000) also posited that knowledge sharing results in the advancement of organisational learning through individuals and teams. Individual learning is said to have taken place when the individual person assimilates knowledge from an external source.

Since, according to the social capital theory (Ungerer et al., 2006) interpersonal knowledge transfer occurs when individuals are involved in a dialogue, when knowledge transfer improves, such improvement should have a corresponding effect on the individual. However, informality tends to be associated with higher levels of knowledge sharing between individuals, making sharing platforms, such as storytelling, a critical component of both individual and institutional learning, as the respondents rated informal meetings relatively favourably in relation to knowledge sharing.

The positive association of knowledge application with individual and institutional learning is consistent with Sabherwal and Becerra-Fernandez's (2003) finding, which showed that externalisation which is linked to knowledge utilisation by a relatively wide circle of individuals facilitated institutional learning in terms of team-level knowledge effectiveness. In higher education institutions, knowledge application takes various forms. According to the responses from the key informants, knowledge is applied for either internal or external purposes. Internally, knowledge is applied through research and lecturing, while, externally, it is applied through consultancies, research outside the parameters of the organisation, and community outreach. In both the internal and the external mode, individuals have the opportunity to learn.

In the interpretation of canonical correlations using canonical loadings, the practice is always to assign the variate sets labels. Owing to the fact that the labels underscore the interdependence between the two sets of data, they correspond to the dimensions of interdependence, which are discussed in the following sections.

8.3.1 Exploring the first dimension of interdependence: The institutional strategic focus dimension

The variables that are most commonly associated with the first pair of canonical variates represented by V1 and U1 (see Figure 5.4) are knowledge documentation, knowledge generation, and knowledge acquisition, from the knowledge management set. From the organisational learning set, leader-driven learning is mostly associated with the first canonical variate. Such variables suggest an inclination towards the strategic focus,

indicating the tendency of the institutions to focus on the future. All three such practices are implemented with a focus on the future. Leaders drive the strategic agenda of those institutions which they lead, referring to the planned and desired situation which they wish to see materialise at their institutions. Such an agenda relates to the strategic intent of an institution, which, in turn, determines the extent to which the institution engages in knowledge management practices identified in terms of the specified dimension. For example, any organisation will engage in knowledge generation practices, due to the anticipated institutional benefits to be derived from that knowledge in the future. Such behaviour is consistent with the overall strategic direction of the organisation, which relates to where the organisation wants to be in the future and how it intends to reach its desired state, given its changing environment.

Such a view supports that projected by Malhotra (1996), who states that the increasing complexity and rapidity of change of the environment dictates that organisations continuously learn new behaviours, by accessing new knowledge and innovation, and adapt to ongoing change. In terms of the higher education context, Kumar and Idris (2006: 96) similarly postulate that the educational needs of a "globally competitive society of the twenty first century demands that higher educational institutions manage their knowledge better in order to succeed if they are to remain sustainable". Maintaining sustainability should be the strategic concern of any organisational leader.

The practice of acquiring knowledge recognises the role played in the changing environment in which organisations operate, in addition to the fact that organisations should be continuously innovative in order to succeed in the environment. Such continuous innovation is consistent with the call made by March (1991) on all organisations that they must continuously exploit their existing knowledge, while simultaneously exploring new knowledge in order that they might survive in an increasingly competitive era. New knowledge is attained through knowledge acquisition.

The variable on the criterion set which is mostly associated with the first canonical variate is leader-driven learning. A possible explanation for such an outcome is that the

three knowledge management practices under consideration are dependent upon institutional policies, which are, in turn, formulated, supported and implemented by the leaders in an institution. In the same vein, Grant (1996) argues that competitive advantage is based on a company's or institution's ability to integrate an individual's specialised knowledge into the memory of the organisation. Such ability is reflected in the leaders' resoluteness to advance the knowledge management agenda (Ungerer et al., 2006).

The strategic focus dimension of interdependence between knowledge management and organisational learning is also supported by the key informant interview data. Most of the key informants agreed that the two concepts are interdependent, suggesting *"that if managers are contented with the status quo, and there is no urgent need to change, there will be no need to learn, and new knowledge and existing knowledge will not be treated as a priority."*

Such a revelation places the strategic focus dimension in perspective by, firstly, stressing the roles and actions of leaders in reference to what they opt to do amid the changing environment, and, secondly, emphasising the need to manage the existing knowledge well and to acquire new knowledge in a bid to move away from the current status quo in response to anticipated future change.

8.3.2 Exploring the second dimension of interdependence: The people orientation dimension

In respect of the second pair of canonical variates represented by V2 and U2, it can be seen that those variables which are mostly associated with the pair in terms of the knowledge management set are knowledge transfer and knowledge application (see Figure 5.4). In contrast, in terms of the organisational learning set, those variables which were mostly associated with the pair are institutional learning and individual learning, in that order of strength. Such variables are consistent with the view that individuals are conduits of organisational learning (Argyris and Schön, 1978). Knowledge transfer and application have a human resource connotation, possibly due to the fact that knowledge

transfer or sharing, as it is commonly understood, takes place when people are willing to transfer or share the knowledge that they possess. People can neither be forced to share knowledge with, or to transfer knowledge to, other people. As Connelly and Kelloway (2003) suggest, the ultimate decision on what to share and how much to share in terms of knowledge solely depends on employees. Such a phenomenon probably partly explains why the first generation of knowledge management theorists, who heavily relied on the role played by information technology, failed to benefit organisations through their thinking. The same phenomenon confirms Sabherwal and Becerra-Fernandez's (2003) assertion that such first-generation thinking focused mainly on organising knowledge, and on making it available where it is required. Such theorists argue that, increasingly, knowledge management has incorporated the management of important tacit knowledge, which is an internalised form of knowledge which is, consequently, difficult to share or transfer.

Transferring such knowledge, therefore, requires existing social relationships among people (as individuals and in teams), which are determined by continuous interactions, which are, in turn, influenced by the degree of trust between, and the trustworthiness of people. Trust entails the willingness of one party to be vulnerable to the actions of another party (Mayer et al., 1995), whereas trustworthiness is the quality of the trusted party which makes the one who trusts willing to become vulnerable to the other (Levin and Cross, 2004), allowing for openness to the other, resulting in the former's willingness to confide in the other in terms of intuitive responses, thereby facilitating the transfer of knowledge. Increasing levels of trust lead to the transfer of knowledge among themselves which, in turn, translates into increased individual learning and, ultimately, institutional learning. In respect of knowledge initiatives, one respondent stated:

> *"... because people are the custodians of knowledge, they keep it in their minds, transferring such knowledge to other team members is basically in their control…, if people choose not to share knowledge, nothing can take place in that field, and, as a result, others cannot learn from them".*

The second mostly associated knowledge management variable on the second pair of canonical variates is knowledge application, which is synonymous with what Skyrme (1999) and Demarest (1997) call 'knowledge use'. Such use is vital to creating value for an organisation. If knowledge exists within the boundaries of an institution, but it is not effective used, the institution cannot gain from such knowledge. Knowledge is applied by those who are the value creators for organisations. Armstrong (2008) argues that the most important resource which any organisation has is its *people*, who work either individually or collectively to help the organisation to achieve its goals and objectives. Essentially, therefore, people hold the key to the success of any organisation, in terms of how they apply the knowledge which they possess. In the education sector, knowledge application relates to what takes place when lecturers and other academic staff participate in delivering training to students and participants, with the net beneficiary of the process being the learner or the student, whose knowledge base increases after attending courses. The amount of knowledge and the depths of application of one's knowledge during teaching also depend on the degree of willingness of people delivering such training. Such willingness is contingent upon a number of factors, such as the degree of motivation of, or the amount of time which, an individual lecturer is prepared to invest in researching new knowledge about specific topics of study.

8.4 Revisiting of the research model

Based on the findings of the current study, it is deemed necessary to revisit the conceptual model which was first presented in Chapter Two (see Figure 2.7). In terms of such a model, which was derived from the reviewed literature, it was envisaged that all knowledge management practices would have a significant positive influence on all three dimensions of organisational learning in higher education institutions.

In respect to institutional learning, all the relationships turned out to be in the directions hypothesised, with all five knowledge management practices presenting a positive significant influence on institutional learning. According to the key informants, knowledge proceeds from learning, which might imply that knowledge management influences learning.

In terms of individual learning, only three knowledge management practices, namely knowledge transfer, knowledge generation and knowledge acquisition, posted a positive significant influence. Such findings were consistent with the views of the key informants, who maintained that individual learning could be improved by means of enhancing the sharing of knowledge among team members, as well as by means of such knowledge acquisition processes as training and other avenues. Neither knowledge documentation nor knowledge application presented a significant influence. The current study, therefore, proves that neither knowledge documentation nor knowledge application necessarily results in improved individual learning, as was initially anticipated. Such a situation is probably due to the nature of knowledge application in higher education institutions not directly resulting in individual learning. In addition, improved knowledge documentation may not translate into individual learning, because such documentation depends on the usability of the documented knowledge for the individual. The key informants revealed that accessing documented knowledge is fairly difficult.

The results in relation to leader-driven learning showed that four out of five knowledge management practices had a positive and significant influence, with one knowledge management practice (knowledge application) presenting a weak influence on leader-driven learning. As discussed under individual learning, such a result was to have been expected, given that knowledge application in higher education is essentially intended to benefit the students or clients in the short run. As indicated by the key informants in the study, knowledge application in the education sector tends to be transitional, impacting mainly on the learners and their employers. Such limited application is contrary to that which holds for other sectors, such as in business or consultancy firms, in terms of which applying knowledge may result in the introduction of innovative products or services, which benefit the organisations concerned.

In sum, of the total fifteen relationships hypothesised, only three were not substantiated by the data, with the rest confirming the influence of knowledge management practices

on organisational learning at the three organisational learning dimensions, as is shown in Figure 8.1 below.

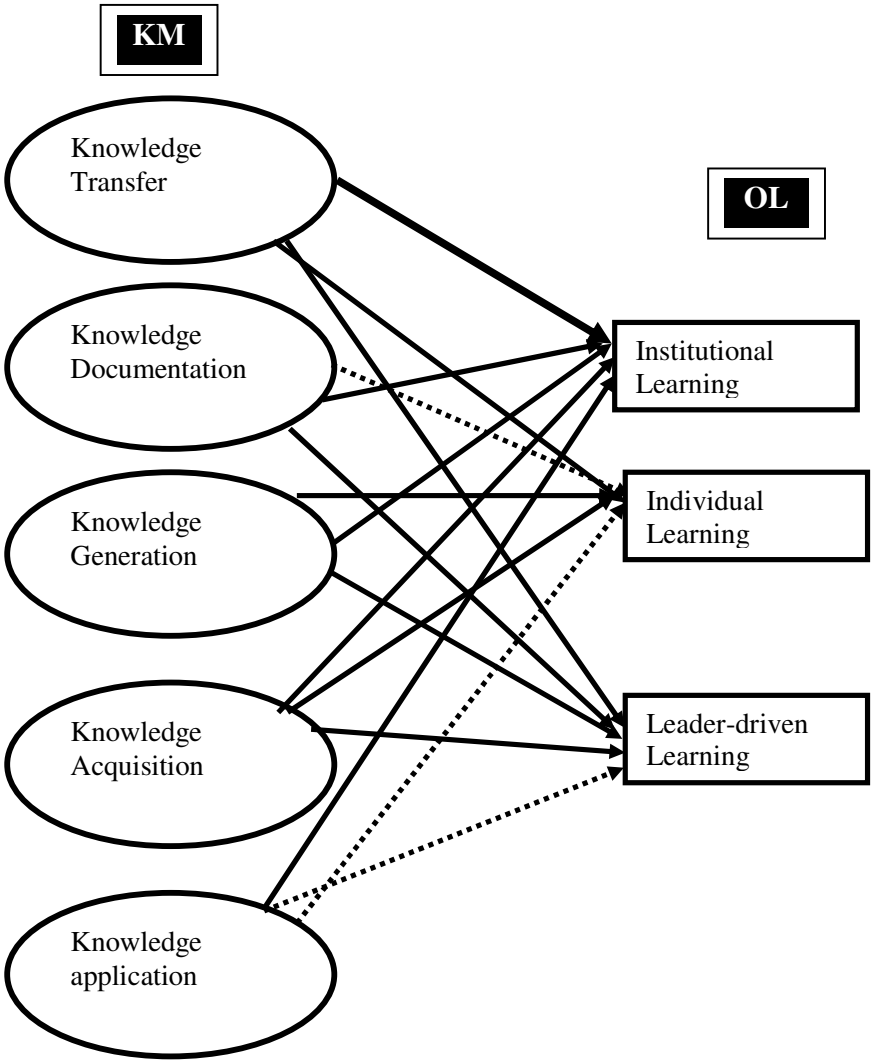


Figure 8.1: Revised research model.

Key:

Proven hypothesised relationship

Non-significant hypothesised relationship

Such a revised model may, along with the findings of the key informant interviews in the three case organisations, and the canonical correlation analysis which was presented in section 8.2, be considered as generating a new understanding of the relationship between knowledge management and organisational learning. Although the results of the regression analysis were mixed, as can be seen in the revised model presented in Figure 8.1, consistencies are discernable in the pattern of relationships presented by both the regression analysis results and those of the canonical correlation analysis.

First, just as in relation to the influences of knowledge management practices on organisational learning, the pattern of the interrelationship is consistent with that which pertains to human resources-based variables in the study. Such variables are knowledge transfer and application, on the one hand, from the knowledge management set, and individual learning and institutional learning from the organisational learning set, on the other. Secondly, all institution- or organisation-based variables, such as knowledge documentation, knowledge creation, and knowledge acquisition were found to exhibit a consistently significant relationship with leader-driven learning, which seemingly anchors such practices in those leaders who promote knowledge management. Such patterns of relationship, together with the dimensions associated with interdependence, present a compelling argument for re-conceptualisation of the relationship existing between knowledge management and organisational learning, which is a subject of discussion in the next section.

8.5 Re-conceptualising the interdependence of knowledge management and organisational learning: The organisational knowledge sustainability perspective

Knowledge management and organisational learning clearly require re-conceptualisation, based on the findings of the current study. In the past, both initiatives were treated separately by some practitioners and researchers, with their strategies for implementation sometimes running parallel to each other. As a result, neither was able to satisfactorily deliver the desired benefits. The understanding which has been generated by the current study seems to indicate that, when the two above-mentioned knowledge interventions are

jointly implemented, by integrating the two key dimensions that link them together, namely the strategic focus dimension and the human resource focus, their chances of successful implementation are improved. Many researchers (such as Robertson and Hammersley, 2000) assert that people constitute a critical driver for the success of knowledge management and organisational learning ventures. Such notable researchers as Du Plessis (2007) have criticised the use of knowledge management programmes and systems to prevent knowledge attrition rather than for making a conscious effort to increase the retention rate of human resources. People are key to the development of knowledge and learning, in the light of an institution's strategic intent and activities. An organisation which clings to the status quo has little incentive to pursue organisational learning strategies which are essentially change focused. Conversely, organisations that prioritise flexibility in the face of a changing environment are motivated to unlearn old ways and to learn new ways, in pursuit of competitiveness and sustainability. Since knowledge inevitably constitutes a key source of competitive advantage and sustainability, its continued exploration and exploitation should be a major preoccupation of any modern and responsive organisation.

The effective application of existing knowledge, such as that which is available in the higher education sector, while simultaneously creating and acquiring new knowledge through the promotion of learning activities at various levels of the organisation, calls for a new understanding of this knowledge phenomenon. Such a notion may be referred to as organisational knowledge sustainability, which emphasises the importance of properly utilising existing knowledge, in terms of knowledge management, to serve current organisational needs, while remaining mindful of the future knowledge requirements, in terms of organisational learning, of the organisation. The pivot upon which organisational knowledge sustainability can be built is found in the human resources of the organisation and in the activities implemented by the organisation in line with their strategic intent, which constitute the possible linkage between knowledge management and organisational learning. In line with such thinking, Su et al. (2003) assert that establishing strategies for developing the learning ability of organisational members requires paying a high regard to human resources, as well as establishing an open learning environment. Whereas the

former addresses the human resources orientation, the latter addresses those institutional activities which are geared towards creating an open learning environment, which is championed by the leaders of the organisation.

The pertinent question that organisational knowledge sustainability addresses is how organisations can sustain the knowledge required to deliver a competitive advantage in the increasingly dynamic current environment. The study proposes that the answer lies in basing the organisational knowledge sustainability concept on two major pillars, namely on the institutional strategic focus and on the human resources focus of the organisation. Such pillars signify the interdependency of knowledge management and organisational learning, based on the findings of the current study. In the following sections of the dissertation, a discussion of how each such pillar contributes to organisational knowledge sustainability is presented.

8.5.1 Organisational knowledge sustainability and the institutional strategic orientation

The institutional strategic focus which is key to organisational knowledge sustainability is embedded in the strategic intent of the organisation, which, in turn, defines its knowledge strategy. The word 'strategy' is often associated with activities and decisions concerning the long-term interaction of an organisation with its environment. The knowledge strategy, therefore, entails how an organisation intends to nurture and harness the knowledge resources for the benefit of the organisation. Such nurturing and harnessing of resources should be done while remaining mindful of the organisation's future knowledge requirements vis-à-vis the current and anticipated environment in which the organisation operates. As the environment keeps changing, so does the knowledge which is required to keep it relevant to the market, thus placing the knowledge strategy at the centre of organisational success. Such writings as those of Liebeskind (1996) treat the knowledge strategy from a protectionist stance, whereas, in terms of the proposed organisational knowledge sustainability, the emphasis is placed on those strategies which institutions put in place to allow for the effective use of existing knowledge by means of documentation, transfer and application, along with measures for capturing and acquiring new knowledge. The relevancy of the knowledge content should,

therefore, be constantly re-evaluated in line with the changing business goals. To emphasise such a point, Kumar (2008) argues that the value of knowledge is increased when it has a key purpose, and when it focuses on the mission, core values and strategic priorities of the organisation. Such a finding is consistent with Du Plessis' (2007) argument that the knowledge management strategy should articulate the role which knowledge plays in value creation. Such aspects portray the strategic perspective of the organisation, or, expressed differently, where the organisation wants to be in the future. Such a portrayal implies that the knowledge strategy should be aligned with the strategic priorities of the organisation. In terms of institutional strategic focus, therefore, it is envisaged that leadership and the knowledge infrastructure will play a key role in sustaining organisational knowledge.

The management and behavioural science literature has, for a long time, placed a high premium on the importance of effective leadership for the successful implementation of all organisational activities. Similarly, literature on knowledge management and organisational learning has emphasised the role of leadership in achieving results from both of the above-mentioned knowledge-based initiatives (Kumar, 2008; Stewart, 1997). The knowledge leader's strategic leadership behaviours operate from an understanding of the core business issues and how they relate to the values of the organisation (Maurik, 1999). Leaders spearhead the development of strategic plans and guide organisational members in visioning processes, which influence both the knowledge requirements and the development of the knowledge strategy. In the same vein, Du Plessis (2007) contends that the knowledge management strategy should be tied to the business strategy for the former to be successful.

In the current knowledge-driven economy, the understanding of the core business must be translated into knowledge requirements in order to provide dividends to the organisation. Such translation of requirements should be followed by with the implementation of strategies to explore and fill any gaps in knowledge. For such a reason, Kouzes and Posner (2002) noted that visionary leadership needs to operate at two levels, namely at the tactical level and at the futuristic level. The futuristic level carries a

strategic connotation, in terms of which the leader's role is deemed critical. The fact that knowledge that is not renewed today will be obsolete tomorrow calls for a persistent quest for knowledge renewal, which can only be achieved by means of sustained learning and the benchmarking of best practices. Such a situation reinforces the desire for continuous knowledge acquisition, knowledge generation and knowledge documentation. That the first pillar of organisational knowledge sustainability is based on such practices, along with leader-driven learning, as the current study has demonstrated, becomes self-evident in terms of such thinking.

The information infrastructure is another key aspect in the institutional strategic focus pillar of organisational knowledge sustainability which requires consideration, especially with regard to the management of the knowledge and information which already exists within an organisation. Closely connected with such thinking is the splitting of knowledge into tacit and explicit knowledge (Polanyi, 1962). In terms of the institutional strategic perspective of organisational knowledge sustainability, more emphasis seems to be placed on explicit knowledge, which is codified, verbalisable and, therefore, easy to manage. The implication of such prioritising is that explicit knowledge can be formally communicated in the form of hard data or codified procedures (Pan and Scarborough, 1999), which is where the information infrastructure plays a key role in facilitating the process.

In ensuring that knowledge resources (especially explicit knowledge) are embedded in the organisational systems, the information infrastructure, including group ware, intranets, knowledge repositories, data warehousing and knowledge action networks (jointly referred to as knowledge management solutions), plays a key role in facilitating the distribution of knowledge throughout an organisation. Knowledge infrastructure featured prominently in the first generation of knowledge management thinking, which came under intense criticism for ignoring the most important element in knowledge management –people.

That notion of information technology infrastructure as an enabler for knowledge management activities is currently widely accepted. Lee and Hong (2002) emphasise the point by arguing that, as knowledge management increasingly becomes a strategic mandate for most world-class organisations, the key enabler for implementing an effective knowledge management system is advanced information technology. Such a system should be capable of facilitating knowledge capture, development, sharing, and application both within and between organisations.

In the same vein, the current study argues that, in terms of the organisational knowledge sustainability concept, the information technology infrastructure will continue to play a key facilitating role, especially in terms of knowledge capture and the knowledge dissemination of the already existing knowledge within and outside the organisation, in enabling learning by other members of the organisation. The success of such processes depends on the strategic decisions taken by the organisation's leaders, and the resources, including time, which are allocated to knowledge and learning activities. The nature of the knowledge infrastructure implemented by an organisation reflects the strategic intent and resource availability of the organisation.

8.5.2 Organisational knowledge sustainability and the people (human resources) orientation

An understanding of the human resources orientation pillar within the organisational knowledge sustainability perspective benefits from being seen in terms of the social capital and intellectual capital theory, as propagated by such scholars as Ungerer et al. (2006) and Nahapiet and Ghoshal (1998). To such scholars, the cornerstones of knowledge and learning are found in the social networks which exist within an organisation. Such a view is also voiced by Demarest (1997) in the social construction model of knowledge, which was discussed in Chapter Two of the current dissertation. Such a view is also in line with the social process perspective of organisational learning (Easterby-Smith and Araujo, 1999). Both perspectives suggest that knowledge and learning are social phenomena that require the commitment of human resources for their realisation. The findings of the current study reveal that human resources connect knowledge management with organisational learning, by virtue of the high degree of

association which was found among the people-based variables concerned, including knowledge transfer (sharing), knowledge application and individual learning.

Human resources present a compelling argument for enhancing the sustainability of knowledge in organisations, as can be seen in the following discussion.

Firstly, knowledge, especially that which is tacit, is a mental concept, which is subconsciously applied, difficult to articulate, developed through direct action and experience, and shared by means of conversation and storytelling (Kumar, 2008). Lee (2000) posits that 90% of the knowledge in organisations is embedded and synthesised in the mindset of individuals. The adoption of such a position implies that, even if organisations improve on knowledge infrastructure, and codify knowledge and document in manuals and handbooks, people are still required to synthesise such knowledge in order to make it useful to the organisation. A related social aspect is that of sharing knowledge, which is only possible within a given social context and if a certain degree of trust exists among the parties involved. When there is a lack of willingness to share knowledge, the intranet and local area networks will not be used to the full benefit of the organisation. People are, therefore, critical for both knowledge transfer and knowledge application. If such processes do not flourish in an organisation, the knowledge resources will lie dormant and will not add value to the organisational processes. Sveiby (2001: 346) argues that "in contrast to tangible goods, which tend to depreciate in value when used, knowledge grows when used and depreciates when not used". Such an aspect of tacit knowledge emphasises the importance of the human resources dimension for organisational knowledge sustainability, because people hold the key to successful knowledge application and transfer.

Secondly, the motivational aspect of human resources promotes thinking in terms of organisational knowledge sustainability. As noted above, people need to express their willingness not only to learn, but also to share and apply the knowledge which they have learnt. In any learning event, individual behaviour determines the degree of knowledge assimilation. A symbiotic relationship exists between people's behaviour, their attitudes

and their degree of motivation. If people are motivated, they tend to be positive about learning, which results in a high level of knowledge retention. The same scenario applies to knowledge sharing, with people being more willing to share knowledge with colleagues in the workplace if they perceive that they are well managed. As the current study indicate, the key informants revealed that a culture of knowledge hoarding still prevails in higher education institutions in Uganda, with people still believing that the possession of knowledge endows power. Such a belief makes knowledge sharing very difficult, especially when such sharing takes place through such formal channels as meetings. Although ascertaining what motivates people to share their knowledge with others, Du Plessis (2007) is of the view that rewards and incentive system for positive involvement in knowledge management practice should take the form of push-and-pull rewards. In terms of rewards, Du Plessis (2007) argues that performance should be appraised on the basis of employee participation in knowledge activities (i.e. in terms of push). In addition, employees should be incentivised to use knowledge platforms for their innovative ideas (i.e. in terms of pull). Similarly, people are likely to be motivated to learn and to increase their knowledge bases, if they have reason to believe that, after acquiring new knowledge, they will be promoted to a higher position in the organisation, with attendant benefits. The failure to believe that such a process will take place may result in knowledge attrition. From the organisational knowledge sustainability perspective, knowledge attrition presents the leakage of knowledge from an organisation, which counteracts the sustainability principle. Such was evident in the findings of the current study, in terms of which the respondents voiced their concern about the possibility of losing their staff after acquiring new knowledge by means of training and accumulated experiences. Though knowledge attrition may be a function of rewards and incentives, as argued by Du Plessis (2007), in addition it may be the result of the organisational climate existing within an organisation. People who have acquired new knowledge need a platform from which they can apply their knowledge. They need recognition, and, above all, an atmosphere which is conducive to the development of team spirit and to the flourishing of team work, thereby facilitating knowledge sharing. Such a need introduces a leadership dimension, in relation to which Kumar (2008) argues that the nature of knowledge practices requires continuous support on the part of leaders

to ensure that the value and outcomes of knowledge activities are held firmly in the employees' minds.

The organisational knowledge sustainability concept is even more relevant to the higher education environment than it is to organisations in other sectors. Firstly, most universities have many untapped knowledge resources, which require effective utilisation. Examples of such resources include the research which is conducted by both undergraduate and postgraduate students, which, in most cases, still requires translation into tools for problem-solving in communities. Other examples of such resources are those intellectual competencies, which are held by lecturers in different departments, which are not properly synergised. Some higher education institutions are designed in such a way that knowledge is compartmentalised in terms of the different faculties and departments, with no, or only limited, cross-faculty engagement. From the organisational knowledge sustainability standpoint, institutions of higher learning should prioritise collaborative specialisation, which encourages knowledge sharing and application across departments and faculties. Some institutions, for example, enlist the help of external experts, when some of their own staff members have an equivalent degree of expertise.

Secondly, higher education institutions need continuously to determine and to strive to meet their knowledge requirements in order to maintain their relevance to their stakeholders. In the last decade or so, increasing unemployment has dictated that both students and their sponsors focus on meaningful qualifications with a practical import, which should increase their employability. Consequently, higher education institutions have continuously to scan the environment and to forecast the future knowledge needs of their clients, so that they can implement strategies to meet them. By doing so, such institutions are building their capacity in respect of knowledge sustainability.

Briefly, the organisational knowledge sustainability concept proposed by the current study, and based on its empirical findings, presents a possible opportunity for both researchers and practitioners in organisations to align their efforts in regards to the leveraging of knowledge and learning in terms of a unified framework. Organisational

knowledge sustainability relies on both knowledge management and organisational learning, with both knowledge and learning activities requiring to be located within the institutional strategic context of the organisation, which spells out the knowledge strategy to be pursued by the organisation concerned. The knowledge strategy defines the knowledge requirements to be met, and the knowledge to be documented and captured in the light of set business goals. For that knowledge to be beneficial to the organisation, and in order to guarantee perpetuity, people play an important role, not only in applying the knowledge, but also in sharing it and multiplying it across the organisation. Since strategy and people management are essential domains of organisational leaders, the common denominator that ties such domains together in order to promote organisational knowledge sustainability is the leadership of the organisation.

8.6 Summary

Chapter Eight has presented a discussion of the results obtained from both the quantitative and qualitative analyses, as well as of their implications for higher education institutions. In particular, the chapter has demonstrated how knowledge management practices impact on organisational learning. The chapter ends with proposing a re-conceptualisation of the linkages between knowledge management and organisational learning in order to focus on organisational knowledge sustainability, using the institutional strategic and human resources foci as core pillars of organisational knowledge sustainability. The next, and final, chapter of the dissertation presents the summary, conclusions and recommendations of the study.

CHAPTER NINE:
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

9.1 Introduction

Chapter Nine presents the conclusions and recommendations of the current thesis. The Chapter starts by summarising the research findings guided by the study propositions mooted, followed by the discussion of the contribution made by the study to knowledge management and organisational learning literature, as well as its practical intent. The Chapter concludes with an outline of the recommendations arising from the study, as well as suggestions regarding future research. Finally the chapter highlights the limitations of the current study.

9.2 Summary of findings and conclusions

The main thrust of the current study, as stated in Chapter One, was grounded in the fact that knowledge management and organisational learning concepts, as covered in the existing literature, have been treated independently by some authors, and the interactions between the two concepts have been taken for granted. Such coverage has resulted in increased ambiguity surrounding the interrelationship of the two concepts. In addition, much of the focus on knowledge management and organisational learning research has concentrated on business organisations, while other sectors of the economy, such as that of education, which are continuously preoccupied with knowledge and learning activities, have not received much attention. Arising out of such a central concern, the current researcher has seen fit to address two broad issues, namely the determination of the influence of knowledge management on organisational learning, and the identification of the dimensions of interdependence between knowledge management and organisational learning in higher education in a developing country context. The remainder of the current chapter summarises the findings.

9.2.1 The influence of knowledge management practices on Organisational learning

The results of the influence of knowledge management practices on organisational learning are summarised below, based on the three learning levels, namely institutional,

individual, and leader-driven learning. The original objectives and conceptual framework of the study focused on the individual, team and institutional levels. However, after a factor analysis of the available data was undertaken, the team learning level was dropped, which seems to indicate a limited appreciation of team learning at higher education institutions. The findings of the study, therefore, are based on the modified research framework and restated propositions stated in section 4.6 of the current thesis.

In respect of the influence of knowledge management practices on institutional learning, the empirical results presented in Chapter 5 reveal the positive influence exerted by all five knowledge management practices, namely knowledge documentation, transfer, application, generation and acquisition. The findings in this regard seem to indicate that higher education institutions intending to promote learning at institutional level should implement practices related to the generation of knowledge by means of research, training, and documentation, as well as by rendering easily accessible such knowledge for others to use. Other strategies to be implemented should include acquiring new knowledge, sharing existing knowledge among individuals, and continuously applying such knowledge both in terms of teaching and research.

On individual learning variable, the findings revealed a positive significant influence of the following three practices: knowledge transfer; knowledge generation; and knowledge acquisition. Knowledge application, surprisingly enough, showed a negative influence, although such an influence was not significant. Knowledge transfer is about sharing knowledge among team members, about generating knowledge, especially in terms of team tasks, and about team teaching, which also enhances individual learning. In addition, knowledge acquisition makes it possible for individuals to access such knowledge, and, in the process, to learn from it. Since individuals are conduits of organisational learning, as earlier discussed, the learning that takes place at lower (individual) levels is expected to translate into institutional learning.

With regard to leader-driven learning, the results of the current study indicated that, of the five knowledge management practices identified, the following four practices had a

significant positive influence: knowledge documentation, transfer, generation, and acquisition. Only knowledge application presented no significant influence. Such a finding seems to imply that the quest for leader-driven learning should focus on those four practices which showed a positive significant influence. Such a focus could be facilitated by establishing strategies which enhance knowledge sharing and knowledge capture aimed at embedding such knowledge in organisational processes and putting in place favourable policies for knowledge sharing to flourish.

9.2.2. Dimensions of interdependency between knowledge management and organisational learning

The search for the dimensions of interdependence between knowledge management practices and organisational learning was guided by canonical correlation analysis, which has the capacity to maximise linear correlations among different sets of variables. Further evidence of such dimensions was derived from the responses received from the key respondents during the interviews which were conducted with them. In terms of the canonical correlation analysis, two pairs of canonical variates emerged significant from the analysis. An examination of the factor structures of each of the variates revealed that the first pair of variates had to do with the strategic focus orientation of the institution concerned, whereas the other pair of variates had to do with the human resources orientation of the same institution. Accordingly, therefore, the two dimensions were labelled the institutional strategic orientation dimension and the people orientation dimension. In effect, therefore, it appears that those dimensions which link knowledge management with organisational learning are the institutional strategic focus, which is reflected in the policies implemented by those institutions, and the human resources focus. Such a finding is in line with the understanding that institutions which have the strategic intent of achieving a vision of becoming a learning organisation may require to put in place various initiatives to capture, acquire and generate knowledge to enable the individuals and teams in organisations to learn as agents of the organisation.

The results of the study have also shown that, consistent with the organisational learning theory, as propagated by Argyris and Schön (1978), organisations learn through individuals and teams. As people are the conduits of learning in institutions, another dimension of interdependence can be found in people. The factor structure of the second canonical variate contained knowledge transfer and knowledge application in the predictor set and individual and institutional learning in the criteria set. Such a finding is commensurate with the fact that both knowledge transfer and application have the people as the essence of their functionality. Knowledge and its usage are dependent on the knower, with knowledge exchange and application taking place within, and between, people. Knowledge transfer and application both only occur when the people element is factored in, whether such factoring in includes the motivation to transfer and to share knowledge among colleagues, or the application of such knowledge to organisational processes, resulting in the expansion of their knowledge bases, with both such activities being involved in the translation of individual learning into institutional learning. Such a finding was supported by the respondents, who ranked institutional policies and people as being the key requirements for the successful implementation of both knowledge management and organisational learning initiatives.

9.3 Contribution made by the study

In terms of policy, the major contribution made by the current study relates to it providing an empirical test of the interdependence between knowledge management practices and organisational learning in the higher education context in a developing country, namely Uganda. The higher education sector in developing countries in Africa faces many challenges which threaten their sustainability, including dwindling government funding and increased competition, both from within the region and outside Africa. The effective management of knowledge and learning in such institutions could provide one of the platforms for building their competitiveness and sustainability. The current study has contributed to the provision of such a framework in terms of which such a platform could be achieved.

The theoretical contribution of the current study is that the interdependent relationship between knowledge management and organisational learning has mostly, in the past, been discussed at a theoretical and conceptual level, such as in the writings of Loermans (2002) and Firestone and McElroy (2004). Limited research has been undertaken to link the two concepts together empirically, as well as to determine the dimensions of the interdependence of the two concepts, especially in a higher education context in developing countries. The current study therefore partly answers Cavaleri, Seivert and Lee's (2005) call for organisational learning and knowledge management initiatives to be integrated with each other in order for organisations to achieve the vision of becoming learning organisations. The research undertaken in terms of the study, therefore, provides empirical evidence in support of the need to synergise the implementation of organisational learning and knowledge management initiatives, in order to reap greater benefits from such interventions.

In terms of interventions, the study proposed that the organisational knowledge sustainability concept, which upholds the view that, as with any other resource, knowledge needs to be managed sustainably, entailing its acquisition and utilisation for organisational benefit, together with its simultaneous nurturing by means of continuous learning activities. Such a concept, therefore, relies on the following two precepts namely that knowledge management and organisational learning should be pursued together for maximum benefit of the organisations concerned and that, in implementing such initiatives, human resources and the institutional strategic focus constitute critical success factors.

9.4 Recommendations for implementation in practice

As a result of conducting the research for this study, and based on the findings, the following recommendations are made:

1) Higher education institutions should fulfil their role as learning organisations by integrating knowledge management initiatives and organisational learning principles in the functioning of their organisations. By implementing such

practices, they will be able to ensure that they become competitive and sustainable within the dynamic environment, which is characterised by ever-increasing competition for educational services. Such implementation involves putting in place resources, including sufficient time to support learning activities, and the creation of an enabling environment for knowledge sharing among the staff concerned.

2) Success in knowledge management initiatives and the promotion of organisational learning in higher education institutions can only be achieved if the organisation concerned has a clear future institutional focus and a strategic intent which clearly indicates the intention of the institution. Such a future focus should include due consideration of those knowledge resources which are required for the organisation concerned to become a learning organisation, as well as the implementation of specific initiatives which are directed at achieving that goal. In addition, higher institutions of learning should develop and implement knowledge strategies that guide the implementation of knowledge related activities.

3) In order to synergise the benefits gained from knowledge management initiatives and organisational learning, higher education institutions should develop deliberate strategies which serve to integrate people management principles into the overall knowledge management systems. Human resource management policies which motivate, encourage and facilitate the sharing and transfer of knowledge among individual staff initially, through the team level, to the institutional level should be highly promoted. In addition, higher education institutions should strive to improve their employee retention rates, so that more knowledge is retained within the organisations. HEI management should realise that procuring computers and installing local area networks and an intranet will not, per se, enhance knowledge sharing. Instead, the success of knowledge management and organisational learning lies in the willingness of skilled and qualified staff to share and apply what knowledge they have, with information technology tools merely being brought in an enabling role.

4) Though specific knowledge management practices result in effective learning at different levels, the fundamental learning level is that of the individual, followed by the team level, and, ultimately, the institutional level. Consequently, knowledge documentation, creation, transfer, application and acquisition practices, which were all found to have a significant influence on individual learning, require the critical attention of the institutions concerned. For team learning to succeed, there is a need to increase, and to improve the quality of, such knowledge transfer initiatives as internal seminars and workshops, debates and discussion forums at higher educational institutions.

5) Knowledge application does not have a positive influence on team and institutional learning at higher education institutions, due to the application of knowledge by academic staff members who do not directly benefit the individuals and teams concerned. Higher education institutions should, therefore, adopt and revitalise the practice of team teaching, in which members of staff can learn from their colleagues during teaching sessions, by so doing, the application of knowledge would result in the learning of team members concerned.

9.5 Recommendations for future research

The following areas for possible further research have been opened up by the current study:

1) This study focussed mainly on disciplinary knowledge content, but higher education institutions have other knowledge contents such as from regulatory bodies, labour market, and competition. Future research is needed to address such content as well.

2) Future research initiatives might investigate how the interaction of knowledge management and organisational learning impacts on the sustainability of higher education institutions.

3) The current study has provided some insight on the interdependency of knowledge management and organisational learning in higher education institutions in Uganda, which, arguably, are differently structured to other organisations, such as non-governmental organisations. In order to concretise such a framework of interdependence, it is necessary to replicate the study with other organisations, such as with community-based organisations and business enterprises.

4) The current study focused only on academic staff as the source of information upon which conclusions were drawn. As higher education institutions also employ other non-teaching staff members, who both individually and collectively contribute to the performance of the organisation, future studies in the same subject area should include such staff.

5) Cultural factors were not included in the current study, but it is recognised that culture plays an important role especially in knowledge processes like transfer, application and sharing. Future research in this subject area should include the culture variable in order to determine its impact on the interdependence between knowledge management and organisational learning.

6) The current researcher proposed the organisational knowledge sustainability concept as a means of addressing the linkage between knowledge management and organisational learning, based on the human resources orientation and the institutional strategic focus. Further research is needed to validate such a concept empirically, as well as to determine its applicability to other sectors of the economy.

9.6 Weaknesses and limitations of the study

The findings of the current study were drawn from six different higher education institutions, including four universities, one management development institute, and one business school during the quantitative phase, with only three cases being subjected to

more detailed qualitative analysis (each institution representing category of the higher education institutions). The number of institutions used might prove a weakness of the study. Consulting staff members at all institutions for in-depth analysis, in addition to those included in the current study might have generated more insights into the findings of the study. The number of institutions investigated was restricted by the resources, including the limited amount of time, available for the study.

The three cases which were considered for the in-depth case study analysis were all from the public sector, due to their geographical proximity, and the relative ease with which information could be accessed from such institutions. The public nature of such institutions inevitably resulted in the omission of a private institution perspective.

The survey tools employed in the study were designed to collect data at institutional level. However, the study utilised responses at individual level for the relational statistical analysis, which required using large data sets. Despite there being some redundant responses in the study, the data were aggregated at institutional level for both the descriptive and qualitative phases of analysis, which facilitated the triangulation of the findings.

Although there was evidence of knowledge management and organisational learning activities being implemented at the institutions, no explicit knowledge management or organisational learning strategy was identified at any of the institutions surveyed. If knowledge management and organisational learning strategies had been in place at such institutions, the results of the study would, no doubt, have been different.

9.7 Concluding remarks

The current study argued for the empirical validation of the interdependency between knowledge management and organisational learning from a higher education perspective in a developing country, namely Uganda. Through the use of both quantitative and qualitative techniques, results seem to suggest that such a relationship exists. In addition, evidence provided by the study findings give an indication that the interdependent

relationship between knowledge management and organisational learning may be based on the institutional strategic focus and people orientation dimensions. Based on such dimensions, the study proposes an organisational knowledge sustainability concept, which is premised on the proper utilisation of knowledge resources, along with an awareness of future knowledge requirements which merit attention. The results of the study should help to ensure a better understanding of knowledge management and organisational learning in higher education institutions, forming a basis for future research on the two concepts. The study also suggests that the implementation of knowledge management and organisational learning in higher education institutions should be jointly undertaken in order to leverage the contribution of such practices to the performance of higher education institutions.

REFERENCES

Abelson, R. P. and Tukey, J. W. (1959) Efficient conversion of non metric information into metric information, ***1959 Proceedings of Social Statistics Section,*** American Statistical Association, Washington DC, pp. 226–230.

Ackoff, R. L. (1978) ***The Art of Problem Solving: Accompanied by Ackoff's Fables***, Wiley and Sons, New York.

Albino, V., Garavelli, A. C. and Gorgoglione, M. (2004) Organisation and technology in knowledge transfer, ***Benchmarking: An International Journal***, 11(6), pp. 584–600.

Alexander, P. A. (2003) The development of expertise: The journey from acclimation to Proficiency, ***Educational Researcher***, 32 (8) pp.10-14

Alexopoulos, A. and Monks, K. (2004) 'A social capital perspective on the role of human resources practices in intra-organisational knowledge sharing', Paper presented at the ***5th International Conference on Human Resource Development (HRD), Research and Practice across Europe***, University of Limerick.

Appelbaum, H. and Gallagher, J. (2000) The competitive advantage of organisational learning, ***Journal of Workplace Learning***, 12(2), pp. 40–56.

Argyris, C. (1977) Double loop learning in organisations, ***Harvard Business Review***, September-October, pp. 115-125.

Argyris, C. (1991) Teaching smart people how to learn, ***Harvard Business Review***, 69(3), pp. 99–109.

Argyris, C. and Schön, D. A. (1978) ***Organisational Learning: A Theory of Action Perspective***, Addison-Wesley, Reading, MA.

Armstrong, M. (2008) ***A Handbook of Human Resource Management Practices***, 10th ed., Kogan-Page, London

Ary, D., Jacobs, L. C. and Razavieh, A. (2002) ***Introduction to Research in Education***, Wadsworth/Thomson, Belmont, CA.

Avlonitis, G. J. and Gounaris S. P. (1999) Marketing orientation and its determinants: An empirical analysis, ***European Journal of Marketing***, 33(11/12), pp. 1003–1037.

Babbie, E. (2007) ***The Practice of Social Research***, 11th ed., Wadsworth Publishing, Belmoth, MA.

Babbie, E. (1990) **Survey Research Methods**, 2nd ed., Belmont, CA, Wordsworth

Bakunda, G. and Walusinbi-Mpanga, G. (2005) ***An Assessment of Uganda's Export Potential for Education Services in the Regional Market (EAC and COMESA)***, Ministry of Tourism, Trade and Industry, Kampala

Bartz, A. E. (1999) ***Basic Statistical Concepts***, Prentice-Hall, Upper Saddle River, NJ.

Beijerse, R. P. (2000) Knowledge management in small and medium sized enterprises: Knowledge management for entrepreneurs, ***Journal of Knowledge Managem****ent*, 4(2), pp. 162–179.

Bender, S. and Fish, A. (2000) The transfer of knowledge and expertise: The continuing need for global assignments, ***Journal of Knowledge Management***, 4, pp. 125–137.

Bhatt, G. D. (2001) Knowledge management in organisations: Examining the interactions between technologies, techniques and people, ***Journal of Knowledge Management***, 5(1), pp. 68–75.

Bierly, P. and Chakrabarty, A. (1996) Generic knowledge strategies in the US pharmaceutical industry, ***Strategic Management Journal***, Winter, 17, pp. 123–135.

Bierly III, R. E., Kessler, E. H. and Christensen, E. W. (2000) Organisational learning, knowledge and wisdom, ***Journal of Organisational Change Management***, 13(6), pp. 595–618.

Birnbaum, R. (2000) ***Management Fads in Higher Education: Where They Come From, What They Do, Why They Fail***, Jossey-Bass, San Francisco.

Boddy, C. (2005) Projective techniques in market research: Valueless subjectivity or insightful reality? A look at the evidence for usefulness, reliability and validity of projective techniques in market research, ***International Journal of Market Research***, 47(3), pp. 239–254.

Bontis, N. (1999) Managing organisational knowledge by diagnosing intellectual capital: Framing and advancing the state of the field, ***International Journal of Management Review***, 18(5), pp. 433–462.

Boud, D. and Garrick, J. (1999) 'Understandings of workplace learning', In Boud, D. and Garrick, J. (eds) ***Understanding Learning at Work***, Routledge, London.

Boyce, M. E. (2003) Organisational learning is essential to achieving and sustaining change in higher education, ***Innovative Higher Education***, 28(2), pp. 119–136.

Brown, J. and Duguid, P. (1991) Organisational learning and communities of practice: Toward a unified view of working, learning and innovation, ***Organisational Science***, 2(1), pp. 40–57.

Brown, R. B. and Woodland, M. J. (1999) Managing knowledge wisely: A case study in organisational behaviour, ***Journal of Applied Management Studies***, 8(2), pp. 175–198.

Bui, H. and Baruch, Y. (2010) Creating learning organisations in higher education: Applying a systems perspective, ***The Learning Organisation***, 17(3), pp. 228-242

Bukowitz, W. R. and Williams, R. L. (2000) ***The Knowledge Management Field Book***, London, Prentice Hall.

Burt, R. T. (1992) ***Structural Holes: The Social Structure of Competition***, Harvard University Press, Cambridge.

Calvert, G., Mobley, S. and Marshal, L. (1994) Grasping the learning organisation, ***Training and Development***, pp. 38–43.

Catterall, J. and Ibbotson, P. (2000) Using projective techniques in education research, ***British Education Research Journal***, 26 (2), pp. 245–256.

Cavaleri, S. A. (2004) Leveraging organisational learning for knowledge and performance, ***The Learning Organisation,*** 11(2), pp. 159–176.

Cavaleri, S., Seivert, S. and Lee, W. L. (2005) ***Knowledge Leadership: The Art and Science of the Knowledge Based Organisation***, KMCI Press, Alexandria, VA.

Cavusgil, S. T., Calantono, R. J. and Zhao, Y. (2003) Tacit knowledge transfer and firm innovation capability, ***Journal of Business and Industrial Marketing***, 18(1), pp. 6–21.

Cegarra-Navarro, J. G. (2005) An empirical investigation of organisational learning through strategic alliances between SMEs, ***Journal of Strategic Marketing***, 13, pp. 3–16.

Chenail, R. J. (1995) Presenting qualitative data, ***The Qualitative Report***, 2(3), December, last accessed 10 June, 2010, from http://www.nova.edu/sss/QR/QR2-3/presenting.html.

Chickering, A. (2003) Reclaiming our soul, ***Change***, 35(1), pp. 38–44.

Chua, A. and Lam, W. (2005) Why KM projects fail: A multi case analysis, ***Journal of Knowledge Management***, 9(3), pp. 6–17.

Clark, B. R. (1998) ***Creating Entrepreneurial Universities: Organisational Pathways of Transformation***, International Association of Universities Press, Paris.

Cohen, D. and Prusak, L. (2001) ***In Good Company: How Social Capital Makes Organisations Work***, Harvard Business School Press, Boston.

Connelly, C. E. and Kelloway, E. K. (2003) Predictors of employee's perceptions of knowledge sharing cultures, ***Leadership and Organisation Development Journal***, 24(5), pp. 295–301.

Cong, X. and Pandya, K. V. (2003) Issues of knowledge management in the public sector, ***Electronic Journal of Knowledge Management,*** 1(2), pp. 25–33.

Cooper, D. R. and Emory, C. W. (1995) ***Business Research Methods***, 5th ed., Irwin, Chicago, IL.

Creswell, J. W. (2009) ***Research Design: Qualitative, Quantitative, and Mixed Methods Approaches***, 3rd ed., Sage, Thousand Oaks. CA.

Creswell, J. W. and Miller, D. L. (2000) Determining validity in qualitative inquiry, ***Theory into Practice***, 39(3), pp. 124–131.

Cronbach, L. J. (1951) Coefficient alpha and the internal structure of tests, ***Psychometrika,*** 16, pp. 297–334.

Cross, R. L. and Isrealit, S. (eds) (1999) ***Strategic Learning in a Knowledge Economy: Individual, Collective and Organisational Learning Process***, Boston, Butterworth-Heinemann.

Crossan, M. M., Lane, H. and White, R. (1999) An organisational learning framework: From institution to institution, ***Academy of Management Review***, 24(3), pp. 522–537.

Curry, J. (1997) The dialect of knowledge in production: Value creation in late capitalism and the rise of knowledge centred production, ***Electronic Journal of Sociology***, available on http://www.sociology.org/content/vol002.003/curry.html accessed on 23 August 2008

Cyert, R. M. and March, J. G. (1983) ***A Behavioural Theory of the Firm***, Prentice-Hall, Englewood Cliffs, NJ.

Daniels, S. (1994) The learning organisation, ***Work Study***, 43(8), pp. 5–6.

Davenport, T. (1995) The future of knowledge management, ***CIO Magazine***, 15 December pp.1-4

Davenport, T. and Prusak, L. (1998) ***Working Knowledge: How Organisation Management What They Know***, Harvard Business School Press, Boston.

Davies, M. F. and Kanaki, E. (2006) Interpersonal characteristics associated with different team roles in work groups, ***Journal of Managerial Psychology***, 21(7), pp. 638–650.

De Geus, A. (1988) Planning as learning, ***Harvard Business Review***, March–April, pp. 70–74.

Demarest, M. (1997) Understanding knowledge management, ***Long Range Planning***, 30(3), pp. 374–384.

Denzin, N. K. (1989) ***Interpretive Interactionism***, Sage, Newbury Park, CA.

DiBella, A. J. (2001) ***Learning Practices: Assessment and Action for Organisational Improvement***, Prentice-Hall, Upper Saddle River, NJ.

Dill, D. D. (1999) Academic accountability and university adaption: The architecture of an academic learning organisation, ***Higher Education***, 38(2), pp. 127–154.

Dodgson, M. (1993) Organisational learning: A review of some literatures, ***Organisation Studies***, 14(3), pp. 375–394.

Drucker, P. (2004) ***The Daily Drucker***, Hyper Collins Publishers Inc., New York.

Drucker, P. (1994) ***Post Capitalist Society***, Harper Row, New York.

Du Plessis, M. (2007) Knowledge management: What makes complex implementations successful? ***Journal of Knowledge Management***, 11(2), pp. 91–101.

Easterby-Smith, M. and Araujo, L. (1999) 'Organisational learning: Current debates and opportunities', In Easterby-Smith, M., Aruajo, L. and Burgoyne, J. (eds) ***Organisational Learning and the Learning Organisation***, Sage, London, pp.1-21.

Easterby-Smith, M. and Lyles, M. (2003) ***The Blackwell Handbook of Organisational Learning and Knowledge Managemen***t, Blackwell Publishing, Oxford.

Easterby-Smith, M., Thorpe, R. and Lowe, A. (2002) ***Management Research***, Sage, London.

Edvinson, L. and Malone, M. (1997) ***Intellectual Capital: Realizing Your Companies' True Value by Finding its Brain Power***, Harper Business Press, New York.

Fauske, J. R. and Raybould, R. (2005) Organisational learning in schools, ***Journal of Educational Administration***, 43(1), pp. 22–40.

Fellows, R. and Liu, A. (2003) ***Research Methods in Construction***, Blackwell Science. Oxford.

Filius, R., De Jong, J. and Roefs, C. E. (2000) Knowledge management in the HRD office: A comparison of three cases***, Journal of Workplace Learning***, 12(7), pp. 286–295.

Fiol, M. and Lyles, M. A. (1985) Organisational learning, ***Academy of Management Review***, 10(4), pp. 803–813.

Fiol, M. (1994) Consensus, diversity, and learning in organisations, ***Organisation Science***, 5(3), pp. 403–420.

Firestone, J. and McElroy, M. (2004) Organisational learning and knowledge management: The relationship, ***The Learning Organisation***, 11(2), pp. 117–184.

Forest, J. J. F. (2002) Learning organisations: Higher educational institutions can work smarter too, ***Connection: New England's Journal of Higher Education and Economic Development***, 17(2), pp. 31–33.

Forza, C. (1998) Survey research in operations management: A process-based perspective, ***International Journal of Operations and Productions Management***, 22(2), pp. 152–194.

Frohlich, M. T. (2002) Techniques for improving response rates in OM survey research, ***Journal of Operations Management***, 20, pp. 530–562.

Galliers, R. D. (1992) 'Choosing information systems research approaches', In Galliers, R. (ed.) ***Information Systems Research,*** Blackwell Scientific Publications, Boston, pp. 144–162.

Gay, L. R. and Airasian, P. (2003) ***Educational Research: Competencies for Analysis and Application***, 7th ed., Merrill, Upper Saddle River, NJ.

Golafshani, N. (2003) Understanding reliability and validity in qualitative research, *The* ***Qualitative Report***, 8(4), pp. 597–607.

Gold, A. H., Malhotra, A. and Segars, A. H. (2001) Knowledge management: An organisational capability perspective, ***Journal of Management Information Systems***, (1), pp. 185–214.

Grant, R. M. (1996) Toward a knowledge-based theory of the firm, ***Strategic Management Journal***, 17 (special issue), pp. 109–122.

Griego, O. V, Geroy, G. D. and Wright, P. C. (2000) Predictors of learning organisations: A human resource development practitioner's perspective, ***The Learning Organisation***, 7(1), pp. 5–12.

Hair, J. F., Black, W. C., Babin, J. B, Anderson, R. E. and Tatham, R. L. (2006) ***Multivariate Data Analysis***, 6th ed., Pearson Education Inc., Upper Saddle River, NJ.

Hartenian, L. (2003) Team member acquisition of team knowledge, skills and abilities, ***Team Performance Management***, 9(1), pp. 23–30.

Havens, C. and Knapp, E. (1999) Easing into knowledge management, ***Strategy and Leadership***, 27(2), pp. 4–10.

Hedberg, B. (1981) 'How organisations learn and unlearn', In Nystrom, P.C. and Starbuck, W. H. (eds) ***A Handbook of Organisational Design***, ***Vol. 1, Adapting organisations to their environment***, Oxford University Press, New York, pp. 3–27.

Hernandez, M. and Watkins, K. E. (2003) Translation, validation and adaptation of the Spanish version of the modified dimensions of learning organisation questionnaire, ***Human Resource Development Internationa***l, 6(2), pp. 187–196.

Holsaple, C. W. (2005) The inseparability of modern knowledge management and computer based technology, ***Journal of Knowledge Management***, 9(1), pp. 42–52.

Huber, G. H. (1991) Organisational learning: The contributing process and the literature, ***Organisation Science***, 2(1), pp. 88–114.

Huosong, X., Kuanqi, D. and Shiqin, C. (2003) Enterprise knowledge tree model and factors of KMS based on E-C, ***Journal of Knowledge Management***, 7(1), pp. 96–106.

Huseman, R. C. and Goodman, J. P. (1999) ***Leading with Knowledge: The Nature of Competition in the Twenty-First century***, Sage, Thousand Oaks, CA.

Hussey, J. and Hussey, R. (1997) ***Business Research: A Practical Guide for Undergraduate and Postgraduate Students***, Macmillan Press, London.

Huttunen A, Kyläheiko, K and Virolainen V.M (2001) 'How to recognise dynamic core capabilities when defining boundaries of the firm', In ***CD Proceedings of the 16th International Conference on Production Research (ICPR)***, Prague, Czech Republic.

Huysman, M. and Wulf, V. (2006) IT to support knowledge sharing in communities, towards a social capital analysis, ***Journal of Information Technology***, 21, pp. 40–51.

Islam, M. Z, Doshi, J. A., Mahtab, H. and Ahmad, Z. A. (2009) Team learning, top management support, and new product success, ***International Journal of Managing Projects in Business***, 2(2), pp. 238–260.

Jashapara, A. (2004) ***Knowledge Management: An Integrated Approach***, Pearson Education Ltd, London.

Jashapara, A. (2003) Cognition, culture and competition: An empirical test of the learning organisation, ***The Learning Organisation***, 10(1), pp. 31–50.

Jiao, Q. G. and Onwuegbuzie, A. J. (2002) Dimensions of library anxiety and social interdependence: Implications for library services, ***Library Review***, 51(2), pp. 71–78.

Johnson, R. B. and Onwuegbuzie, A. J. (2004) Mixed methods research: A research paradigm whose time has come, ***Educational Researcher***, 33(7), pp. 14–26.

Karkoulian, S., Halawi, L. A. and McCarthy, R. V. (2008) Knowledge management formal and informal mentoring: An empirical investigation of Lebanese banks, ***The Learning Organisation,*** 15(5), pp. 409–420.

Karma, S. (2006) An adaptive strategy for managing knowledge in organisations, ***Journal of Knowledge Management,*** 10(4), pp. 72–80.

Kasozi, A. B. K. (2005) 'The development of a strategic plan for higher education in Uganda 2001-5: The interplay of internal and external forces in higher education policy formation in a southern country', In ***Nuffic Conference 'A Changing Landscape'***, The Hague, 23–25 May 2005.

Kasozi A. B. K (2006). ***A proposed quality assurance framework for institutions of Higher learning in Uganda.*** A paper presented at the seminar on Quality Assurance in Tertiary Education, Servres, France.

Khalifa, M. and Liu, V. (2003) Determinants of successful knowledge management programs, ***Electronic Journal of Knowledge Management***, 1(3), pp. 103–112.

Kidwell, J. J., Linde, K. M. V. and Johnson, S. L. (2000) Applying corporate knowledge management practices in higher education**,** ***Educause Quarterly***, 4, pp. 28–33.

Kim, D. H. (1993) The link between individual and organisational learning, ***Sloan Management Review***, 35(1), pp. 37–50.

King, W. R., Chung, T. and Haney, M. H. (2008) Knowledge management and organisational learning: Editorial, ***International Journal of Management Science***, 36, pp. 167–172.

Kogut, B. and Zander, U. (1992) Knowledge of the firm, combinative capabilities, and the replication of technology, ***Organisational Science***, 3, pp. 383–393.

Kothari, C. R. (2004) ***Research Methodology: Methods and Techniques***, New Age International Publishers, New Delhi.

Kouzes, J. M. and Posner, B. Z. (2002) ***The Leadership Challenge***, 3rd ed., Jossey-Bass, San Francisco.

Krejcie, R. and Morgan, D. (1970) Determining sample sizes for research activities, ***Educational and Psychological Measurement***, 30, pp. 607–610.

Kumar, N. and Idris, K. (2006) An examination of educational institutions' knowledge performance, ***The Learning Organisation***, 13(1), pp. 96–116.

Kumar, R. (1996) ***Research Methodology: A Step by Step Guide for Beginners***, Addison Wesley Longman Publishers, Melbourne.

Kumar, S. S. (2008) Role of leadership in knowledge management: A study, ***Journal of Knowledge Management***, 12(4), pp. 3–15.

Kvale, S. (1996) ***Interviews: An Introduction to Qualitative Research Interviewing***, Sage, Thousand Oaks, CA.

Lam, Y. L. J. (2002) Defining the effects of transformational leadership on organisational learning: A cross cultural comparison, ***School Leadership and Management***, 22(4), pp. 439–452.

Lambert, Z. V. and Durand, R. M. (1975) Some precautions in using canonical analysis, ***Journal of Marketing Research***, November, 12, pp. 468–475.

Lee, J. (2000) Knowledge management: The intellectual revolution, ***IIE Solutions***, October, pp. 34–37.

Lee, S. M. and Hong, S. (2002) An enterprise-wide knowledge management system infrastructure, ***Industrial Management and Data Systems,*** 102(1), pp. 17–25.

Leonard, D. (1995) ***Wellsprings of Knowledge***, Harvard Business Press, Boston.

Levin, D. Z. and Cross, B. (2004) The strengths of weak ties you can trust: The mediating role of trust in effective knowledge management transfer, ***Management Science,*** 50(1), pp. 1477–1490.

Levin, R. I. and Rubin, D. S. (2000) ***Statistics for Management,*** Prentice Hall of India, New Delhi.

Levitt, B. and March, J. G. (1988) Organisational learning, ***Annual Review of Sociology***, 14, pp. 319–340.

Lew, C. C. and De Bruin, G. P. (2006) Canonical correlation analysis of the career attitudes and strategies inventory and the adult career concerns inventory, ***South African Journal of Industrial Psychology***, 32(3), pp. 43–48.

Lewis-Beck, M. (1994) ***Factor Analysis and Related Techniques: International Handbooks of Quantitative Applications in the Social Sciences***, Vol. 5, SAGE Publications, London.

Liebeskind, J. P. (1996) Knowledge, strategy, and the theory of the firm, ***Strategic Management Journal***, Winter Special Issue, 17, pp. 93-107.

Lien, B. Y., Yang, B. and Li, M. (2002) 'An examination of psychometric properties of the Chinese version of the dimensions of learning organisation questionnaire in the Taiwanese context', In Egan, T. M. (ed.) ***Academy of Human Resource Development Conference Proceedings***, Bowling Green, OH, Academy of Human Resource Development, pp. 851–861.

Loermans, J. (2002) Synergizing the learning organisation and knowledge management, ***Journal of Knowledge Management***, 6(3), pp. 285–294.

Lopez, S. P., Peon, J. M. M. and Ordas, C. J. V. (2004) Managing knowledge: The link between culture and organisational learning, ***Journal of Knowledge Management***, 8(6), pp. 93–104.

Lyles, M. A. (1988) Learning among joint venture sophisticated firms, ***Management International Review***, 28, pp. 85–98.

Malchup, F. (1986) ***Knowledge: Its creation, distribution and economic significance***, Vol. 1, Princeton University Press, Princeton.

Malhotra, Y. (1996) *Organisational learning and learning organisations: An overview*, last accessed 12 October, 2008, from http://brint.com/papers/orglrng.html.

March, J. (1991) Exploration and exploitation in organisational learning, ***Organisational Science,*** 2(1), pp. 1–13.

Marsick, V. and Watkins, K. (1990) ***Informal and Incidental Learning in the Workplace***, Rutledge, New York.

Maurik, J. V. (1999) ***The Effective Strategist: Key Skills for All Managers***, Gower, London.

Mayer, R. C., Davis, J. H. and Schoorman, F. D. (1995) An integrative model of organisational trust, ***Academy of Management Review***, 20, pp. 709–734.

McAdam, R. and McCreedy, S. (1999) The process of knowledge management within organisations: A critical assessment of theory and practice, ***Knowledge and Process Management Journal***, 6(2), pp. 101–113.

McAdam, R. and Reid, R. (2000) A comparison of public and private sector perceptions and use of knowledge management, ***Journal of European Industrial Training***, 24(6), pp. 317–329.

McHargue, S. K. (2003) Learning for performance in non profit organisations, ***Advances in Developing Human Resources***, 5(2), pp. 196–204.

Mecceri, T. (1989) The unicorn, the normal curve and other improbable creatures, ***Psychological Bulletin***, 105, pp. 156–166.

Mertins, K., Heisig, P. and Vorbeck, J. (eds) (2001) ***Knowledge Management: Best Practices in Europe***, Springer Verlag, Berlin.

Miles, M. B. and Huberman, A. M. (1994) ***Qualitative Data Analysis: An Expanded Sourcebook***, Sage Publications, CA.

Mowery, D. C., Oxley, J. E. and Silverman, B. S. (1996) Strategic alliances and inter-firm knowledge transfer, ***Strategic Management Journal***, Special Issue (17), pp. 77–91.

Mulford, B. (1998) 'Organisational learning and educational change', In Hargreaves, A. Lieberman, M. Fullan, and D. Hopkins (eds) ***International Handbook of Educational Change***, Norwell, MA, Kluwer Academic Publishers, pp. 616–641.

Murray, P. and Donegan, K. (2003) Empirical linkages between firm competencies and organisational learning, ***The Learning Organisation,*** 10(1), pp. 51–62.

Musisi, N. B. (2003) ***Makerere University in Transition, 1993–2000: Opportunities and challenges***, Fountain, Kampala.

Nahapiet, J. and Ghoshal, S. (1998) Social capital, intellectual capital, and organisational advantage, ***Academy of Management Review***, 23, pp. 242–256.

National Council of Higher Education (NCHE) (2007) Publications

Newell, S., Robertson, M., Scarbrough, H. and Swan, J. (2002) ***Managing Knowledge Work***, Palgrave, London

Nolan, T., Goodstein, L. and Pfeiffer, J. W. (2004) ***Create and Nurture a Learning Organisation: Smartbiz.com: Small Business Resources***, last accessed 9 June, 2008, from http://www.smartbiz.com.

Nonaka, I. (1991) The knowledge creating company, ***Harvard Business Review***, 34(6), pp. 96–104.

Nonaka, I. (1994) A dynamic theory of knowledge creation, ***Organisational Science***, 5(1), pp. 14–37.

Nonaka, I. and Konno, N. (1998) The concept of "Ba": Building a foundation for knowledge, ***California Management Review***, 40(3), pp. 40–54.

Nonaka, I. and Takeuchi, H. (1995) ***The Knowledge Creating Company: How Japanese Companies Create the Dynamics of Innovation***, Oxford University Press, New York.

Nunally, J. C. (1978) ***Psychometric Theory***, McGraw Hill, New York.

Oliver, G., Handzic, M. and Toorn, C. V. (2003) Towards understanding KNOWLEDGE MANAGEMENT practices in the academic environment: The shoemaker's paradox, ***Electronic Journal of Knowledge Management***, 1(3), pp. 139–146.

Ordenez de Pablos, P. (2006) Trans-national corporations and strategic challenges: Analysis of knowledge flows and competitive advantage, ***The Learning Organisation***, 13(6), pp. 544–559.

Osborne, J. W. (2002) Notes on the use of data transformation, *Practical assessment, research and evaluation*, 8, last accessed on 15 May 2009, from http://ericae.net/pare/getvn.asp?v=8&n=6

Pan, S. L. and Scarbrough, H. (1999) Knowledge management in practice: An exploratory case study, ***Technology Analysis and Strategic Management***, 11(3), pp. 359–374.

Pasteur, K., Petit, J. and Schagan, B. (2006) 'Knowledge management and organisational learning for development', Paper presented at *KNOWLEDGE MANAGEMENT4Dev Workshop*, Brighton, July 2006, last accessed 25 August, 2008, from http://www.knowledge management4dev.org.

Pemberton, J. D. and Stonehouse, G. H. (2000) Organisational learning and knowledge assets: An essential partnership, ***The Learning Organisation***, 7(4), pp. 184–193.

Petruzzelli, A. M. (2008) Proximity and knowledge gatekeepers: The case of the Polytechnic University of Turin, ***Journal of Knowledge Management***, 12(5), pp. 34–51.

Polanyi, M. (1962) ***The Tacit Dimension***, Doubleday, New York.

Prusak, L. (2001) Where did knowledge management come from? ***IBM Systems Journal***, 40(4), pp. 1002–1007.

Robertson, M. and Hammersley, G. M. (2000) Knowledge management practices within a knowledge intensive firm: The significance of people management dimension, ***Journal of European Industrial Training***, 24(2/3/4), pp. 241–253.

Roth, P. L. and Switzer, F. S. (1995) A Monte Carlo analysis of missing data techniques in HRM setting, *Journal of Management*, 21(5), pp. 1003–1023.

Rowley, J. (2000) Is higher education ready for knowledge management?, ***The International Journal of Education Management***, 14(7), pp. 325–333.

Rowley, D. J. and Sherman, H. (2001) ***From Strategy to Change: Implementing the Plan in Higher Education***, Jossey-Bass, San Francisco.

Rubenstein-Montano, B., Liebowitz, J., Buchwalter, J., McCaw, D., Newman, B. and Rebeck, K. (2001) A systems thinking framework for knowledge management, ***Decision Support Systems,*** 31(1), pp. 5–16.

Rummel, R. J. (2007) ***Understanding Factor Analysis***, last accessed 16 March, 2007, from http://www.hawaii.edu/powerkills/UFA.HTM.

Ryan, A. B. (2006) 'Post-positivist approaches to research', In Antonesa, M, Fallon, H., Ryan, A.B with L. Borys***, Researching and Writing Your Thesis: A Guide to Postgraduate Students***, Maynooth Adult and Community Education, pp. 12–28.

Sabherwal. R. and Becerra-Fernandez, I. (2003) An empirical study of the effect of knowledge management processes at individual, group, and organisational levels, ***Decision Sciences***, 34(2), pp. 225–260.

Sandelands, E. (1999) 'Learning organisations: A review of literature relating to strategies, building blocks and barriers', In ***Management Literature in Review***, Vol. 1. Accessed from http://www.free-press.com.journals.mic on 12 July 2007

Schulenberg, J. L. (2007) Analysing police decision-making: Assessing the application of a mixed-method/mixed model research design, ***International Journal of Research Methodology***, 10(2), pp. 99–119.

Sekaran, U. (2003) ***Research Methods for Business: A Skill-building Approach***, 4th ed., John Wiley and Sons, Inc, New York.

Senge, P. (1990) ***The Fifth Discipline: The Art and Practice of the Learning Organisation***, Doubleday Dell, New York.

Shenoy, G. V. and Madan P. (1994) ***Statistical Methods in Business and Social Sciences,*** Inter-India Publications, New Delhi.

Skyrme, D. J. (1999) ***Knowledge Networking: Creating a Collaborating Enterprise,*** Butterworth, Oxford.

Spender, J. C. (1996) Making knowledge the basis of a dynamic theory of the firm, ***Strategic Management Journal,*** 17 (Special Issue), pp. 45–62.

Spinello, R. A. (2000) 'The knowledge chain', In Cortada, J. W. and Woods, J. A. (eds) ***The Knowledge Management Year Book 2000–2001***, Butterworth-Heinemann, Woburn, pp. 189–207.

Stacey, A. G. (2005) The reliability and validity of the item means and standard deviations of ordinal level response data, ***Management Dynamics***, 14(3), pp. 2–25.

Stata, R. (1989) Organisational learning: The key to management innovation, ***Sloan Management Review***, Spring, 30, pp. 63–74.

Stewart, T. (1997) ***Intellectual Capital: The New Wealth of Organisations***, Doubleday, New York.

Stuhlman, D. (2008) 'Knowledge management terms', In Malhan, V. and Shivarama, R. (eds), ***Perspectives in Knowledge Management***, Scarecrow Press.

Su, K. J., Hsieh H. L. and Liu, K. A. (2003) Application of learning organisation paradigm in engineering education: An empirical research of universities in Taiwan, ***World Transactions on Engineering and Technology Education***, 2(2), pp. 285–289.

Sveiby, K. E. (2001) A knowledge-based theory of the firm to guide in strategy formulation, ***Journal of Intellectual Capital***, 2(4), pp. 344–358.

Swan, J., Newell, S., Scarbrough, H. and Hislop, D. (1999) Knowledge management and innovation: Networks and networking, ***Journal of Knowledge Management***, 3(4), pp. 262–275.

Syed-Ikhsan, S. O. and Rowland, F. (2004) Knowledge management in a public organisation: A study of the relationship between organisational elements and the performance of knowledge transfer, ***Journal of Knowledge Management***, 8(2), pp. 95–111.

Szulanski, G. (1996) Exploring internal stickiness: Impediments to the transfer of best practice in the firm, ***Strategic Management Journal***, 17, pp. 27–43.

Teece, D. J. (2000) Strategies for managing knowledge assets: The role of firm structure and industrial context, ***Long Range Planning***, 33, pp. 35–54.

Thorndike, R. M. (1976) Studying canonical analysis: Comments on Barcikowski and Stevens, ***Multivariate Behavioural Research***, April, pp. 249–253.

Thorndike, R. M. (2000) 'Canonical correlation analysis', In Tinsley, H. E. A. and Brown, S. D. (eds) ***Applied Multivariate Statistics and Mathematical Modelling***, pp. 237–263.

Tiwana, A. (2000) ***The Knowledge Management Tool Kit: Practical Techniques for Building a Knowledge Management System***, Prentice-Hall, Upper Saddle River, NJ.

Tobin, D. R. (1998) ***Knowledge-Enabled Organisation: Moving from Training to Learning to Meet Business Goals,*** AMACOM, New York.

Tuomi, I. (1999) Hierarchy of knowledge management and organisational memory, ***Journal of Management Information Systems***, 16, pp. 103–117.

Ungerer, M., Herholdt, J. and Uys, K. (2006) ***Leveraging Knowledge-based Assets: The New Value Equation to Create Competitive Advantage***, KNOWRES Publishing, Randburg.

Van Daal V. and Reitsma, P. (2000) Computer assisted learning to read and spell: Results from two pilot studies, ***Journal of Research in Reading***, 23, p. 181-193

Venzin, M., Von Krogh, G. and Roos, J. (1998) 'Future research into knowledge management', In Von Krogh, G., Roos, J. and Kleine, D. (eds) ***Knowing in Firms***, Sage Publications, London.

Vera, D. and Crossan, M. (2003) 'Organizational learning and knowledge management: Toward an integrative framework', In Easterby-Smith, M. and Lyles, M. (eds) ***Handbook of Organizational Learning***, Blackwell, Oxford, pp. 122–141.

Walsh, J. P. and Ungson, G. R. (1991) Organisational memory, ***Academy of Management Review***, 16, pp. 57–91.

Wang, C. L. and Ahmed, P. K. (2003) Organisational learning: A critical review, ***The Learning Organisation***, 10(1), pp. 8-17.

Watkins, K. E. (2005) What would be different if higher educational institutions were learning organisations?, ***Advances in Human Resources***, 7(3), pp. 414–442.

Watkins, K. E. and Marsick, V. J. (1993) ***Sculpting the Learning Organisation: Lessons in the Art and Science of Systematic Change***, Jossey-Bass, San Francisco.

Watkins, K. E. and Marsick, V. J. (1996) ***In Action: Creating the Learning Organisation***, American Society for Training and Development, Alexandria, VA.

White, J. and Weathersby, R. (2005) Can universities become true learning organizations? ***The Learning Organization***, 12(3), p. 292-298

Whittaker L. (2005) Information systems evaluation: A post-dualist interpretation, ***South African Computer Journal***, 35, pp. 132–142.

Whittington, D. and Dewar, T. (2004) A strategic approach to organisational learning, ***Industrial and Commercial Training***, 36(7), pp. 265–268.

Wiig, K. M., Hoog, R. and Spek, R. (1997) Supporting knowledge management: A selection of methods and techniques, ***Expert Systems with Applications***, 13(1), pp. 15–27.

Wiig, K. M. (1993) ***Knowledge Management Methods: Practical Approaches to Managing Knowledge***, Schreiner Press, Arlington.

Wong, K. Y. (2005) Critical success factors for implementing knowledge management in small and medium enterprises, ***Industrial Management and Data Systems***, 105(3), pp. 261–279.

World Bank (2002) ***Constructing Knowledge Societies: New Challenges for Tertiary Education,*** World Bank Publications, Washington DC.

World Bank, Task Force on Higher Education and Society (2000) ***Higher Education in Developing Countries: Peril and Promise***, World Bank Publications Washington DC, .

Yahya, S. and Goh, W. (2002) Managing human resources towards achieving knowledge management, ***Journal of Knowledge Management***, 6(5), pp. 457–468.

Yamane, T. (1967) ***Elementary Sampling Theory***, Prentice-Hall Inc., Englewood Cliffs, NJ.

Yang, B., Watkins, K. E. and Marsick, V. J. (2004) The construct of learning organisations: Dimensions, measurement, and validation, ***Human Resource Development Quarterly***, 15, pp. 31–55.

Yang, B. (2003) Identifying valid and reliable measures for dimensions of a learning culture, ***Advances in Developing Human Resources***, 5(2), pp. 152–162.

Yang, J. (2007) The impact of knowledge sharing on organisational learning and effectiveness, ***Journal of Knowledge Management,*** 11(2), pp. 83–90.

Zhou, H., Tan, S. and Uhlaner, L. (2007) ***Family Orientation, Strategy and Organisational Learning as Predictors of Knowledge Management in Dutch SMEs: A Quantitative Study***, ***A Report of Scientific Analysis of Entrepreneurship and SMEs***, last accessed 10 March, 2008, from http://www.elm.net.

APPENDIX ONE: RESEARCH QUESTIONNAIRE

INTERDEPENDENCE OF KNOWLEDGE MANAGEMENT AND ORGANISATIONAL LEARNING IN HIGHER EDUCATION INSTITUTIONS

Dear Respondent,

This questionnaire is intended to determine the extent to which organisational learning and knowledge management are interdependent of each other in the higher educational setting. You have been selected to participate in this study as one of the respondents. Please complete this questionnaire as honestly as possible. Your responses to the questions below, which will assist in making this study a success, will be treated with utmost confidentiality.

SECTION 1: INFORMATION ABOUT YOUR INSTITUTION

Please fill in your answers in the box provided after the question for questions 1 and 2, and tick the right option in the box provided after the question for questions 3 and 4.

1	Name of your institution		
2	Address of your institution		
3	Type of institution	University	
		Business school	
		Management development institute	
		Other tertiary-level institution	
		Other (please specify)	
4	Ownership	Public	
		Private	

For the questions in sections two and three, please indicate the extent of your agreement with the statements given by circling the appropriate point on the scale provided. If you **strongly agree** with the statement, please **circle number 7**. If you **strongly disagree** with the statement, please **circle number 1**. If your feelings about the statement are less strong, please circle the appropriate number reflecting your feelings elsewhere in the scale. There is no right or wrong answer. All that I am interested in is the number that truly reflects your opinion on the statements given in respect of your institution.

SECTION TWO: KNOWLEDGE MANAGEMENT PRACTICES

A	**Knowledge acquisition**							
1	Members of this institution are active in external professional networks and associations.	1	2	3	4	5	6	7
2	This institution actively collects information about the needs and wishes of its clients.	1	2	3	4	5	6	7
3	If important knowledge is not available, my institution buys it, e.g. journals, research reports.	1	2	3	4	5	6	7
4	If needed, our institution hires new staff members who possess missing knowledge.	1	2	3	4	5	6	7
5	Our institution does research to explore future possibilities and new knowledge.	1	2	3	4	5	6	7
6	Staff members regularly follow courses, training programmes and seminars to remain up to date.	1	2	3	4	5	6	7
7	We consider our competitors as a source of inspiration for developing new methods and approaches to delivering training.	1	2	3	4	5	6	7
B	**Knowledge documentation**							
1	We frequently make use of brainstorming sessions to find solutions for problems we meet with in our work.	1	2	3	4	5	6	7
2	Failures and successes are evaluated and lessons learnt are set down.	1	2	3	4	5	6	7
3	Our institution has up-to-date handbooks and work guidelines, which are frequently used.	1	2	3	4	5	6	7
4	Our institution informs all members systematically of changes in procedures, handbooks, etc.	1	2	3	4	5	6	7
5	Our organisation has documented specific knowledge and skills of individuals.	1	2	3	4	5	6	7
6	Experts in certain areas are urged to make explicit the methods they use in a step-by-step description.	1	2	3	4	5	6	7
C	**Knowledge transfer**							
1	New members of staff are assigned to mentors who help them to find their way in the organisation.	1	2	3	4	5	6	7
2	Much knowledge is distributed in informal ways, e.g. in the corridors, tea-rooms, etc.	1	2	3	4	5	6	7
3	Regular meetings are organised, at which professional matters are discussed.	1	2	3	4	5	6	7
4	Colleagues inform one another regularly about positive experiences and successful projects undertaken.	1	2	3	4	5	6	7
5	Our intercolleagual review (peer review) system allows opportunities for discussing work methodologies.	1	2	3	4	5	6	7
6	Job rotation occurs, based on one's know-how, thereby ensuring knowledge distribution.	1	2	3	4	5	6	7
D	**Knowledge creation**							
1	Individual work performance is assessed regularly and discussed at individual evaluative conferences.	1	2	3	4	5	6	7
2	Problems, failures, and doubts are discussed openly in our institution.	1	2	3	4	5	6	7

3	New ideas and insights lead, if necessary, to redesigning work processes and design.	1	2	3	4	5	6	7
4	Members are assigned to new projects and programmes, depending on their know-how and availability.	1	2	3	4	5	6	7
5	Members are assessed and rewarded for developing new knowledge and for testing new ideas.	1	2	3	4	5	6	7
6	At our learning groups, members can discuss their work experiences and strategies.	1	2	3	4	5	6	7
7	Important issues are explored, using scenarios or simulation techniques.	1	2	3	4	5	6	7
E	**Knowledge application**							
1	Selling knowledge, such as through consultancies, attracts explicit attention from our institution.	1	2	3	4	5	6	7
2	Members promote new knowledge externally in the market through the dissemination of research findings.	1	2	3	4	5	6	7
3	Experiences of students and other clients are used to improve our programmes and courses.	1	2	3	4	5	6	7
4	We apply existing know-how in a creative manner in new applications.	1	2	3	4	5	6	7
5	Members promote new knowledge internally within the institution.	1	2	3	4	5	6	7
6	One of our strong qualities is combining our specialisations in multi-disciplinary teams.	1	2	3	4	5	6	7
7	We try to conquer dysfunctional beliefs at our institution.	1	2	3	4	5	6	7
8	Before developing new course or programmes, we carry out market research among potential clients.	1	2	3	4	5	6	7

SECTION THREE: ORGANISATIONAL LEARNING

F	**Individual level**							
1	In my institution, employees help each other learn.	1	2	3	4	5	6	7
2	In my institution, employees are given time to support learning.	1	2	3	4	5	6	7
3	In my institution, employees are rewarded for learning.	1	2	3	4	5	6	7
4	In my institution, employees give open and honest feedback to each other.	1	2	3	4	5	6	7
5	In my institution, whenever employees state their view, they also ask what others think.	1	2	3	4	5	6	7
6	In my institution, employees spend time building trust among each other.	1	2	3	4	5	6	7
G	**Team level**							
1	In my institution, teams/groups have the freedom to adapt their goals in response to emerging needs,	1	2	3	4	5	6	7
2	In my institution, teams/groups revise their thinking, as a result of group discussions or information collected.	1	2	3	4	5	6	7
3	In my institution, teams/groups are confident that the institution will act on their recommendations.	1	2	3	4	5	6	7

H	**Institutional/organisational level**							
1	My organisation creates systems for measuring gaps between current and expected performance.	1	2	3	4	5	6	7
2	My organisation makes its lessons learned available to all employees.	1	2	3	4	5	6	7
3	My organisation measures the results of the time and resources spent on training.	1	2	3	4	5	6	7
4	My institution recognises employees who take the initiative.	1	2	3	4	5	6	7
5	My institution gives employees control of resources which they need to accomplish their work.	1	2	3	4	5	6	7
6	My institution supports employees taking calculated risks.	1	2	3	4	5	6	7
7	My institution encourages employees thinking from a global perspective.	1	2	3	4	5	6	7
8	My institution works together with the outside community to meet mutual needs.	1	2	3	4	5	6	7
9	My institution encourages employees to get answers from across the organisation when solving problems.	1	2	3	4	5	6	7
10	In my institution, leaders mentor and coach others.	1	2	3	4	5	6	7
11	In my institution, leaders continually look for opportunities to learn.	1	2	3	4	5	6	7
12	In my institution, leaders ensure that organisational actions are consistent with the values of the organisation.	1	2	3	4	5	6	7

APPENDIX TWO: INTERVIEW GUIDE

Interdependence of Knowledge Management and Organisational Learning in Higher Education Institutions in Uganda

Date:

Section A: Information about the institution

1. Institution's name:

2. Status (ownership) of your institution:

Public (government) institution	
Private institution	

3. Years spent at the institution:

0 to 2 years	
2 to 5 years	
Over 5 years	

Section B

4. Knowledge management in higher education institutions

Please indicate which of the following knowledge management practices are common at your institution:

Knowledge transfer	
Knowledge acquisition	
Knowledge documentation	
Knowledge creation	
Knowledge application	
Any other (please specify)	

Are there any recognisable/explicit knowledge management strategies being implemented by your institution? -----

If so, please name them. ----------

1.

In your view, what activities are implemented in respective of each of the knowledge management practices indicated above as taking place at your institution? ----------
---

Section C

5. Organisational learning at higher education institutions

5.1 Would you categorise your institution as a learning organisation? Explain why / why not.

5.2 Comment on the organisational learning processes at your institution.----------
---

5.3 Organisational learning takes place at three levels in an organisation: at an individual level, at a team (department/faculty) level, and at an organisational level. Which of these levels do you consider more critical in supporting learning, and why?----------
---

5.4 Explain some strategies/ activities implemented by your institution to enhance learning at each learning level. ----------
---

Section D

6.0 Interdependence between knowledge management and organisational learning

6.1 Comment on the relationship between knowledge management and organisational learning in the higher education context. ----------
---

6.2 In your view, is knowledge management dependent on OL, or vice versa? Please explain your answer. ----------
---

6.3 Do you think that there is a linkage between knowledge management and organisational learning? Please explain your answer.

6.4. If so, suggest those dimensions which represent that linkage.----------
---

