

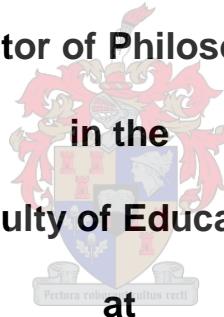
A KNOWLEDGE NETWORK MODEL FOR TEACHERS SUPPORTING LEARNERS WITH DISABILITIES IN AN INCLUSIVE EDUCATION SYSTEM

By

Pieter Stephanus Dorfling

Dissertation presented for the degree of

Doctor of Philosophy



in the

Faculty of Education

at

Stellenbosch University

Supervisor: Prof. Estelle Swart

Co-supervisor: Prof. Erwin Schwella

March 2016

DECLARATION

By submitting this dissertation electronically, I declare that the entirety of the work contained therein is my own original work, that I am the authorship owner thereof (unless to the extent explicitly otherwise stated) and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

.....
Pieter S Dorfling

.....
March 2016

Copyright © 2016 Stellenbosch University

All rights reserved

ABSTRACT

It is widely acknowledged by researchers that teachers play the most important role in the implementation of inclusive education. However, it is also acknowledged by researchers and teachers alike that teachers are not adequately prepared for this task through the current approaches to initial teacher education and continuous professional development initiatives.

Inclusive education aims to provide quality and equal education to all children. This implies that in an inclusive classroom there will be a diverse population of children with regard to their abilities, impairments and educational, medical, and therapeutic needs. It stands to reason that this requires teachers to be informed practitioners. However, it will be impossible for teachers to have all the knowledge they may need in a given situation to do justice to the needs of all the children in their classes. Inclusive education should therefore be seen as a shared responsibility.

The concept shared responsibility implies that there is a pool of knowledge available to teachers. It is within the context of the above that I decided to conduct a study focussing on what should be entailed in the personal continuous knowledge development of teachers in inclusive education. The findings would be used to develop a personal continuous knowledge development (PCKD) model suggested in this study which is aimed at empowering teachers to be self-directed in their search for knowledge.

To direct the study, the following research questions were developed:

How will the strategies identified in the literature on knowledge management (KM) and inclusive education (IE) aid the development of a model for personal continuous knowledge development of teachers?

The sub-questions that support the central question were:

- What is the level of knowledge management usage in the inclusive education system?

- What is the view of subject experts with regard to the personal continuous knowledge development (PCKD) model for the continuous knowledge development of teachers?

To find answers to these questions, teachers and educators which I considered to be subject experts in the field of inclusive education due to their experience and the positions they hold were identified as study participants. A four-phase sequential mixed-methods design was used in the study. The first phase of the study was a literature study of the relevant literature on knowledge management and inclusive education. The main aim of this phase was to collect narrative data on strategies that will enhance the knowledge of teachers in inclusive education. The second phase was quantitative in nature and data was collected using a questionnaire distributed to 21 subject experts. The main aim of this phase was to obtain descriptive data of the use of knowledge management in the field of inclusive education. Of the total distribution, 17 questionnaires were returned and analysed using a scoring grid and the scores were then transferred to a histogram to present a comparison between the different categories of subject experts' evaluation of the use of knowledge management in inclusive education.

In phase three of the study, a questionnaire was used which collected quantitative and qualitative data with the aim of obtaining subject experts' evaluation of the proposed personal continuous knowledge development (PCKD) model, which is based on the strategies identified in the literature study in phase one. In addition, a focus group discussion was held with 10 subject experts. The quantitative data was analysed using basic calculations and transferring scores to percentages. Qualitative data was analysed for occurring themes.

The fourth phase combined all the data to consolidate the proposed personal continuous knowledge development (PCKD) model. The building blocks of the model include knowledge management strategies (e.g. collaboration, networking, communities of practice and the learning organisation), personal agency of teachers and the support of school management. In combination, these building blocks encourages the creation, sharing and retrieval of knowledge. With this approach, teachers not only become knowledgeable and informed practitioners, but the

knowledge they obtain optimises the teaching and learning of children with disabilities in their inclusive classrooms.

This study contributes to the debate on designing appropriate continuous professional development strategies that could improve teachers' knowledge in the field of inclusive education.

ACKNOWLEDGEMENTS

This research project was set in motion by my involvement in Special Education and the attendance of a workshop on Knowledge Management at the School of Public Leadership of Stellenbosch University. Topics raised during this workshop contained elements that linked to the lack of knowledge of teachers in inclusive education and this led to my considering the possibility of utilising knowledge management strategies in knowledge development of teachers in inclusive education.

I would like to express my sincere appreciation and gratitude to the following individuals and groups for the role that they have played in making this research project a reality and an enjoyable learning experience for me:

My supervisors for their guidance, support and encouragement:

Professor E. Swart

Professor E. Schwella.

The Subject Experts from the various education institutions and schools as indicated below for their vigorous and critical analysis of the model and constructive inputs:

A Provincial Education Department

Two Education Districts

Learning Support Teachers in a Circuit

A Full Service School

Two Special Schools as Resource Centres

A Special School.

DEDICATION

To all teachers and educators who are self-directed, selflessly, tirelessly and professionally involved in knowledge seeking activities to optimise the quality of education of all children in inclusive classrooms including those with barriers to learning, but most specifically those with disabilities.

TABLE OF CONTENTS

<i>Declaration</i>	<i>i</i>
<i>Abstract</i>	<i>ii</i>
<i>Acknowledgements</i>	<i>iv</i>
<i>Dedication</i>	<i>vi</i>
<i>Table of Contents</i>	<i>vii</i>
<i>List of Figures</i>	<i>x</i>
<i>List of Tables</i>	<i>xii</i>
<i>List of Appendices</i>	<i>xiii</i>
<i>Glossary</i>	<i>xiv</i>
<i>Abbreviations</i>	<i>xvii</i>

Chapter 1

Contextualisation and Orientation of the Study	1
1.1 Introduction	1
1.2 Research Problem Statement	12
1.3 Research Questions and Objectives	16
1.4 Theoretical Perspective.....	18
1.5 Research Paradigm, Design and Methodology	26
1.6 Role and Limitations of the Researcher	29
1.7 Chapter Division.....	37
1.8 Summary.....	39

Chapter 2

Research Design and Methodology	41
2.1 Introduction	41
2.2 Subject Experts	43
2.2.1 Sampling Strategy	44
2.2.2 Data Source Management.....	45
2.3 Methods	47
2.3.1 Quantitative Methods	51
2.3.2 Qualitative Methods	51
2.4 Data	52
2.5 Justification for the Research.....	53
2.5.1 Backing Conditions	54

2.5.2 Qualifying Conditions.....	56
2.6 Ethical Considerations	57
2.7 Chapter Summary	62

Chapter 3

Knowledge Management: A Conceptual and Theoretical Analysis	64
--	-----------

3.1 Introduction	64
3.2 Historical Development of Knowledge Management	65
3.3 Definitions of Knowledge Management.....	67
3.4 Clarification of the Concepts Organisational Knowledge and the Human Component of Knowledge Management	69
3.5 Knowledge Management: Theoretical Approaches.....	84
3.6 Knowledge Management Models	87
3.7 Knowledge Management Processes (KMP).....	93
3.8 Knowledge Management: The Organisational Perspective.....	100
3.9 Summary and Conclusion	106

Chapter 4

Inclusive Education: Teacher Learning	108
--	------------

4.1 Introduction	108
4.2 Historical Development towards Inclusive Education Practices: An International and South African Perspective	109
4.3 Defining Inclusive Education	116
4.4 Implementation in Schools	124
4.5 Impact on teachers and school management	136
4.6 Training needs of Teachers	139
4.7 Training and Support of Teachers.....	144
4.8 Summary.....	156

Chapter 5

A Knowledge Management Model for Aiding Learning in an Inclusive Educational Setting	158
---	------------

5.1 Introduction	158
5.2 Knowledge development as individual and organisational activity	159
5.3 Models: Definitions and Application in the Social Science	160
5.4 Model Development Process	163
5.4.1 Conceptual Process	167

5.4.2 Model Constructing Process.....	174
5.4.3 Empirical investigation process	187
5.4.3.1 <i>Subject Experts' Evaluation of the Level of Knowledge Management Use in IE</i>	188
5.4.3.2 <i>Subject Experts' Evaluation of the Proposed Model</i>	190
5.4.3.3 <i>Findings as reflected in the Subject Experts' Comments of the PCKD Model during the Focus Group Discussion</i>	205
5.5 Model Consolidation.....	211
5.6 Summary.....	215
Chapter 6	
Summary, Limitations, Conclusions and Recommendations of the Study.....	216
6.1 Introduction	216
6.2 Conclusions.....	217
6.3 Recommendations	225
6.4 Contributions of the Study	231
6.5 Limitations of the Study.....	233
6.6 Aspects for Further Study	234
6.7 Summary	234
Bibliography.....	236

LIST OF FIGURES

Figure 1.1	Lack of knowledge influences the quality of education.....	16
Figure 1.2	Social and individual modes of teaching and learning of teachers	19
Figure 1.3	Influences on the researcher's views in determining the purpose of the study.....	20
Figure 1.4	Elements of a school as an organisation.....	23
Figure 1.5	Data collection process	27
Figure 2.1	Processes employed to answer the research questions	41
Figure 2.2	Warranting research.....	53
Figure 3.1	Perspectives on knowledge.....	76
Figure 3.2	Reservoirs of knowledge	77
Figure 3.3	Interaction of knowledge creation modes.....	91
Figure 3.4	Modes and processes of knowledge creation	92
Figure 3.5	Knowledge management process	94
Figure 3.6	Knowledge management measurement Bell Curve	199
Figure 3.7	Impact of knowledge management	103
Figure 4.1	Phases of development towards inclusive education	109
Figure 4.2	Professional development and the instructional triangle	151
Figure 4.3	Linking professional communities and professional development.....	153
Figure 4.4	Boundary practice – overlapping activity systems	155
Figure 5.1	Components of the lifelong learning context of teachers.....	165
Figure 5.2	Process in the development of the PCKD model	167
Figure 5.3	Correlation of teachers and management utilisation of strategies..	169
Figure 5.4	The effect of commitment and investigation on knowledge development and the quality of education	171
Figure 5.5	The effect of personal agency (commitment and investigation) and management support on knowledge development and the quality of education.....	172
Figure 5.6	Outcome of the interplay of forces and strategies	173
Figure 5.7	Components of the PCKD model.....	175
Figure 5.8	Context of knowledge and skills sourcing.....	179
Figure 5.9	Strategies to acquire knowledge	183
Figure 5.10	Personal continuous knowledge development model for teachers in an IE system.....	186

Figure 5.11	Comparison of the use of KM as reported by participants.....	190
Figure 5.12	Areas that could lead to confusion	191
Figure 5.13	Evaluation of the clarity of the model.....	193
Figure 5.14	The degree of comprehensiveness of the model	194
Figure 5.15	Comprehensiveness of the model.....	195
Figure 5.16	Rating of the model's ability to enhance knowledge and skills	196
Figure 5.17	Appropriateness of strategies.....	197
Figure 5.18	Evaluation of the effectiveness of the model	198
Figure 5.19	Evaluation of the user-friendliness of the model.....	199
Figure 5.20	Execution of the model.....	200
Figure 5.21	Implementability of the model.....	201
Figure 5.22	Subject experts willingness to encourage the use of the model	204
Figure 5.23	Level of support for the implementation of the model.....	206
Figure 5.24	PCKD model in practice	214
Figure 6.1	Managing the sources of authentic knowledge for diversity teaching.....	228

LIST OF TABLES

Table 1.1	Barriers to learning	3
Table 2.1	Methodological issues associated with numbers of participants employed in research	45
Table 2.2	Ethical grid to comply with ethical issues during stages of the study.....	58
Table 3.1	Defining data, information and knowledge	71
Table 4.1	Sequential development towards inclusive education	110
Table 4.2	United Nations policies and legal frameworks promoting inclusive education	111
Table 4.3	Education for All (EFA).....	112
Table 4.4	Standard Rules on the equalisation of opportunities for persons with disabilities.....	112
Table 4.5	Salamanca statements and framework for action on special needs education.....	113
Table 4.6	Inclusive education policy development in South Africa	115
Table 4.7	Structures to promote inclusive education in South African schools	125
Table 4.8	Children with disabilities enrolled in special schools	128
Table 4.9	Children with disabilities enrolled in public ordinary schools	129
Table 4.10	Summary of requirements needed to develop an effective inclusive school	130
Table 4.11	Overview of diversity in inclusive education	131
Table 4.12	Defining elements of professional communities	152
Table 5.1	Political dimension.....	177
Table 5.2	Financial dimension.....	178
Table 5.3	Environmental dimension	180
Table 5.4	Personal dimension.....	182
Table 5.5	Combined scores of the groupings of participants	189
Table 6.1	Types of knowledge	228
Table 6.2	Strategies to promote knowledge	228

APPENDICES

Appendix A	Ethical clearance	273
Appendix A-1	Information letter	274
Appendix A-2	Informed consent	275
Appendix B-1	Knowledge management maturity questionnaire	278
Appendix B-2	Scoring – point allocation to answers	288
Appendix B-3	Overview of the scores of the individual participants.....	290
Appendix B-4	Summary of the average percentage scores in each question of all sections	291
Appendix C	Questionnaire: A knowledge management model for capacitating teacher learning in an inclusive education setting.....	320

GLOSSARY

IQMS (Integrated Quality Management System) – The IQMS was negotiated with teacher unions in the Education Labour Relations Council (ELRC) and subsequently signed as the ELRC Collective Agreement No.8 of 2003. The IQMS is an integrated quality management system that consists of three programmes, which are aimed at enhancing and monitoring performance of the education system. These are:

Developmental appraisal – The purpose is to appraise individual teachers in a transparent manner with a view to determine areas of strengths and weakness, and to draw up programmes for individual development; Performance Measurement – The purpose is to evaluate individual teachers for salary progression, grade progression, affirmation of appointments, and rewards and incentives; and Whole School Development – The purpose is to evaluate the overall effectiveness of a school as well as the quality of teaching and learning.

These three programmes are implemented in an integrated way in order to ensure optimal effectiveness and co-ordination of various programmes (CAES, 2007).

Educators – An educator in this study is viewed as a person who educates other persons or who provide professional educational service or support to schools catering from Grade R to Grade 12 learners. The term includes classroom teachers, education practitioners, teaching and learning specialists, heads of departments, deputy principals, principals, curriculum advisors, education specialists, teacher development officers, education development officers, district and regional managers, and education system managers (DHET, 2015).

Teacher – A teacher is a school-based educator whose core responsibility is that of classroom teaching at a school (DHET, 2015).

Strengthening schools – The process of strengthening schools is multifaceted as reflected in the wide range of activities that have been implemented to achieve this objective. In the report on the Implementation of Education White Paper 6 on Inclusive Education - An overview for the Period: 2013 – 2015 (DBE, 2015), the following are mentioned: the employment of professional support staff; the training of

educators; the provisioning of assistive devices; transfer payments for i.a. specialised Learning and Teaching Support Material (LTSM), learner transport, maintenance, class assistants, drivers and other operational costs; infrastructure development; and training on Screening, Identification, Assessment and Support (SIAS), South African Sign Language (SASL), Braille and HRD in inclusive education (DBE, 2015).

Children – This term refers to learners from Grade R to Grade 12 attending schools.

Learners – This term refers to all learners, ranging from early childhood education through to adult education. The terms ‘pupils’ or ‘students’ at school and higher education levels are therefore replaced by the term ‘learners’ (DoE, 1997:vii).

Barriers to learning and development – For effective learning to be provided and sustained, the education system must be able to accommodate a diverse range of needs among the learner population. Sometimes problems arise in the centre of learning, the education system as a whole, within the wider society or within the learner himself/herself which prevents both learner and system needs from being met. Where such needs are not met, learning breakdown may occur or learners may be excluded from the system. Those factors which lead to the inability of the system to accommodate diversity, which lead to learning breakdown or which prevent learners from accessing educational provision are seen as barriers to learning and development (DoE, 1997: V).

Gangsterism as a barrier to learning – Gang-related activities have serious negative consequences for teaching and learning on different levels. One way in which gang activities becomes a barrier to learning is during gangster fights when both children and educators are terrified of being caught in crossfire, not only at school, but also on their way to school or home. They therefore opt not to go to school until the situation is calm and this has a negative impact on teaching and learning (Mncube & Madikizela-Madiya, 2014).

ABBREVIATIONS

DHET	–	Department of Higher Education and Training
DoE	–	Department of Education
DoBE	–	Department of Basic Education
IQMS	–	Integrated Quality Measurement System
ELRC	–	Education Labour Relation Council
CASE	–	Class Act Educational Services
KM	–	Knowledge Management
IE	–	Inclusive Education
KMS	–	Knowledge Management Strategies
PCKDM	–	Personal Continuous Knowledge Development Model
CRPD	–	Convention on the Rights of Persons with Disabilities
UN	–	United Nations

CHAPTER 1

CONTEXTUALISATION AND ORIENTATION TO THE STUDY

1.1 INTRODUCTION

The focus of this study is to determine whether knowledge management strategies (KMS) such as collaboration, communities of practice, knowledge networks and learning organisations will be beneficial for the personal continuous knowledge development (PCKD) of teachers in inclusive education (IE). The outcome of this focus is what Waitoller and Artiles (2013) refer to as the nurturing and development of teachers to have the understanding, skills, critical sensibility, and contextual awareness to provide quality educational access, participation, and outcomes for all children. In this study, however, the focus will fall more specifically on the optimisation of education for children with disabilities.

The concepts knowledge management, inclusive education, and personal continuous knowledge development are discussed in detail in Chapters 3 and 4. In summary, knowledge management will be seen as the set of systematic and disciplined actions that an organisation can take to obtain the greatest value from the knowledge available to it (Lee, 2004:6). Personal continuous knowledge development will be used to refer to knowledge development activities initiated by teachers through their own agency and through which they are supported and motivated by their managers in order to strengthen their knowledge and skills to teach in an inclusive classroom. As a result, inclusive education will be viewed, as it lacks a clear universally accepted definition (Florian, 2014), as a process and a service based on human rights and social justice of strengthening schools to accommodate all children.

The concept *all* brings into focus the present-day population of children in schools. In the South African context, Education White Paper 6 on Special Needs Education (DoE, 2001) commits government to provide access to education to all children who have a disability and those who experience barriers to learning. The World Health Organisation (WHO) estimates that approximately 20% of all children in any

schooling system could be experiencing some or other barrier to learning (DoBE, 2015:13).

To achieve the objective of providing education to all children, the South African schooling system makes provision for children according to the level of their support needs through different schooling options, e.g. public ordinary schools, public ordinary schools as full-service schools, special schools as resource centres, and special schools (DoE, 2009; DoE, 2007).

In South Africa, modern-day classrooms are characterised by a diverse population of children (see tables 4.8 and 4.9). Engelbrecht (2013:115) and Nel (2011:169) refer to the latter as “heterogeneous classes”, while Waitoller and Kozleski (2013:35) attribute diversity to the fact that some children could “experience multiple layers of difference”. The diversity is the result of the different barriers to learning as discussed in Table 1.1. According to Nel, Nel and Hugo (2012) and Swart and Pettipher (2011), barriers to learning are the result of intrinsic barriers and extrinsic barriers. They (Nel et al., 2012; Swart & Pettipher, 2011) define extrinsic barriers as conditions outside the child and intrinsic barriers as conditions within the child. Barriers to learning and development can therefore be defined as “those factors which lead to the inability of the system to accommodate diversity, which lead to breakdown or which prevent learners from accessing educational provision” (DoE 1997:12).

Although the concepts extrinsic and intrinsic barriers to learning are separated for discussion purposes in Table 1.1, in reality they are not mutually exclusive. They can, both separately and together, affect a child's ability to learn in a multitude of combinations. This is very much evident in the lives of children with disabilities.

Table 1.1 Barriers to learning

Extrinsic barriers to learning	Intrinsic barriers to learning
<p>Extrinsic barriers for children attending school can be caused by the social environment in which they live or by the school system (Nel et al., 2012). From experience and observations, I argue that in the South African context extrinsic barriers to learning could consist of any combination of the following aspects:</p> <p><u>Socio-economic circumstances</u> – Severe poverty, malnutrition, dysfunctional family systems (e.g. single parent, abuse, neglect, substance abuse, violence, homelessness), abuse, crime and violence in the neighbourhood, gangsterism, and lack of basic amenities such as water, electricity, proper housing and toilets (Nel et al., 2012).</p> <p><u>Systemic and pedagogical problems</u> – Systemic problems could include a lack of basic and appropriate learning support materials, inadequate facilities at school, overcrowded classrooms, lack of mother-tongue instruction, and a dysfunctional management system (Nel et al., 2012).</p> <p><u>Pedagogical problems</u> could include insufficient support from teachers, teachers that are not properly trained, inappropriate assessment procedures, an inflexible curriculum, the language of teaching and learning, learning styles, classroom management, the tempo of teaching, and the content that is taught (Nel et al., 2012).</p> <p><u>Cultural differences.</u></p>	<p>Examples of intrinsic barriers:</p> <p><u>Cognitive abilities</u> – Various extrinsic barriers, as discussed above, could cause a breakdown in the learning process, which could prevent gifted children from reaching their full potential (Nel et al., 2012) this is also true for children with normal intellectual ability and those with an intellectual impairment.</p> <p><u>Medical conditions</u> – HIV/AIDS, epilepsy, spina bifida, chronic illnesses, asthma, attention deficit hyperactivity disorders, teenage pregnancy, and drug and substance abuse.</p> <p><u>Conditions related to mothers' abuse of substances/drugs during pregnancy</u> – Foetal alcohol syndrome and "tik" babies.</p> <p><u>Behaviour problems</u> – Truancy, oppositional behaviour, delinquent behaviour, and lack of motivation.</p> <p><u>Specific learning problems</u> – Dyslexia and perceptual problems.</p> <p><u>Communication barriers</u> – Home language that differs from the language of learning and teaching, alternative and augmentative communication needs, and mutism.</p> <p><u>Syndromes</u> – Down syndrome and Fragile X.</p> <p><u>Use of assistive devices</u> – Wheelchairs (manual and motorised), communication devices, standing frames, adapted seating, and walkers.</p> <p><u>Disabilities</u> – In the South African schooling system children's disabilities are categorised as follows: Attention deficit disorders; autistic spectrum disorders; behavioural disorders; blindness; cerebral palsy; deafness; hard of hearing problems; epilepsy; mild-to-moderate intellectual disability; multiple disabilities; other disabilities; partially sighted/low vision; physical disability; psychiatric disorder; severe-to-profound intellectual disability; and specific learning disability (DoBE, 2015:12).</p>

As indicated in Table 1.1, disability is viewed as an intrinsic barrier to learning. However, the construct disability does not refer to a homogenous group as children with disabilities differ in terms of impairment. Furthermore, they differ in terms of the level of their impairment, level of support needed, their gender, and other traits. Children with disabilities therefore present with unique personal needs to participate and succeed in schooling and in what a school offers in terms of social, cultural, and sport activities.

Research (e.g. Human Rights Watch, 2015; DoBE, 2015; ACPF, 2011) shows that access to quality education for children with disabilities remains a major concern. In addition, the “Youth with disabilities” (UN, 2014:5/9) report asserts that a lack of education is a key concern for most youth with disabilities. Two important reasons informing this state of affairs are “teachers who are untrained in how best to educate children with disabilities and [...] low expectations” (UN, 2014:5/9) of these children. In this regard, Donohue and Bornman (2015:54) assert that teachers of children with disabilities need to become aware that the lack of academic progress that becomes clear by considering these children may, in part, be caused by teachers’ own low expectations of and goals for these children. This results in insufficient instruction. In a study by Olsen and Hagen (2015:185), it was observed that in the schools in their study, “a significant number of learners are not able to follow the teaching taking place”. Teachers have a significant impact on the learning of children (Waitoller et al., 2013), especially in diverse classrooms catering for children with disabilities and children with no disabilities.

It stands to reason, when taking into account the above intrinsic and extrinsic barriers to learning, that to teach effectively in a diverse classroom requires teachers to be informed practitioners (Swart & Pettipher, 2011). In order to be informed, they need to have, for example, essential knowledge of how to work with difference, how to differentiate in their teaching, and have specialised knowledge of disabilities. It is reported by the OECD (2005:2) that “the broad consensus is that ‘teacher quality’ is the single most important school variable influencing student achievement”. It is therefore not strange that researchers (e.g. Donohue & Bornman, 2015; Forlin, 2012; Rouse, 2012; Greyling, 2009; Barber, 2008; Engelbrecht, 2006; Bothma, Gravett & Swart, 2000; Swart & Pettipher, 2000) widely acknowledge that teachers play the

most important role in the implementation and execution of inclusive education. However, this role is often compromised by a lack of knowledge about inclusive education with regard to teaching and learning in a diverse classroom (Walton, Nel, Muller & Lebeloane, 2014).

In the South African context, the lack of knowledge referred to above is confirmed by Schoeman (2012) and in the Integrated Strategic Planning Framework for Teacher Education and Development in South Africa, 2011–2015 (DoBE & DHET, 2011). According to Schoeman (2012), this is evident at three levels in the education system:

1. Teachers at ordinary schools lack essential knowledge about how to identify and address barriers to learning in their subject and day-to-day classroom practices;
2. Teachers at special schools lack specialised knowledge in most of the key areas of disability, but most critically in the field of visual impairment, auditory impairment (deafness and hard-of-hearing problems), autism, intellectual disability, cerebral palsy, and communication disorders; and
3. District officials lack skills and knowledge to support schools and teachers with the skills to manage and effectively implement inclusion of children with disabilities in schools (Makhalemele & Nel, 2015; Schoeman, 2012:4).

In the Integrated Strategic Planning Framework (DoBE & DHET, 2011:11), it is stated that there is “both an absolute shortage of teachers and a relative shortage of teachers qualified and competent enough to teach specific subjects or learning areas (primarily mathematics, the sciences, technology and languages, but also arts and culture, and economics and management sciences), in specific phases (especially, but not only, the Foundation Phase), in specific languages (African languages in particular and also sign language and Braille), in Special Needs Schools, in Early Childhood Development (ECD), and rural and remote schools”.

In addition, various other researchers (e.g. Reddy, Zuze, Visser, Winnaar, Juan, Prinsloo, Arends & Roger, 2015; Donohue & Bornman, 2014; Hay & Beyers, 2011; Van der Berg, 2007) comment on the poor quality of general education in South Africa and the ongoing national conversation about the crisis in education. They

(Reddy, Zuze, Visser, Winnaar, Juan, Prinsloo, Arends & Roger, 2015; Donohue & Bornman, 2014; Hay & Beyers, 2011; Van der Berg, 2007) refer to issues such as violence in schools, the high dropout rate, high teenage pregnancy rates, which results in decreasing high school graduation rates. South African schools are generally performing at an even lower level than most other African countries, despite greater resources in South Africa, less acute poverty, and more educated parents.

An equally dismal picture is portrayed in the Human Rights Watch Report (HRWR) (2015) with regard to the education of children with disabilities in South Africa. The report found that progress on paper for children with disabilities – referring to the Report on the Implementation of Education White Paper 6 on Inclusive education: 2013–2015 (DoBE, 2015) – has not translated into equal opportunities or protection on the ground, because government has left over half a million children with disabilities out of school and hundreds of thousands of children with disabilities, who are presently in schools, behind. Key findings in the report (HRWR, 2015: 2–3) can be summarised as follows:

- Discrimination accessing education – Children with disabilities continue to face discrimination when accessing all types of public schools;
- Discrimination due to a lack of reasonable accommodation in schools – Many children face discriminatory physical and attitudinal barriers that they need to overcome in order to receive an education;
- Discriminatory fees and expenses – Children with disabilities who attend special schools pay school fees that children without disabilities do not pay and many who attend mainstream schools are asked to pay for their own class assistant as a condition of staying in mainstream classes. Additionally, parents often pay burdensome transport and boarding fees if special schools are far from families or communities, and in some cases, they must pay for special food and diapers;
- Violence, abuse, and neglect in schools – As indicated above, children are exposed to violence and abuse in many South African schools, but children with disabilities are more vulnerable to such unlawful and abusive practices;

- Lack of quality education – In many public schools, children with disabilities receive low quality education in poor learning environments. They continue to be significantly affected by a lack of teacher training and awareness about inclusive education methodologies and the diversity of disabilities, a dearth of understanding and practical training about children's needs according to their disability, and an absence of incentives for teachers to instruct children with disabilities; and
- Lack of preparation for life after basic education – The consequences of a lack of quality learning opportunities is practically visible when adolescents and young adults with disabilities leave school.

While a small number of children with disabilities successfully pass secondary school, or matric, many adolescents and young adults with disabilities stay at home after finishing compulsory education. As a result, many lack basic life skills. Their progress into skills-based work, employment, or further education is affected by the type and quality of education available in the special schools that they attended (HRWR, 2015:2–3).

In light of these observations and the views considered earlier, I make the deduction that children who experience barriers to learning, but more specifically children with disabilities, are at risk of receiving a substandard education due to their teachers' lack of knowledge. This view is reinforced by Rouse's (2012:xvii) remark that "[e]ven in so-called 'well-schooled' countries, not all children are in schools and even when they are, not all have positive experiences, nor do they have much to show for their time in school". This is evident in the South African schooling system, as it is reported that 92.5% of children with disabilities in the age group 7–15 attend schools, but only 70.3% of children in the age group 16–18 attend schools (DoBE, 2015). This results in the low percentage of young adults with disabilities who enter further and higher education or employment.

As indicated in section 4.2, inclusive education requires that children are not only present in schools but that they all have opportunities to participate in meaningful learning and to demonstrate mastery of the educational outcomes. In this regard, Forlin's (2012) view is of importance in that teachers will more likely endeavour to

become effective inclusive practitioners if they are supported by means of appropriate initial teacher education (ITE) and opportunities for continuous professional development (CPD). Therefore, all pre-service teacher students and teachers in service must be trained in inclusive practice and mentorships, and support must be provided at school level to deal with specific disabilities (ACPF, 2011:iii). It is evident that professional development is an important aspect in implementing inclusive education reform (Waitoller et al., 2013). The significance of continuing development of teachers, the promotion of professional standards of teachers by ensuring they have good knowledge of the subject they teach is also a priority in Chapter 9 of the National Development Plan 2030 (RSA, 2011).

The lack of knowledge can be a result of shortcomings in initial teacher education. Forlin (2012:179) observes that “new graduates continue to suggest that they are inadequately prepared for real-world schools and classrooms”. Similarly, Rouse (2012) observes that teachers’ initial training to work in regular schools does not prepare them adequately to teach all the children they will meet in their classrooms.

In this regard, Engelbrecht (2013) noted, based on the Profile of Inclusive Teachers (European Agency for Development in Special Needs Education, 2012:7), that in order to value learner diversity as a resource and an asset to education, the following areas of competence should be covered in all teacher education programmes when focusing on inclusion:

- **Supporting all learners:** Areas of competence include promoting the academic, practical, social, and emotional learning of all learners and effective teaching in heterogeneous classes;
- **Working with others:** Collaboration and teamwork as essential approaches for all teachers with areas of competence working with parents, families, and a wide range of other educational professionals;
- **Personal professional development:** Teaching as a lifelong learning activity with reference to competences like, for example, teachers as reflective practitioners and initial teacher education as a foundation for ongoing professional learning and development (Engelbrecht, 2013:115–116).

Donohue and Bornman (2015:56) have found that pre-service and additional teacher training must incorporate hands-on experience with children with disabilities. Furthermore, training and education should also be an ongoing process for teachers throughout their careers, as continuing education can keep teachers up to date about the current trends and evidence-based practices that are occurring within their field.

However, it is reported that in the South African context, teachers' need for knowledge is not met by means of the current continuous professional development initiatives. The dominant discourse for these initiatives is a selective training approach based on a "cascade" model adopted by the Department of Basic Education as its preferred continuous professional development model (Dichaba, 2013). Evidence for the shortcomings of current continuous professional development initiatives based on the dominant training discourse is not new, as it has been reported by various researchers, such as Schoeman (2012), Eloff and Kgwete (2007), Lessing and De Witt (2007), Engelbrecht (2006), and Shalem (2003). These researchers note that only some teachers and principals have been subjected to sessions and in-service training with regard to inclusive education. The rationale behind providing orientation to train only some teachers and principals was that they were expected to disseminate (or "cascade") their new knowledge to their colleagues. This did not materialise because the aforementioned groups experienced great difficulties in conveying and disseminating knowledge attained during the training due to attitudes of resistance or other constraints within their schools (Engelbrecht, 2006).

Another reason for the shortcoming of the current continuous professional development approach is revealed through teachers' experiences of in-service training. Reddy et al. (2015:30) make the observation that although the quantity of professional development courses cannot be questioned, the quality of these courses needs to be seriously interrogated and the scheduling of these courses also needs to be called into question. Teachers perceive in-service training as inadequate because they do not acquire sufficient knowledge and skills to address the diversity in their classrooms (Walton, Nel, Muller & Lebeloane, 2014; Eloff & Kgwete, 2007; Lessing & De Witt, 2007). The result is that their knowledge and skills gap broadens when

encountering children with difficulties in learning or more specifically children with disabilities who present unfamiliar needs profiles.

To meet this continuous knowledge challenge, teachers are expected to become lifelong learners. To ensure this, Jita and Mokhele (2014) suggest that the challenge in South Africa is to find continuous professional development formats and practices that have the potential to change teachers' knowledge and classroom practices that will improve children's learning. Avalos (cited in Waitoller and Kozleski, 2013:36) noted that professional development efforts (not only those with an inclusive education focus) have moved away from traditional in-service training towards collaborative action research projects.

To contribute to the discussion on effective continuous professional development formats and practices, a comprehensive literature study was conducted with a specific focus on knowledge management (see Chapter 3) and inclusive education (see Chapter 4). With regard to knowledge management, it was found that in the world of business knowledge management strategies such as collaboration, knowledge networks, communities of practice, and learning organisations form the foundation of continuous knowledge development of employees. A similar trend was observed in the literature study on inclusive education, as various researchers (e.g. Engelbrecht, Nel & Tlale, 2015; Makhalemele & Nel, 2015; Walton, et al., 2014; Walton, 2014; Engelbrecht, 2013; Waitoller & Artiles, 2013; Waitoller & Kozleski, 2013; Nel, Engelbrecht, Nel & Tlale, 2013; Henning, 2013; European Agency for Development in Special Needs Education, 2012; Walton & Nel, 2012; Walton, 2010; Trent, Artiles & Englert, 1998) all emphasised in some way or another the value of similar aspects, as indicated above in knowledge management, e.g. collaboration, communities of practice, networks, the learning organisation, and personal professional development in the improvement of teachers' knowledge.

Although the same strategies as in knowledge management as indicated above are advocated, there is a vast difference in approach of valuing these strategies. In the world of business, it is embedded in the business strategies and supported by management at all levels. In inclusive education, the importance of these strategies is recognised by academics and researchers but not by education management to the same degree as in the business world. Evidence for this statement can be found

in the current study and a study done by Kruger and Johnson (2010). In the current study, it is found that the use of knowledge management in inclusive education is rated at 45.3% (see Table 5.6) and in the study of Kruger and Johnson (2010) the use of knowledge management in general education is rated at 42.45%.

I argue that the current continuous professional development learning options available to teachers (see section 6.3) should be broadened to incorporate these strategies. I propose that this can be achieved in a teacher-driven, management-supported, time-effective, and cost-effective approach such as the personal continuous knowledge development (PCKD) model, discussed in Chapter 5. The foundation of this approach is embedded in teachers sourcing the knowledge where and when required from reputable evidence-based best practices that are endorsed by professionals and peers in the relevant field. Teachers, individually and as part of groups, will then access knowledge in a self-directed manner where and when they need it by networking with and learning from experts.

The proposed PCKD model is based on the concept of personal agency. This concept should be encouraged by management at the levels mentioned earlier, as IE is a shared responsibility (HRWR, 2015; Waitoller & Kozleski, 2013; Engelbrecht, Forlin, Elof & Swart, 2000). The model therefore requires all role players at the different levels (see section 4.5) to be involved in this process, whether it is directly or in supportive roles, by means of collaborative relationships (Waitoller & Artiles, 2013; Berry, 2011; Kugelmass, 2001; Engelbrecht et al., 2000). The idea of collaborative relationships correlates with Barth's (1990) view of "[i]mproving schools from within". He advocates the importance of the relationships among the adults within the school and a consideration of how their abundant trapped energy, inventiveness, and idealism might be encouraged to surface. This argument is supported by the view that the joining of forces with others in obtaining knowledge and sharing knowledge are valuable tools for change and improvement (Boyle, Topping, Jindal-Snape & Norwich, 2012; Lessing & De Witt, 2007; Kaagan, 2004).

A demand is accordingly placed on schools to move away from the structures of the past that are based on hierarchies, discrete groups and teams, and the inhibiting of collaboration and communication (Davidoff & Lazarus, 2009). Instead, they should move towards adopting a more fluid and emergent organisational form. The value of

adopting a more fluid and emergent organisational form is supported by literature on high performance teams. It is indicated that the degree to which individuals can communicate and collaborate better within a team, across teams, and across entire organisations and inter-organisations has a direct link to the rate at which new knowledge, insights, and ideas will be created, transferred, shared, absorbed, and leveraged, thus building knowledge networks in the process.

In order to conceptualise this knowledge network approach to inclusive education, it is necessary to understand school life, its complexities, and the interaction of its role players. This knowledge network approach can be illustrated best by means of school systems theory as defined by Davidoff and Lazarus' (2009) model (see Figure 1.5), Urie Bronfenbrenner's bio-ecological perspective, and Joyce Epstein's model of overlapping spheres of influence, namely family, school, and community, on children's learning (Swart & Phasha, 2016). These theories give substantial evidence of interrelationships and interdependence in the reality of the school system. Having this knowledge gives impetus to the establishment of a knowledge management approach in inclusive education – the intention with the personal continuous knowledge development (PCKD) model developed in this study. A knowledge management approach has the potential to promote the creation, retrieval, sharing and use of knowledge by teachers, which I argue could lead to optimising the education of children with disabilities in the inclusive education system.

A collaborative approach would ensure that the teacher's knowledge development becomes a continuous process as advocated by Lessing and De Witt (2007). This process should be self-driven and should occur at a pace that meets teachers' needs. This will support teachers in creating, retrieving, sharing, and applying knowledge where and when it is required. Therefore, the context for the development of the PCKD model will include knowledge management and inclusive education.

1.2 RESEARCH PROBLEM STATEMENT

In this study, the research problem statement hinges on five interrelated aspects of inclusive education. These aspects are the role of teachers, teachers' knowledge, teacher learning, diversity in the classroom, and children's learning. From the literature and observations, it is clear that these aspects complicate and resist the

ideals of inclusive education with teachers' perceived lack of knowledge as the main concern, as can be seen in the following descriptions:

- **The role of teachers:** Many researchers, as indicated in section 1.1, identified teachers as the most important role players in the implementation of inclusive education.
- **Teachers' knowledge:** According to Nel (2011:169), research has revealed that in South Africa, as in many other countries, teachers are ill equipped with the knowledge, skills and attitudes required to meet diverse learning needs in heterogeneous classrooms. It is therefore not strange that teachers are hesitant to teach children with disabilities in their regular classes. They cite reasons such as a perceived lack of knowledge, experience and training, and an insufficient theoretical orientation to inclusive education, and a lack of sufficient support, historical constraints and situational constraints (Naicker, 2006; Madalane, 2005; Hay, Smit & Paulsen, 2001; Engelbrecht, Swart, Elof & Forlin, 2000; Kochhar, West & Taymans, 2000). Consequently, teachers do not see themselves as informed practitioners in the field of inclusive education.

To change these perceptions, teachers should take cognisance of the observation of Nel and Nel (2012) that learning is a complex phenomenon in that there are different ways of learning and many factors influence learning. According to them (Nel & Nel, 2012), it is imperative for all teachers to have an in-depth knowledge of the different ways that children learn. Having knowledge of these different ways in which children learn will inform teachers how to differentiate their teaching to meet the learning needs of all the children in their class, including those children experiencing barriers to learning, e.g. children with disabilities.

Teachers need to understand the complexity of differentiation. According to Walton (2012:118), differentiation is a broad term that is used to encompass a variety of instructional and assessment strategies that ensure that the curriculum can be accessed by all children. Furthermore, it assumes that children come to class with different levels of readiness, interest and learning profiles, and that to maximise learning, teachers need to modify the curriculum, their teaching methods, teaching and learning resources and activities, and assessment to be individually relevant.

The knowledge that teachers need to differentiate their teaching is that they must be aware that instruction for some children will need to be more intense and explicit and teaching time needs to be increased or decreased according to the need of the particular child. Furthermore, lesson formats, for example, individual or group; presentation methods, for example, multisensory and multimedia; offering alternate tasks and assignments; and additional supervision, feedback, correction and promotion are some of the strategies to teach children with special needs (Nel et al., 2012:40).

In addition, according to Nel (2011), teachers should be knowledgeable about the effect of English as Language of Learning and Teaching (LoLT) where English is the children's second or even third language. Furthermore, in order to offer learning support to children who experience language difficulties, teachers need to understand what language is comprised of (e.g. oral language, reading and written language, and handwriting) and how the child's language develops. Teachers should therefore have knowledge about how to address and support children experiencing difficulties in all of the aforementioned areas (Nel et al., 2012:113).

Other areas that teachers should have knowledge in are highlighted in section 1.1. These areas include knowledge of the Policy on Screening, Identification, Assessment and Support (SIAS) (DBE, 2014).

- **Teacher learning:** Forlin (2012) observes the importance of teacher learning by noting that teachers will more likely endeavour to become effective inclusive practitioners if they are supported by means of appropriate pre-service preparation, e.g. initial teacher education, and opportunities for ongoing professional learning, e.g. continuous professional development (see section 4.7). These two approaches are recognised as standard practices worldwide with regard to teacher learning in the field of inclusive education. As indicated earlier, despite these efforts, there is a persistent outcry from teachers that they lack knowledge and skills. Research findings by Forlin (2012), Rouse (2012), Elof and Kgwete (2007), Lessing and De Witt (2007), Engelbrecht (2006), and Shalem (2003) show that initial teacher education and continuous professional development do not prepare teachers adequately and effectively to teach in diverse classrooms.

- **Diversity in the classroom:** As indicated later in section 4.3, with reference to the World Conference on Special Needs Education held in Salamanca, Spain, 1994, the Framework of Action, Article 3, states the following:

Schools should accommodate all children [...] [T]his should include disabled and gifted children, street and working children, children from remote or nomadic populations, children from linguistic, ethnic or cultural minorities and children from other disadvantaged or marginalised areas or groups [...] The challenge confronting the inclusive school is that of developing a child-centered pedagogy capable of educating all children.

- **Child learning:** As indicated in section 1.1, a lack of education is a key concern for most youth with disabilities. This perspective is supported by Rouse's (2012: xvii) view (see section 1.1) that not all children have positive experiences, nor do they have much to show for their time in school. As indicated in section 4.2, IE requires that children are not only present in schools, but that they should all have opportunities to participate in meaningful learning and to demonstrate mastery of the educational outcomes. Inclusive education is therefore concerned with increasing access, acceptance, participation, and achievement/success of all children (Waitoller & Kozleski, 2013; Waitoller & Artiles, 2013; Artiles & Kozleski, 2007; Slee, 2001).

The core purpose of schools and schooling, namely the preparation of children for life (Davidoff & Lazarus, 2009), is jeopardised in terms of the general unsatisfactory state of affairs described above and more specifically the lack of teacher knowledge. The aim of preparing children to cope, to engage with life, and to contribute towards a quality of life, which all fellow citizens can enjoy, is therefore not met. In such circumstances, children with disabilities, given their impairments, are even further disadvantaged (see Figure 1.2).



Figure 1.1 Lack of knowledge influences the quality of education

From the above, I make the deduction that there is a need for a process or approach to supplement the training and development of teachers in the field of inclusive education (e.g. the proposed personal continuous knowledge development [PCKD] model). A priority for this study was that the proposed model should be able to withstand the critical scrutiny of subject experts in the field of inclusive education (see section 5.4) and also gain their support for its implementation in a real-world inclusive education context.

In order to develop such an effective model, I had to determine what form it should take. This is done by finding answers to guiding/research questions. In the following section, the development of these questions is discussed.

1.3 RESEARCH QUESTION AND OBJECTIVES

In ensuring comprehensive data collection and analysis in order to find answers to the research questions, I employed a mixed-method research (MMR) approach (see section 1.5). With this in mind, I viewed the development of the research questions as part of a process by using the first five steps of mixed-method research activities

as conceptualised by Collins, Onwuegbuzie and Sutton (2006). These steps are as follows:

- 1) Determining the aim of the study;
- 2) Formulation of the research objective(s);
- 3) Determining the research/mixing rationale;
- 4) Determining the research/mixing purpose; and
- 5) Determining the research question.

This process accordingly underpinned the study's aim, as indicated in section 1.1, namely to develop a model, based on knowledge management principles, for continuous support of teachers in an inclusive education system that will ensure that they have immediate access to the available knowledge where and when they need it in their endeavours of teaching children with disabilities. To achieve this aim, the objectives of this study were based on three activities, namely description, understanding and prediction. With the first objective, i.e. description, I wanted to determine the current use of knowledge management in an inclusive education system and the perception regarding its effectiveness. The second objective, i.e. understanding, was used to determine how the level of knowledge and skills that teachers need to teach children with disabilities could be improved. The third objective, i.e. prediction, was used to formulate a model of how teachers could be supported best to have continuous access to knowledge where and when they need it.

These objectives gave rise to the rationale for conducting a mixed-method research study, namely that of significant enhancement. Significant enhancement represents mixing quantitative and qualitative techniques for enhancing the researcher's interpretation of data. Based on this rationale, the research/mixing purpose was established and the breadth and range of inquiry was expanded by using multiple methods for different inquiry components (i.e. expansion) and to legitimate results as grouped under the rationale of significant enhancement.

With this clear understanding of the study's aim, objectives, rationale and purpose, I was in a better position to determine what the research questions should be. In this

study, the importance of both the qualitative and quantitative phases and their combined strengths (Creswell, 2009) is acknowledged by using an approach in which separate quantitative and qualitative questions followed by a mixed-methods question was used. These questions were developed to give information about the objectives of this study.

The quantitative question necessary in addressing the first objective (description) is: "What is the level of knowledge management usage in the inclusive education system, as evaluated by subject experts in the field of inclusive education?" The qualitative question necessary in addressing the second objective (understanding) is: "What is the view of subject experts, in the field of inclusive education, with regard to the personal continuous knowledge development (PCKD) model for continuous knowledge development of teachers?" The mixed-methods question necessary in addressing the third objective (prediction) is: "How do the strategies identified in the literature on knowledge management and inclusive education aid the development of a model for continuous knowledge development of teachers?" The development of these three research questions should also be considered against the background of the aspects discussed in section 1.6. The eclectic theoretical perspective I employed should also be considered. In the following section, this theoretical perspective will be discussed.

1.4 THEORETICAL PERSPECTIVE

The term theoretical perspective (Creswell, 2009) is preferred as opposed to the traditional use of the term theoretical framework, as it embodies my diverse use of theory in this study. Donald, Lazarus and Moolla (2014) describe theory as a system of ideas that orders and makes connections between currently known observations and new information.

In mixed-methods research, the underlying theory is viewed as being a lens or perspective that guides the study (Creswell, 2009). In this way, a theoretical lens can be described as that which screens or filters, clouds, or magnifies particular researchers' views as they think through theoretical frameworks that relate to the purpose of their study (Newman, Ridenoar, Newman & De Marco, 2003). In the current study, this connection was made between my observations as a practising

educationist for the past 38 years and information gathered through an intensive literature study. The area that directed the literature search were finding strategies that could enhance teachers' knowledge in inclusive education to optimise the education of all children , but in this study the focus was on children with disabilities.

Teachers are actively involved in both teacher learning and teaching practice and their performance in these is both social and individual in nature, as indicated in Figure 1.2.

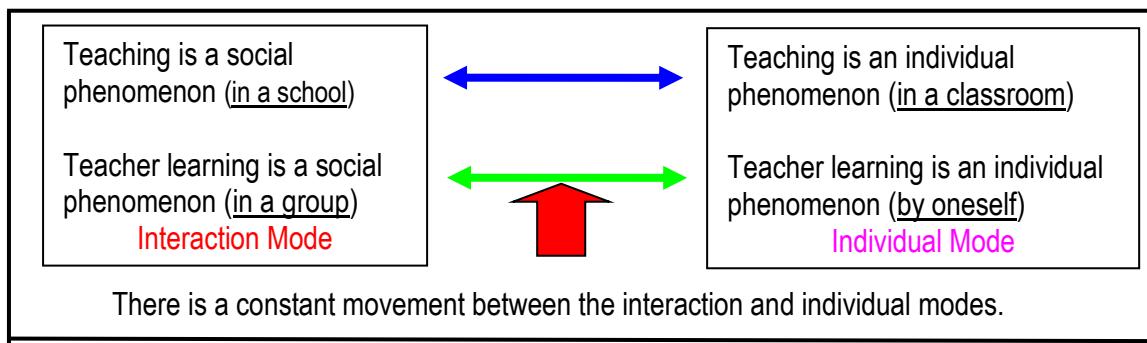


Figure 1.2 Social and individual modes of teaching and teacher learning

The social component was informed by biodiversity theory and the individual mode by personal agency and constructivism. Furthermore, the deeper purpose (see section 1.3) of the study was informed by the transformative-emancipatory perspective proposed by Mertens (2003). Finally, the aim (see section 1.3) of the study was informed by knowledge management and the context was informed by inclusive education.

My view of these actions of teachers is founded on different theoretical perspectives. The theoretical lenses that will guide this study are therefore eclectic in nature as illustrated in Figure 1.3.

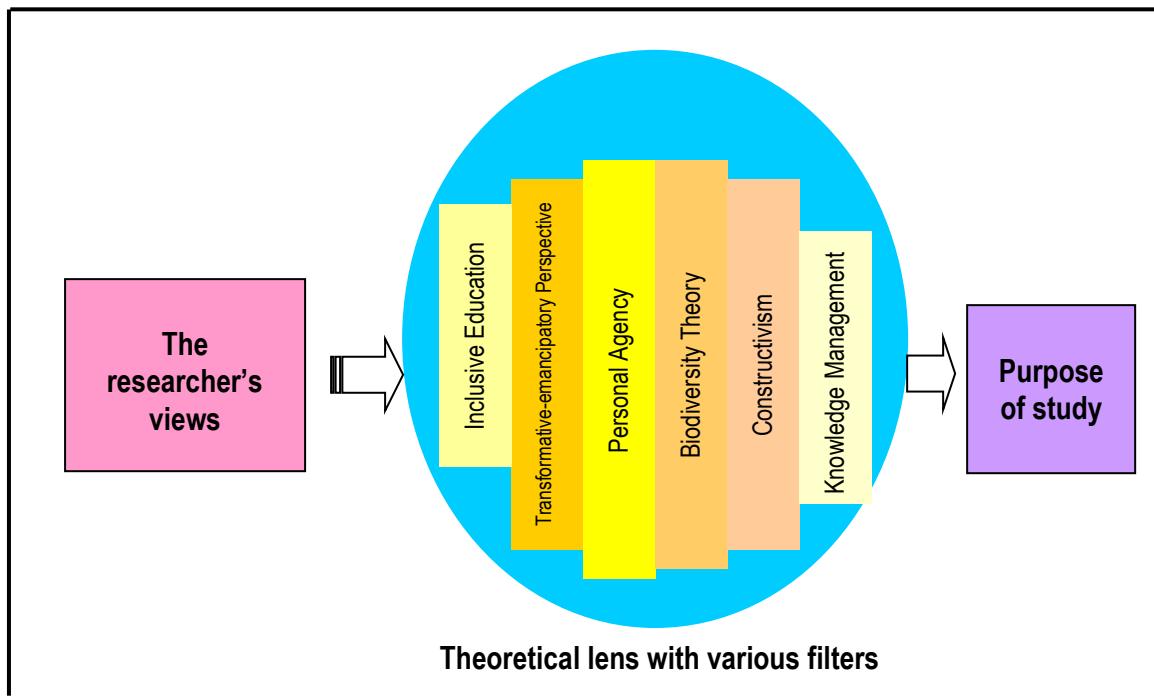


Figure 1.3 Influences on the researcher's views in determining the purpose of the study

These different perspectives served as individual filters – each with their own overarching rules for finding explanations of events (Bernard, 2000). The reason that these perspectives influenced my view of supporting teacher learning lies in the following core attributes of inclusive education (see Chapter 4):

- Firstly, inclusive education is a given in the South African education system and it is a process that will be implemented over time.
- Secondly, if a teacher resists inclusive education, the education of children with disabilities will not be of a high standard or even take place.
- Thirdly, teachers play the most important role in the execution of inclusive education.
- Fourthly, research findings indicate that teachers lack knowledge and that the current in-service training methods and initial teacher education do not prepare them adequately.

I view these as factors that put children with disabilities at risk of receiving a substandard education. A supplementary approach is necessary to meet teachers' urgent need for knowledge and skills.

Closely related to the above inclusive education attributes, the transformative-emancipatory perspective (Mertens, 2003) influenced the researcher, as it aims at improving the circumstances of marginalised individuals, e.g. people with disabilities. Children with disabilities are still marginalised individuals based on the slow progress that are made to provide them with quality education (see section 1.1). Research has revealed that teachers perceive themselves as having insufficient knowledge about how best to teach children with disabilities and are therefore reliant on knowledgeable others to assist them. Bandura (1997) refers to this reliance of teachers on knowledgeable others as “proxy agency”. This study suggests that there must be a move away from “proxy agency”, i.e. agency by proxy or indirect agency by means of someone else, to one of personal agency.

The personal agency perspective convinced me that if teachers could develop their own agency, they would find ways to take ownership of meeting their own knowledge needs in the teaching of children with disabilities. They would then become agents of their own knowledge-seeking behaviour and, as such, they would build their self as an independent knowledge-seeking entity no longer only reliant on the external periodic professional development sessions in the field of inclusive education offered by outside agencies. Jeannerod (2003) describes this “sense of agency” as the subjective awareness that one is initiating, executing and controlling one’s own volitional actions in the world.

If personal agency will play an important role in individual teachers’ acquisition of knowledge, they should feel that they are originators of their own learning actions and that they have the power to make and act upon decisions to bring about change (Bandura, 1989). This intentional making of choices to effect change is referred to as “personal causation” (deCharms, 1984). However, the opposite is also true. If a person has not caused the change, i.e. if the change is caused by another agent or object, interference with personal causation has taken place. The person accordingly feels like a pawn and this results in the individual becoming passive (Marcel, 2003; deCharms, 1984). The current top-down professional development sessions with topics that authorities think teachers should know in order to teach children with disabilities are offered periodically to teachers and are causing teachers to become passive in their own search for applicable knowledge where and when they need it.

In this sense, personal causation forms an essential part of the researcher's view of personal agency.

Although personal agency is an individual matter, the consequences of enacted agency affect others (Hart, 2010). As such, personal agency involves the responsibility to act with a conscious awareness of others (Walters & Gerson, 2007). It could be argued that if teachers do not engage in a self-driven search for knowledge of how best to teach children with disabilities, they could run the risk of not fulfilling their responsibility towards these children. In this search, it is suggested that teachers should purposefully engage with other teachers, knowledgeable others and their disabled children, e.g. by means of a thorough assessment of the child's support needs. The latter will assist teachers in understanding what knowledge they should be searching for. Without this focused information teachers may gain knowledge but not knowledge of the right kind. The result could lead to frustration that will further perpetuate their already existing negative view of their own knowledge of educating children with disabilities.

By purposefully engaging with other teachers, knowledgeable others and the disabled children in their classes, they potentially strengthen their interpersonal relationships. The biodiversity framework forms the theoretical foundation for the occurrence of interrelationships in the four real-life contexts in inclusive education. It also demonstrates its effect on the teacher's ability to acquire knowledge. This framework can best be understood against the backdrop of the theoretical conceptual frameworks as indicated in section 1.1. Davidoff and Lazarus' model (2009) echoes the views of Urie Bronfenbrenner's bioecological perspective and Joyce Epstein's model of overlapping spheres of influence, namely family, school and community, as it foregrounds the core purpose of schools and schooling as the preparation of children for life: preparation to cope and engage with life and contribute towards a quality of life which all fellow citizens can benefit from (Davidoff & Lazarus, 2009:7). The core purpose of the education of children with disabilities should be no different.

To achieve the aforementioned preparation, Davidoff and Lazarus (2009) created their model (see Figure 1.4) to understand the key elements of a school's functioning. This occurs in such a way that it helps to make sense of the organisational dynamics from an educational context. Their point of departure is that a school should be

developed in terms of a sociological understanding of that school and, more specifically, in terms of the relevant education system. This system is located in the broader South African society, which is dynamically located within the context of global trends and dynamics. Davidoff and Lazarus (2009) believe that we cannot adequately understand the problems that arise or the solutions that should be pursued, e.g. in this study the improvement of teachers' knowledge in the field of inclusive education, without this broader insight.

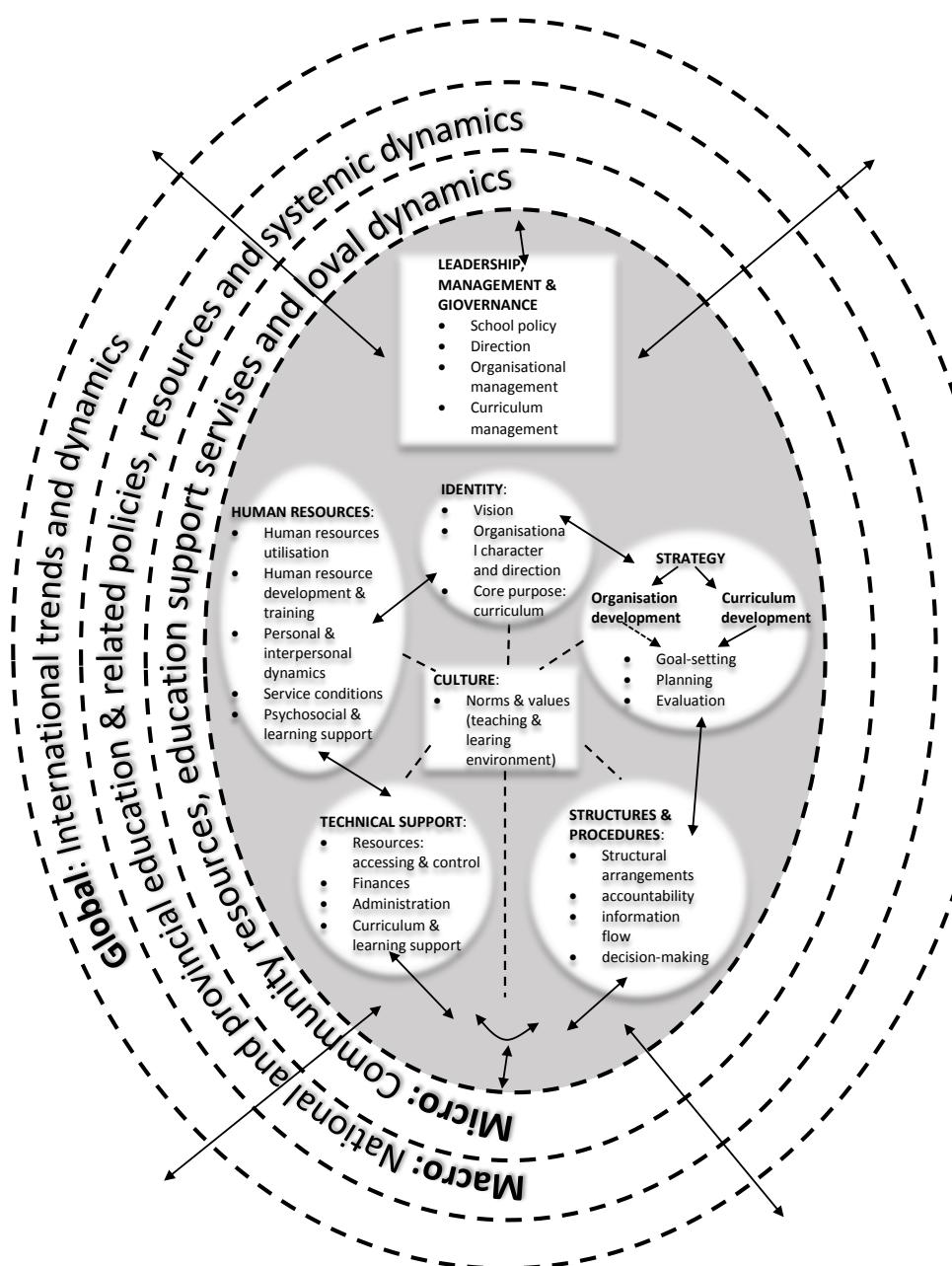


Figure 1.4 Elements of a school as an organisation (Adopted from Davidoff & Lazarus, 2009:18)

We therefore cannot pursue the implementation of inclusive education if we do not take these dynamics related to the various role players into account. It is important to remember that one cannot separate any element (e.g. teacher) from another (e.g. school, education district, provincial education department and national education department) as they are intricately interwoven. It is therefore difficult to talk about any one element without referring to the others. Therefore, their interdependent nature should be kept in mind at all times when we investigate the provision of knowledge and support to teachers in the context of educating children with disabilities.

As indicated earlier, personal agency forms the foundation of my views of how teachers could acquire knowledge in that the individual teachers should take ownership for their own learning and development of knowledge in the field of inclusive education. This can be achieved by adopting a constructivist approach to teachers' and children's own learning. According to the constructivist theory, knowledge, and therefore learning, is not just passively passed on from one person to the next, but is actively and continuously constructed over by each individual through their experiences and reflections (Donald, Lazarus & Lolwana, 2010:80). The key feature of constructivism is that learners are active agents in their own learning. Constructivism moved away from the view that human development is something that people experience passively. Scholars (Donald et al., 2004) accordingly advocate a more progressive position where people are active agents of their own development. Developmental psychologists, such as Piaget (1953) and Bruner, Olver and Goldfield (1996), emphasised this progressive approach to human development by suggesting that knowledge is not merely absorbed by people. They advocate that knowledge is built (constructed) actively and increasingly developed to higher levels. This takes place by means of people's engagement with experiences, activities and discussions that challenge them to make sense of their social and physical environment. In this way, learners are also actively involved in the building of more complex understanding of their world. Furthermore, theorists like Vygotsky (1978) and Bakhtin (1981) are of the opinion that knowledge is a social construction that is developed and learned by means of social interaction.

Trent, Artiles and Englert (1998) believe that instruction emanating from social constructivist theory can inform instructional practices and can contribute to improved

learning outcomes for children with disabilities. According to them (Trent, Artiles and Englert, 1998), if the conceptual framework involving four principles that is provided by the work of Vygotsky (1978) can be made applicable to the redesign of educational contexts, children will be initiated into the cognitive practices of the broader society and community. These principles are as follows: (a) apprenticeship in applied settings, (b) access to empowering modes of discourse, (c) guided instruction that leads to self-regulated learning, and (d) learning in cultural historical context. For a more detailed description of this process see the full text in Trent, Artiles and Englert (1998:285–288). In this study, I apply these principles to the continuous knowledge development of teachers by making use of strategies such as collaboration, communities of practice and networks that are key features of organisations that fully embrace knowledge management (see Chapter 3).

The final perspective from these diverse theories that guided this study is that of knowledge management. The quality of knowledge management that mostly informed this thesis is that if the available knowledge in an organisation is utilised through the processes of knowledge management strategies, as indicated above in section 1.1, the value of knowledge management comes to the fore in that it makes an organisation better suited to compete successfully in a more demanding environment (Bacerra-Fernandez, Gonzalez & Sabherwal, 2004). The education environment has become a very demanding profession with the implementation of inclusive education and teachers consequently need all the support they can get to optimise the education of children with disabilities.

With the characteristics of the above six perspectives in mind, the researcher argued that the use of a dynamic approach should guide the study. The reason for this is that the combination of these characteristics best supports the researcher's philosophical worldview of how teachers' need for knowledge and skills development can best be met. This view also formed an underlying principle for the development of the research paradigm, design and methodology in the execution of this study. These aspects will be discussed in the following section.

1.5 RESEARCH PARADIGM, DESIGN AND METHODOLOGY

As indicated in the above sections, this study is about finding a solution to a real problem, i.e. teachers lacking knowledge, in the field of inclusive education. My underlying philosophical worldview¹ is therefore pragmatic in nature. Subsequently, a requirement of pragmatism is that of comprehensive data collection and analysis. To meet the demand of ample collection and analysis, the research design in this study is a sequential mixed-method design. In terms of this design, quantitative and qualitative data are collected at different times in order to provide a broad analysis of the research problem and to integrate the information in the interpretation of the overall result (Creswell, 2003:16).

The methodology I employed to inform the research design is that of a four-phased sequential mixed-methods strategy (see Figure 2.2). It allowed me to use two different methods e.g. quantitative and qualitative in an attempt to confirm, cross-validate and corroborate findings within a single study (Creswell, 2003). The reason for this is to offset the weaknesses inherent to one method with the strengths of the other method. In this strategy, the quantitative and qualitative data collection is sequential, i.e. occurring in phase during the study. The results of the phases were integrated during the interpretation phase.

The population that was studied comprises of educators and teachers at school, district and provincial level that I considered to be subject experts due to the positions they hold in education and the impact they have on the implementation of inclusive education – more particularly the impact they have on determining the format of in-service training of teachers. I therefore made use of a purposeful sampling strategy and the sampling design was single-staged because I had access to the names of all the relevant role players at the relevant levels that have a bearing on this research.

The data collection procedures during the quantitative and qualitative phases are illustrated in Figure 1.5 below.

¹ Philosophical worldview refers to “a basic set of beliefs that guide actions” (Cuba, 1990:17) According to Lincoln and Cuba (2000) (cited in Creswell, 2009:6) and Mertens (1998) (cited in Creswell, 2009:6), it is referred to as a “paradigm”. Crotty (1998) used the terms epistemologies and ontologies to refer to it, while Neuman (2000) referred to it as “broadly conceived research methodologies” (Creswell, 2009:6).

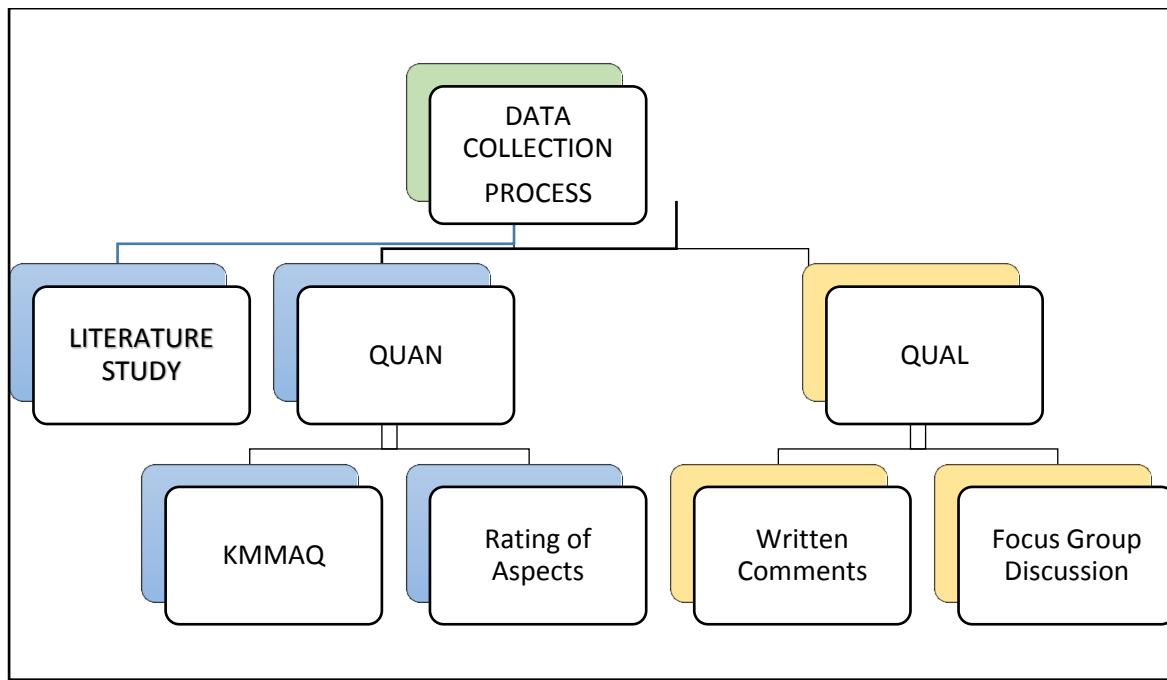


Figure 1.5 Data collection process

- **Data collection process**

As indicated in Figure 1.5 three processes were employed, namely literature study, a quantitative (QUAN) and a qualitative (QUAL) phase respectively. Both these phases will be discussed in more detail in Chapter 2. In summary, these processes can be described as follows:

- **Literature study:** During this phase an in-depth study was done of the literature in the field of knowledge management and inclusive education to collect narrative data on what strategies could be used to assist teachers in their search for knowledge to be informed practitioners in the field of inclusive education
- **Quantitative phase:** In this phase, data was collected for two purposes, namely (a) to determine the use of knowledge management in inclusive education and (b) to evaluate key aspects of the model and to determine the level of support for the proposed model. To determine the use of knowledge management in inclusive education a self-administered questionnaire, namely the Knowledge Management Maturity Assessment Questionnaire (KMMAQ) designed by Kruger and Snyman (2007), was employed. For the second

purpose, namely the evaluation of key aspects and level of support for the model, I developed a questionnaire which included a 7-point Likert scale.

- **Qualitative phase:** The purpose of collecting data in this phase was to determine the subject experts' views on key aspects of the model and obtained their comments on the model. In order to achieve this, two approaches were employed to collect data, namely written comments and a focus group discussion.

In the next section, the data analysis and interpretation during these three phases will be discussed.

- **Data analysis and interpretation**

Two processes were employed, namely a quantitative (QUAN) and a qualitative (QUAL) phase respectively. Both these phases will be discussed in more detail in Chapter 2. In summary, these processes can be described as follows:

- **Literature Study** – During this phase, a similar approach, as discussed below in the Qualitative phase, was employed.
- **Quantitative phase** – During the quantitative phase, the answers to the questions of the survey were scored by using the guidelines given by the developers (Kruger & Snyman, 2007). See appendix B-2.
- **Qualitative phase** – During the qualitative phase, the data analysis was based on the generic steps as indicated by Creswell (2003:191–195). These steps include:
 - Organise and prepare the data for analysis;
 - Obtain a general sense of the information and reflect on its overall meaning; and
 - Begin a detailed analysis with a coding process (Tesch, 1990:142–145):
 - This process will be used to generate categories or themes for analysis; and

- This step will give an indication of how the descriptions and themes will be represented and the final step in the data analysis will be the making of an interpretation or extracting meaning of the data.

1.6 ROLE AND LIMITATIONS OF THE RESEARCHER

My role in this study has been influenced by various aspects, such as my professional context, organisational context, policy context, national context, theoretical context, my comprehensive view of children with disabilities, my concerns about the knowledge drain and lack of knowledge experienced by teachers, my ontological and epistemological assumptions, and my limitations as a researcher. Each of these influences is considered below.

- **Professional context:** I have more than 38 years of teaching experience of which 35 years have been in the field of special education. These experiences include both that of classroom teaching and school management at different post levels and currently as principal. During this period, I have been part of the full range of development in South Africa in special education from the “medical model” to mainstreaming and finally inclusive education.

Experiencing this positive development shaped my view of the concept “children with disabilities”. This view is underpinned by two aspects. Firstly, my belief in the philosophy on which the inclusive education movement is based, e.g. social justice and human rights. Secondly, the acknowledgement of these children’s disability-specific need for support, whether it be medical, psychological, social, therapeutic or educational, as dictated by the level of their impairment.

Not only did I experience these developments, but I also noticed with concern the “knowledge drain” in special education. This is caused by the retirement of knowledgeable and experienced staff, the termination of specialised teacher training in specific disabilities, such as those that were offered by the University of South Africa for serving educators. I was therefore not surprised to take note (see section 1.1) of teachers’ need for knowledge in teaching children with disabilities.

With the above in mind, I evaluated the relevance of the study by employing the requirements set by Denscombe (2010).

- Firstly, the study contributes to the existing knowledge in the field of inclusive education, as it explores an approach to knowledge management that has proved to be highly recognised in the world of business but that has not received the same attention in education.
- Secondly, the study addresses practical problems in that it contributes to the need for knowledge expressed by teachers.
- Thirdly, the study addresses the matter of knowledge that is of current relevance to the teachers and other role players.
- Fourthly, it meets my personal agenda of optimising the education of children with disabilities by supporting their teachers and other role players in having timely access to knowledge.

The latter is influenced by my ontological assumptions. I believe that teachers and the other role players are active agents in their own development of knowledge. It is, however, restricted in two ways: firstly, in terms of their position in the schooling system and, secondly, in terms of their personal characteristics and level of training. Both emphasise the importance of context and the epistemological assumption that knowledge is not passively received, but actively constructed, based on the experiences of an individual (Swart & Bredekamp, 2009). Teachers are therefore constantly making meaning of their lives in their social context. In this study, their social context refers to their inclusive school environment, e.g. diverse classrooms. As they are confronted with new experiences and information, e.g. teaching children with disabilities and other barriers to learning, they are continuously comparing them to and reflecting on their own experience (Swart & Bredekamp, 2009). Teachers accordingly play an active role in “constructing and defining their own social realities” (Giles & Heyman, 2005:107).

As indicated above, I developed the research questions in response to my concern (based on research as discussed in section 4.4) about the effectiveness of the dominant discourse held by education management with regard to the in-service training of teachers in inclusive education. Lecture-type workshops are the preferred mode of transferring knowledge and skills in this top-down

approach. The challenging discourse I advocate that underlies this study is an inquiry-based stance to teachers' own role in acquiring knowledge. Embedded in this stance is a belief in the agency of the teacher and that the approach will speed up the knowledge and skills development process.

I therefore argue that prominence should be given to personal agency within the current teacher education and development strategies of the Department of Education (DoBE & DHET, 2011). To achieve this, it is proposed that management should encourage and reward teachers to become self-directed in their search for knowledge in the field of inclusive education.

- **Organisational context:** This study took place within the IE structures of the South African education system. The structures consulted in this study were a Directorate Inclusive Education in a Provincial Education Department; two Education Districts, i.e. a district-based support team and a full-service school; two special schools as resource centres; and a special school. Members of these structures are at the forefront of the IE process and as such I viewed them as subject experts in the support of teachers in this field.
- **Policy context:** Clough and Nutbrown (2012:14) argue that "all social research takes place in policy contexts of one form or another". This current study draws directly on the following government policies in South Africa, namely Education White Paper 6 on Special Needs Education: Building an Inclusive Education and Training System (DoE, 2001); Guidelines to Ensure Quality Education and Support in Special Schools and Special School Resource Centres (DoE, 2007); Policy on Screening, Identification, Assessment and Support (DoBE, 2014); Guidelines for Full-service/Inclusive Schools (DoBE, 2009); Guidelines for Inclusive Teaching and Learning (DoBE, 2010); Integrated Strategic Planning Framework for Teacher Education and Development in South Africa, 2011–2025 (DoBE & DHET, 2011); Minimum Requirements for Teacher Education Qualifications (MRTEQ) (DHET, 2011; 2015); and the National Development Plan (RSA, 2011).

Education White Paper 6 on Special Needs Education: Building an Inclusive Education and Training System referred to as White Paper 6 outlines what an IE

and training system is in terms of the South African context. It also spells out the ways in which the process should unfold. In this white paper, it is acknowledged that a broad range of learning needs exists among the learner population at any point in time, and that, where these are not met, learners may fail to learn effectively or be excluded from learning systems. In this regard, different learning needs arise from a range of factors, including physical, mental, sensory, neurological, and developmental impairments, psycho-social disturbances, and differences in intellectual ability, particular life experiences or socio-economic deprivation. Furthermore, “Different learning needs may also arise because of [...] inadequately and inappropriately trained education managers and educators” (DoE, 2001:17–18).

The white paper views classroom teachers as the primary source for achieving the goals of an inclusive education and training system, as “educators will need to improve their skills and knowledge, and develop new ones” (DoE, 2001:18). Not only does the white paper recognise the role of teachers, but it also recognises that of managers, as it states “that the success of our approach to addressing barriers to learning and the provisioning of the full range of diverse learning needs lies with our education managers and educator cadre” (DoE, 2001:29).

The white paper intends to raise the knowledge and skills of teachers and managers through its intention to revise the norms and standards for teacher education where appropriate to include the development of competencies to recognise and address barriers to learning and to accommodate the diverse range of learning needs (DE, 2001:49). This resulted in the publication in 2006 of The National Policy Framework for Teacher Education and Development in South Africa.

It is clear from The National Policy Framework for Teacher Education and Development in South Africa that “the overriding aim of the policy is to properly equip teachers to undertake their essential and demanding tasks to enable them to continually enhance their professional competence and performance...” (DoE, 2006:4). The principles underlying the policy are the following, as expressed in the Norms and Standards for Educators (2000), which require a teacher to be:

- A specialist in a particular learning area, subject or phase;
- A specialist in teaching and learning;
- A specialist in assessment;
- A curriculum developer;
- A leader, administrator and manager;
- A scholar and a lifelong learner; and
- A professional who plays a community, citizen, and pastoral role.

The relevance of these seven interrelated roles were acknowledged and retained in Annexure A of the Revised Policy on The Minimum Requirements For Teacher Education Qualifications (DHET, 2015). However the core role of teachers is learning and teaching.

The policy (DoE, 2006) also states that all teachers need to enhance their skills, not necessarily qualification, for the delivery of the new curriculum. A large majority needs to strengthen their subject knowledge base, pedagogical content knowledge, and teaching skills. A sizeable proportion needs to develop specialist skills in areas such as health and physical education, HIV and AIDS support, diversity management, classroom management, and discipline. Many need to renew their enthusiasm and commitment to their calling (DoE, 2006:17).

In paragraph 50 of the policy, the statement is made that “the guiding purpose will be to enable teachers to become less dependent on outside agencies and more able to become responsible for their own professional development” (DoE, 2006:18). The latter is the point that this study wishes to build upon by developing the intended model. The reason for this is that the content of paragraph 50 of the white paper is in stark contrast with paragraphs 77, 81 and 82, which all state that Continuing Professional Teacher Development (CPTD) will be conducted by accredited CPTD providers (outside agencies). The only responsibility teachers are given in this policy document is stated in paragraph 78: “Some CPTD activities will be compulsory and others self-selected” (DoE, 2006:25).

I argue that the understanding of the expectation “become responsible for their own professional development” should be broadened to incorporate the further development of knowledge and skills gained through the CPTD activities of which

some are “compulsory and others self-selected” by means of knowledge management strategies, e.g. collaboration, knowledge networks, communities of practice and learning organisations as outlined in sections 3.4 and 5.1.

- **National context:** The study takes place within the context of the South African Education system. As indicated in Chapter 4, South Africa developed its own understanding of inclusive education as a result of international influences and the unique historical and educational realities of this country (Walton & Nel, 2012). Historically, the areas of special needs education and educational support services provision have reflected the general inequalities of South African society, with inadequate or no provision being made in these areas for disadvantaged children (the majority of children). Specialised education and support have predominantly been provided to a small percentage of children with disabilities in special needs schools and classes. Race and exclusion were the unethical and immoral factors that determined the place of our innocent and vulnerable children (DoE, 2001).

As a result, in the South African context, the legislative and policy framework for IE is directed by the Constitution (Act 108 of 1996). The Constitution includes a Bill of Rights that entrenches the right of all South Africans, regardless of race, gender, sexual orientation, disability, religion, culture or language, to basic education and access to educational institutions (RSA, 1996). In Figure 1.1, the structures to uphold inclusive education in South Africa are summarised. This includes structures at national, provincial, district, and school level. These are as follows:

- At national level, the Department of Basic Education: Directorate Inclusive Education;
- At provincial level, the Provincial Education Department: Directorate Inclusive Education;
- At district level, the Education Districts: District-based Support Teams;
- At school level,
 - Ordinary public schools, public schools as full-service schools, and
 - Special schools: special schools and special schools as resource centre.

The South African model for inclusive education makes provision for all learners to be educated under the auspices of one single education system (DoE, 2001). In this unified schooling system, there are various schooling options for learners with special education needs according to the level of support they need to access the curriculum (DoE, 2001).

- **Theoretical context:** This is, according to Plowright, (2012:12) conventionally referred to as the conceptual framework. It is based on the search and review of relevant and appropriate literature that focus on the substantive topic of the research. Trafford and Leshem (2008:44) point out that other scholars' "ideas will have given you theoretical perspectives that can guide your thinking about exactly what it is that you will investigate."

The main areas in which literature was reviewed included the fields of Knowledge Management, Inclusive Education, Continuous Professional Teacher Development (CPTD), and all the policy documents referred to above under "Policy context".

All the contextual factors considered above have influenced me and consequently led to the role I played in this study, i.e. developing the research questions; choosing the unit of analysis; and identifying methods to collect, analyse and interpret data.

The role I played in conducting this study became its biggest limitation. This role was being a "human instrument" for gathering and analysing data as well as producing meaningful information. I was therefore "limited by being human and thus fallible as any other research instrument" (Merriam, 1998:20). To compensate for this limitation, I opted for a mixed-methods research methodology in which equal priority was given to the quantitative and qualitative components. However, the qualitative component forms the Achilles heel of the researcher, as the credibility of qualitative research hinges to a large extent on the skills, competence and rigour of the investigator (Patton, 2002).

In conducting the investigation, I had the responsibility of communicating to the participants the possible value that the findings of the investigation hold for them. The latter was needed as widespread negativity prevails in the teaching community towards inclusive education. My position as "insider", who is also subjectively

involved in the difficulties in the implementation of inclusive education, have put me in a fortunate position to support participants in understanding the value of such reality testing and gained their trust to participate in the process.

Patton (1997) refers to reality testing as evaluation acting as a mechanism for finding out if what is supposed to be going on within an organisation is in fact going on. Therefore, I could not assume that all the participants were in touch with the reality of inclusive education when I started conducting the study. This view is supported by the research of Naicker (2006) in that insufficient attention has been given to the theoretical orientation of role players to inclusive education. According to Dreyer (2008: 17), it is also true that participants in programmes and organisations can "lose touch with reality". The consequence is that the role players within the inclusive education system may be "operating on myths and behaving in ways that are dysfunctional to goal attainment and ineffective for accomplishing desired outcomes" (Patton, 1997:28).

Against this background and in light of research findings regarding teachers' attitudes towards inclusive education, I was aware that there could be participants who would experience the evaluation of the support they received as a threat. This is especially true, as they have possibly become comfortable in their own world of untested assumptions and unexamined beliefs. They may have become complacent about their service delivery and quite content with the way things are (Dreyer, 2008:17).

I was aware of the possibility that my position as instrument in the process could pose a threat to the validity of the project. To minimise this possibility, I made a concerted effort to eliminate what Poggenpoel and Myburgh (2003) refer to as "the researcher as possible threat to the research process". They suggest that the possible reason for this can include (a) the researchers' mental and other discomfort, which could pose a threat to the truth value of data obtained and information obtained from data analyses; (b) the researcher not being sufficiently prepared to conduct the field research; and (c) the researcher conducting inappropriate interviews.

Against the background of the overview of the study that has been discussed above, the sections above will be elaborated on as indicated in the overview of the Chapters that constitute this study.

1.7 CHAPTER DIVISION

Chapter 1: Contextualisation and orientation of the study

In this chapter, an overview is given of the study by providing the following:

- an introduction to the study;
- the research problem statement;
- research question and objectives;
- theoretical perspective;
- research paradigm, design and methodology;
- ethical considerations; and
- the role and limitations of the researcher.

Chapter 2: Research design and methodology

In this chapter the research design and methodology used to conduct this study is discussed under the following sections:

- an introduction;
- description of subject experts, sampling strategy and data source management;
- methods used e.g. quantitative and qualitative;
- data;
- justification for the research e.g. baking conditions and qualifying conditions;
- ethical considerations, and
- role of the researcher.

Chapter 3: Knowledge Management – A Conceptual and Theoretical Analysis

In this chapter, a conceptual and theoretical analysis into knowledge management is undertaken by investigating the following areas:

- history of knowledge management;
- definitions of knowledge management;
- clarification of concepts, e.g. organisational knowledge and the human component of knowledge;
- theoretical approaches to knowledge management;
- knowledge management models;
- knowledge management processes; and
- organisational perspectives on knowledge management.

Chapter 4: Inclusive Education – A Conceptual and Contextual Analysis

In this chapter, a conceptual and contextual analysis into inclusive education is undertaken by investigating the following areas:

- the historical development towards the practice of inclusive education;
- formulating definitions of inclusive education from an international and a context-specific perspective;
- investigating inclusive education's implementation in schools;
- describing the impact of the implementation of inclusive education on teachers and school management;
- determining the training needs of teachers; and
- evaluating the current training and support provided to teachers.

Chapter 5: Model Construction and Empirical Validation

In this chapter, the model construction and empirical validation process is discussed by giving a description of the following processes:

- the conceptual phase;
- the construction process;
- the empirical verification process and findings; and
- the model consolidation process.

Chapter 6: Conclusions and recommendations

In this chapter a description is given of the conclusions the researcher came to through the studying of the different data and the recommendations he deems necessary to support the knowledge needs of teachers and aspects for further study.

1.8 SUMMARY

In this chapter, an overview was given of all the processes followed in executing the study. It ranged from introducing the rationale for conducting the study, which is based on teachers' expressed need for knowledge in teaching learners with disabilities in regular classes. This was followed by discussing the research problem, which is that the abundant knowledge available in the inclusive education system is not readily available to the teachers. In addition, the current training methods used to support them do not meet their knowledge needs.

In order to address this problem, the research question was developed by using five steps which included: determining the goal of the study; formulating the research objective(s); determining the research/mixing rationale; determining the research/mixing purpose; and determining the research questions, i.e. qualitative question, quantitative question and the mixed-methods question.

The section on the research questions was followed by an overview of the research paradigm, design and methodology utilised, i.e. the philosophical worldview underlying this research is pragmatic in nature; the research design, which was used, namely a concurrent mixed-method design; and the research methodology employed, namely a concurrent triangulation strategy. A survey using a self-administered questionnaire was used to collect data in the quantitative phase. In the qualitative phase, two methods were employed to collect data. The one was a semi-structured interview protocol in the focus group interviews and the other was collecting data from subject experts by requesting them to give their comments on the model in writing.

The last aspects that were discussed in this chapter were an overview of the role and limitations of the researcher that were taken into consideration in all the processes considered earlier. Finally, an overview of the chapters of the study was given. In the

following chapter, a detailed description will be given of the research design and methodology used in this study.

CHAPTER 2

RESEARCH DESIGN AND METHODOLOGY

2.1 INTRODUCTION

In the previous Chapter, an overview was given of the aspects relevant to this study. In the current Chapter a description is given of the processes (see Figure 2.1) that were followed to answer the research questions. Mouton (2006) cited in Diale (2010:28) postulates that research involves the application of a variety of standardised methods and techniques in pursuit of valid knowledge. Based on the challenges in the education system and the need for urgent IE teacher training and development as described in Chapter 1, the following central research question and sub questions were formulated in section 1.3:

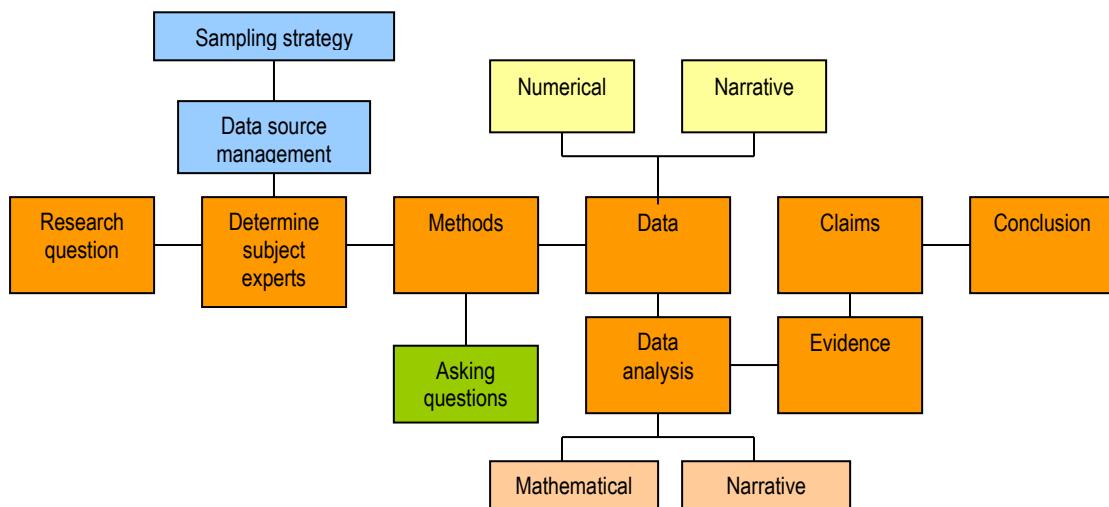


Figure 2.1 Processes employed (adapted from Plowright, 2012)

How will the strategies identified in the literature on knowledge management and inclusive education aid the development of a model for continuous knowledge development of teachers?

The sub-questions that support the central question were:

- What is the level of knowledge management usage in the inclusive education system?
- What is the view of subject experts, with regard to the PCKD model for continuous knowledge development of teachers?

The research questions were developed by myself in response to my concern (based on research as discussed in section 1.1 and 4.4) about the effectiveness of the current dominant discourse with regard to the continuous professional development of teachers in inclusive education held by education management in the South African context. Observations and practice have shown the current dominant discourse to be a cascade model with a top-down approach where lecture-type workshops are the preferred mode of transferring knowledge and skills. In contrast, the challenging discourse which I advocate is an inquiry-based stance to teachers' own role in acquiring knowledge. Embedded in this stance is a belief in teachers' agency.

In order to challenge this discourse, the focus of this study, as indicated in section 1.1, is the development of a personal continuous knowledge development (PCKD) model to assist teachers in gaining knowledge where and when they need it in their endeavours to teach in an inclusive educational classroom. The model requires of management to encourage and motivate teachers to become self-directed in their search for knowledge.

The purpose of the study can further be refined in terms of Newman, Ridenour, Newman and De Marco's (2003) model. They identified the following nine types of goals:

- 1) Predict;
- 2) Add to the knowledge base;
- 3) Have a personal, social, institutional and/or organisational impact;
- 4) Measure change;
- 5) Understand complex phenomena;
- 6) Test new ideas;
- 7) Generate new ideas;
- 8) Inform constituencies; and

9) Examine the past.

From these broad categories, they (Newman et al., 2003:176–179) delineated purposes that are more specific, which they used for constructing their typology of purposes. After carefully analysing their typology, I concluded that the purpose of the personal continuous knowledge development (PCKD) model will be to add to the knowledge base in IE of how best to support teachers in knowledge acquisition. It will also have a personal, social, institutional and/or organisational impact in that it would improve practices of teacher support and teaching of children with disabilities. It will also change structures, e.g. change the current approach to continuous professional development (see section 6.3 – Recommendation 6) and enhance the implementation of inclusive education in schools. The model is therefore seen as a heuristic tool.

Furthermore, Newman et al. (2003) postulated that the deeper purpose of a research study is the reason for doing it and that a researcher should make that intention visible. In the current study, the deeper purpose of the study is to optimise the education of children with disabilities within an inclusive education system.

With the above in mind, I argued that the answers to the research questions would have to be as informed as possible. In order to achieve such a level of authenticity, the unit of analysis (Babbie & Mouton, 2003) would have to be a specific category of highly knowledgeable subject experts.

2.2 SUBJECT EXPERTS

As indicated above, in order to ensure that the PCKD model will be effective, it should be evaluated by subject experts in the field of inclusive education. The selection criteria used to determine a participant to be a subject expert was the position held by the individual in the structures of the inclusive education system (see Figure 1.1).

However, it could not be assumed that all teachers and educators in designated posts are informed practitioners (see section 1.1 and Chapter 4). The researcher had to identify members at all levels of the inclusive education system that were viewed by their peers as subject experts in the field of inclusive education. This, however, did

not mean that they were subject experts in the field of the continuous professional development of teachers. The researcher viewed their positions in the system, which require in-depth theoretical knowledge of inclusive education, knowledge of policies including continuous professional development policies and field experience of teachers' knowledge needs as an advantaged position to judge the personal continuous knowledge development (PCKD) model's appropriateness.

As indicated in Figure 2.1, the selection of participants is supported by data source management and sampling decisions.

2.2.1 Sampling strategy

The sampling design was single-staged, as the researcher had access to the names of the subject experts at the levels indicated in Figure 1.1 that have bearing on the current study as these names are available in the public domain.

The sampling strategy employed was influenced by two requirements, namely knowledgeable and availability of participants. In order to meet the knowledge requirement, a non-probability sampling strategy by means of purposive and convenience sampling was used. The need for authoritative answers to the research questions necessitated purposive sampling of highly knowledgeable participants from the field of inclusive education. In addition, convenience sampling was employed as most of the participants were in close geographic proximity and I had access to them, which assisted with the cost factor relating to both time and money. The only participants who were not within a 30 km radius were those from the Education District in the Eastern Cape.

The reason why I included the Education District in the Eastern Cape was that I had access to them but most of all I wanted to test the generalisability of my research findings as this study was conducted in the Western Cape and I did not have the funds or time to conduct it in all nine provinces of South Africa.

The availability aspect refers to the pool of subject experts in the field of inclusive education. As inclusive education is in its development stages in South Africa, it constitutes a much smaller field in comparison to general education. The number of participants selected in the current study should therefore be understood in terms of

the available pool of participants, i.e. although few, they represent a high percentage of representation. In general, the number of participants is referred to in terms of “few”, “many” and “considerable” (Plowright, 2012:25).

Table 2.1 Methodological issues associated with numbers of cases employed in research (Plowright, 2012:25)

	One to a few cases	Few to many cases	Many to a considerably large number of cases
Amount of detail	Large amount of in-depth detail can be collected about the case(s).	Less in-depth detail can be collected about the cases.	Limited amount of detail can be collected about the cases. Information tends to be relatively superficial.
Degree of generalisability	Generalisability is limited and restricted.	Generalisability is more achievable if there are many cases.	Generalisability is possible if there is a large number of cases.

Each one of these categories has methodological and logistical implications. The methodological issues, as indicated in Table 2.1, include the amount of in-depth detail that can be collected from the cases and the degree of generalisability that can be made about the inferences from the data collection (Plowright, 2012:25). In this study, a combination of few to many has been utilised. The result of this situation made it possible to collect large amounts of in-depth detail. At the same time, generalisability was more achievable.

The aim of this study was to develop a model e.g. the personal continuous knowledge development (PCKD) model. To ensure that it will indeed be effective and implementable it needed to be evaluated. The logistical challenges created by the geographical distribution of participants and the need for in-depth answers influenced the researcher’s data collection strategy. In the following section, the preferred strategies will be discussed.

2.2.2 Data source management

Data source management involves decisions about which approach should be used for managing the sources of data e.g. what techniques will be used to collect the data

from the participants. According to Hammersley (1992:184), the choice is between case study, experiment and survey.

To collect numerical data for the research question, *what is the level of knowledge management usage in the inclusive education system?* I made use of a survey in the structures (see Figure 1.1) of inclusive education in the Western Cape Education Department and the education district in Grahamstown. The survey was done by means of a KMMAQ questionnaire as discussed in section 1.5. The questionnaire was hand delivered and/or e-mailed to the participants.

To collect numerical and narrative data for the research question, *what is the view of subject experts, with regard to the personal continuous knowledge development (PCKD) model for continuous knowledge development of teachers?* I made use of a case study. The prototype of the personal continuous knowledge development (PCKD) model with an accompanying questionnaire, as discussed in section 1.5, was hand delivered and/or e-mailed to the participants in the structures (see Figure 1.1) of inclusive education in the Western Cape Education Department and the education district in Grahamstown.

After receiving the completed questionnaires back from the case study I used the information gathered from the comments and criticism to adjust the prototype of the personal continuous knowledge development (PCKD) model to incorporate the participants' views which I evaluated to be important to enhance the model. A copy of the adjusted/ improved model with full descriptions were sent to subject experts in the structures of inclusive education in the Western Cape Education Department (due to time and financial constraints I did not include the education district Grahamstown in this group) and requested them to study the model and then to participate in a focus group discussion on the models applicability and implementability to enhance the knowledge of teachers in inclusive education. The focus group discussion posed a logistical challenge, i.e. although all the participants were keen to participate, synchronising a time that suited all was problematic.

It must be noted that the above data source management activities impacted on this study's claim for ecological validity and the generalizability of the findings. These two aspects will be discussed next:

As indicated above the field for data collection was subject experts in inclusive education. By using all types of structures in this field (e.g. a provincial education department; two education districts; public ordinary schools - represented in this study by learning support teachers; a full-service school; two special school resource centres and a special school) I made use of naturally occurring contexts. However I realised that their activities were disrupted by asking participants to complete a questionnaire. I therefore make the judgement that the ecological validity of the current study is reasonably high.

Chen, Manion and Morrison (2007:110) view the ecological validity of a study to be high if “the situations in the research occur naturally. The intention here is to give accurate portrayals of the realities of social situations on their own terms, in their natural or conventional settings.” The criterion that underlies this view is that the research should study a natural and “everyday” situation without the researcher intervening to contrive, create or construct the research context (Plowright, 2012:30).

The ecological validity of the study can also be linked to issues of generalisability. Generalisability refers to the extent to which the findings of the enquiry are more generally applicable outside the specifics of the situation studied (Robson, 2002:93). In Table 2.1, the generalisability of this study has been referred to in relation to the numbers of participants in research.

As indicated in section 2.2.1, a high priority was placed on selecting respondents that could provide truthful answers to the research questions. In order to support the truthfulness, the researcher gave careful consideration to which method would serve this requirement best. In the following section, the method employed will be discussed.

2.3 METHODS

The methods chosen were based on my conviction that it is vitally important to ensure that the outcome of the current study contribute meaningfully to the knowledge development of teachers in order to optimise the education outcome of children with disabilities (see section 2.1). Mixed-methods research approach was elected, as I believe that any one viewpoint or methodology does not hold the

authoritative key to truthfully answering the research questions (Teddlie & Tashakkori, 2009). My decision is further strengthened by Mertens (2015: 304) emphasises of the view of Teddlie and Tashakkori (2009), that mixed-methods research have particular value when a researcher is trying to solve a problem that is present in a complex educational or social context.

Further justification for conducting a mixed-methods research approach in the current study can be found in the rationale for conducting a mixed-methods research study. In an analysis done by Collins, Onwuegbuzie and Sutton (2006) of empirical and theoretical, methodological and conceptual articles in the field of mixed-methods research, they found four occurring themes. Each one of these themes represents a rationale for conducting mixed-methods research. These rationales (Collins et al., 2006:78–79) are as follows:

- **Participant enrichment:** Participant enrichment represents the mixing of quantitative and qualitative techniques with the aim of optimising the sample.
- **Instrument fidelity:** Instrument fidelity refers to steps taken by the researcher to maximise the appropriateness and/or utility of the instruments used in the study, whether qualitative or quantitative.
- **Treatment integrity:** Treatment integrity represents the mixing of quantitative and qualitative techniques with the aim of assessing the fidelity of interventions, treatments or programs.
- **Significance enhancement:** Significance enhancement represents mixing quantitative and qualitative techniques with the aim of enhancing the researcher's interpretation of data.

The researcher identified significant enhancement as the most appropriate rationale for conducting a mixed-methods study like the current one. Based on this rationale, the research/mixing purpose was established. This was done to expand the breadth and range of inquiry by using multiple methods for different inquiry components (i.e. expansion) and to legitimise results (Collins et al., 2006).

Johnson, Onwuegbuzie and Turner (2007:123) define mixed-methods research as

the type of research in which a researcher or team of researchers combine elements of qualitative and quantitative research approaches (e.g. use of qualitative and quantitative viewpoints, data collection, analyses, inference techniques) for the broad purpose of breath and depth of understanding and corroboration.

Teddlie and Tashakkori (2011:285) make the statement ... this definition works because it includes what we believe is an essential characteristic of mixed-methods research - *methodological eclecticism*. According to them Hammersley, (1996) originally described this characteristic as follows:

What is being implied here is a form of methodological eclecticism: indeed, the *combination* of quantitative and qualitative methods is often proposed, on the ground that this promises to cancel out the respective weaknesses of each method (Hammersley, quoted in Teddlie & Tashakkori, 2011:285).

Another characteristic of mixed-methods research, therefore, is that it is a research design with both methods of inquiry and philosophical assumptions (Creswell & Plano Clark, 2007). The methodology involves collecting, analysing and mixing quantitative and qualitative approaches, and the methods used to obtain and combine both qualitative and qualitative types of data. The philosophical assumptions referred to are the worldviews (e.g. post positivism, constructivism, advocacy and participatory, and pragmatism) that provide the foundation which shapes research. Researchers (Feilzer, 2010; Creswell, 2009; Onwuegbuzie & Leech, 2006) present pragmatism as the underlying philosophical framework for the mixed-methods design.

As indicated in Chapter 1, the current research study is embedded in a pragmatic paradigm. Thomas Kuhn coined the term paradigm to refer to an accepted tradition and set of beliefs/values that guide research (Babbie & Mouton, 2003). A paradigm can be defined as "a way of looking at the world. It is composed of certain philosophical assumptions that guide and direct thinking and actions" (Mertens, 2005:7). Pragmatism is concerned with applications, i.e. "what works", solutions to

problems (Patton, 1990), and effectiveness. Furthermore, it is oriented “toward solving practical problems in the ‘real world’” (Feilzer, 2010:8) rather than on the assumptions about the nature of knowledge. The emphasis on solving practical problems in the real world gives an insight into the ontological and epistemological assumptions of the pragmatic paradigm. Blaikie (2000:8) describes ontology as

claims and assumptions that are made about the nature of social reality, claims about what exists, what it looks like, what units make it up and how these units interact with each other. In short, ontological assumptions are concerned with what we believe constitutes social reality.

The ontology of pragmatism is concerned with effectiveness rather than finding some “true” condition in the real world (Feilzer, 2010). Based on this view, the researcher’s ontological assumption about the inclusive education teaching reality is the observation that teachers have expressed a lack of knowledge and skills on how to teach children with disabilities. If this lack of knowledge is not addressed, the education of these children will not be effective. Ontological questions are therefore concerned with the nature of reality (Hanson, Creswell, Plano Clark, Petska & Creswell, 2005).

What and how can we know about the nature of inclusive education’s reality with regard to teachers’ knowledge needs, which also constitute the basis of the epistemological question? Babbie and Mouton (2003) define epistemology as the study of the nature and origin of truthful knowledge. Blaikie (2000:8) has described epistemology as “the possible ways of gaining knowledge of social reality, whatever it is understood to be. In short, claims about how what is assumed to exist can be known.” It is therefore about, how we know what we know (Hanson et al., 2005). The researcher’s epistemological assumption about the inclusive education teaching reality, e.g. teachers’ lack of knowledge, is that he should know how best they could acquire the needed knowledge and skills.

The methodology employed by the researcher is that of a four-phased sequential mixed-methods strategy. It allowed the researcher to use different methods in an attempt to confirm, cross-validate and corroborate findings within a single study

(Creswell, 2003). This model generally uses separate quantitative and qualitative methods. The reason for this is to offset the weaknesses inherent to one method with the strengths of another method. In this strategy, the quantitative and qualitative data collection is sequential, thus happening in phase during the research study. The results of the methods were integrated during the interpretation phase.

As indicated above, separate quantitative and qualitative phases were employed. In each of these phases, the main source of data collection occurred by means of a comprehensive literature study on knowledge management and inclusive education and by asking questions. In the following two sections, the process of asking questions will be discussed.

2.3.1 The quantitative methods

During the quantitative phase, two concurrent surveys were used to collect the data. The one was a survey that collected data with regard to the extent to which knowledge management is being used within the inclusive education system (e.g. Knowledge Management Maturity). The other survey (e.g. Model Evaluation) was utilised to collect data on respondents' evaluation of the model outlined in Chapter 5.

In both cases written questions were used, e.g. the survey instrument used for collecting data with regard to the use of knowledge management was a self-administered questionnaire designed by Kruger and Snyman (2007) (see section 5.4.3.1 for a description of the questionnaire). In the case of the evaluation of the model a self-administered questionnaire developed by the researcher was used (see Appendix C). These questionnaires were distributed as hard copies and electronic copies. The hardcopies were hand delivered to those participants whose email addresses were not known to the researcher. Electronic copies were emailed to the participants with known email addresses.

2.3.2 Qualitative methods

Two methods were used concurrently to collect data. The first was a survey, which generated written data on respondents' evaluation of the model outlined in Chapter 5. This survey, used during the quantitative phase, made provision for written comments. The second method was a focus group discussion session in which

spoken questions were used. The researcher hand delivered or emailed copies of the model to the participants and requested them to study the model. Semi-structured focus group discussions were conducted with participants. The interviews were conducted by means of an interview guide with open-ended questions to elicit views and opinions from the participants. These interviews were digitally recorded and then transcribed verbatim.

2.4 DATA

By using a mixed-methods research methodology, the researcher could collect two types of data, i.e. numerical and narrative. Numerical data is concerned with procedures based on counting and/or measuring (Plowright, 2012). It is often seen as unchangeable and fixed (Plowright, 2012). Verbal data on the other hand are dealing with words and various forms of text (Plowright, 2012).

As indicated in section 2.3, the numerical data was collected during the quantitative phase by employing two surveys, namely Knowledge Management Maturity and Model Evaluation. The data collected during the knowledge management maturity survey was calculated and transformed to percentages to create a histogram to indicate the variations in participants' views with regard to each of the subsections of the categories of actions that indicates the level of knowledge management maturity in the inclusive education system (See section 5.4.11). A further technique used to present the collected data was transforming the total of all scores to a percentage of compliance with knowledge management principles in the field of inclusive education (see section 5.4.)

The first type of data collected was numerical data. It was collected during the survey with regard to participants' views on aspects of the proposed model and was calculated in terms of percentage support for a particular aspect (see section 5.4.2). The second type of data collected during the current study was verbal data. This was done during the survey of the evaluation of the proposed model and during the focus group discussions. The verbal data collected during the survey was analysed for occurring themes in the participants' written comments on the open-ended questions with regard to aspects of the model e.g. clarity, comprehensiveness, effectiveness and implementability (see section 5.4.2). The focus group discussions were recorded

electronically by means of video and voice recordings. The audio recording was transcribed. This process produced 30 pages of transcribed text. The text was analysed for themes and outlier comments that had significant bearings on the study (see section 5.4.3).

As indicated above, the initial data analysis was done separately for each of the quantitative and qualitative databases. In the second stage, the data sets were merged to provide a comprehensive picture of the investigation. The method used in the current study is comparison through discussion. In this approach, statistical results are reported and elaborated upon with quotations and information that either confirm or disprove the numerical data (Creswell & Plano Clark, 2007). In addition, see Chapter 3 for a description of the concept data.

The main aim with the processes and activities discussed above was to ensure a very high standard of validity with regard to answering the research question. Another way of dealing with the problem of validity is by carrying out what Plowright (2012) refers to as “warrantable” research. The latter was used as terms of reference in the current study and will be discussed in the following section.

2.5 JUSTIFICATION FOR THE RESEARCH

As indicated in Figure 2.2, the producing of warrantable research in the current study consists of a process that leads to the making of justified claims. These claims are based on the evidence selected from the data collected, using particular methods of data collection and drawing on identified data sources within a theoretical framework and particular context (Plowright, 2012).

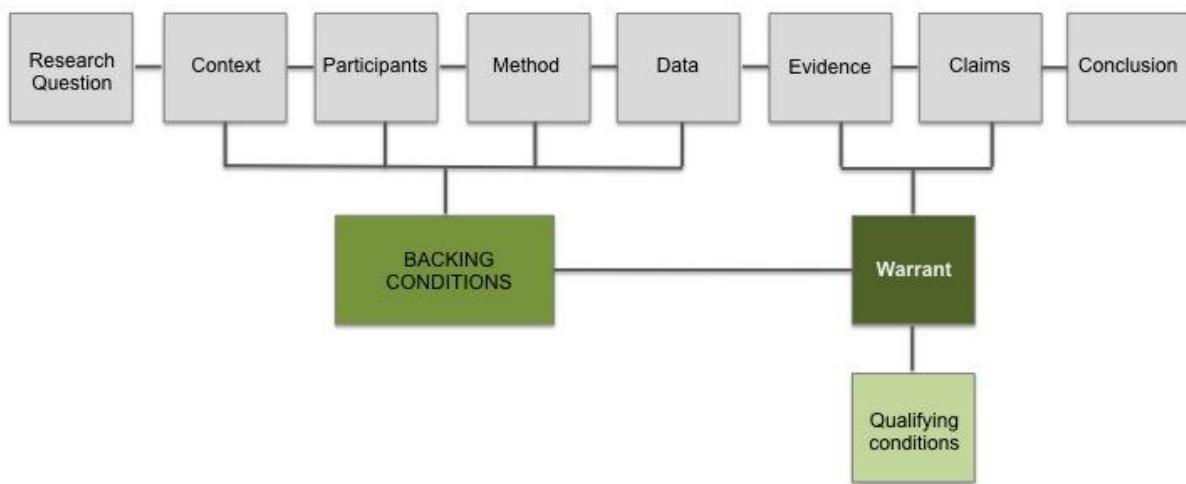


Figure 2.2 Warranting research (adapted from Plowright, 2012:139)

In the current study, the collected and analysed data produced two sets of evidence: firstly, the level of the use of knowledge management e.g. knowledge management maturity, currently in inclusive education (see section 5.4.1) and, secondly, the level of support by subject experts for the proposed model (see section 5.4.2). From this evidence, the researcher made claims about the value of knowledge management strategies as proposed in the personal continuous knowledge development (PCKD) model with regard to the development of teachers' knowledge in the field of inclusive education. From these claims, the researcher concluded that the proposed model would have an impact on the continuous professional development of teachers in inclusive education. At this stage, the grounds on which the researcher makes this conclusion become important. In the following section, the justification will be discussed in terms of backing and qualifying conditions.

2.5.1 Backing conditions

As indicated in Figure 2.3, the justification for the current study is supplemented by the study's qualifying conditions (see section 2.5.2) and backing conditions. The backing conditions refer to the following aspects e.g. context, participants, methods and data, which includes data analysis.

Contextual factors that support the researcher's conclusions in the current study can be found in the literature study. The findings (45.30%) - relating to the knowledge management maturity are supported by similar results in a study done by Kruger and

Johnson (2010) in which they found a knowledge management maturity rate of 42.45% in education. Subject experts offer a high level of support for the proposed model, which is based on the utilisation of knowledge management strategies. This is in keeping with literature on knowledge management in the world of business, which emphasises that these strategies contribute positively to the knowledge development of employees (see section 3.3). The participants in the current study represented very knowledgeable educators and teachers at different levels of the inclusive education system. Their combined evaluation of the level of knowledge management maturity and the usefulness/effectiveness of the personal continuous knowledge development (PCKD) model is therefore the most authentic model currently available in the field of inclusive education.

The justification for the current study is further supported by the utilisation of a mixed-methods research methodology. Section 2.3 indicates that the basic premise of mixed-methods approach is the use of qualitative and quantitative approaches in combination. By doing this, it provided a more comprehensive account of the participants' view. As indicated earlier, the researcher argued that there was the potential that one form of evidence might not tell the whole story. Therefore, by using both forms, it provided a better understanding of the problem than either approaches alone. This assumption can further be elaborated on by the emphasis Mertens (2015:304-305) puts on Green et al.'s (1989) typology of mixed-methods research purposes as cited by Onwuegbuzie and Combs (2010):

triangulation (i.e., comparing findings from the qualitative data with the quantitative results);

complementarity (i.e., seek elaboration, illustration, enhancement, and clarification of the findings from one analytic strand [e.g., qualitative] with results from the other analytical strand [e.g., quantitative]);

development (i.e., use of the results from one analytical strand to help inform the other analytical strand);

initiation (i.e., discover paradoxes and contradictions that emerge when findings from two analytical strands are compared that might lead to a reframing of the research question); and

expansion (i.e., expand breath and range of a study by using multiple analytical strands for different study phases).

In the final instance, data processing and data analysis provided a further justification for the conclusion that the researcher reached in the current study. In the data processing phase, all numerical data was thoroughly scrutinised to ensure that no calculation errors occurred. The narrative data was analysed to identify all themes and outlier comments that could affect the current study. In addition, the transcribed text data was compared to the audio recording to ensure that no omissions occurred and that the content of the recording was indeed transcribed accurately.

I further analysed the processes and activities for qualifying conditions that could affect the relevance of the evidence, claims and conclusion of the study.

2.5.2 Qualifying conditions

Qualifying conditions refer to the fact that there is a possibility that resistance to the explanation or justification may exist (Plowright, 2012). Based on this, I took, as suggested by Plowright (2012), a sceptical and critical position to the interpretation of the findings in the current study.

In doing so, I thoroughly scrutinised each process and concluded that there were no evidence found that could jeopardise the relevance of the study. It was found that the processes contributed positively to answering the research question successfully in that:

- The research questions were found to be clear, understandable and closely related to the focus of the current study;
- A detailed and comprehensive description was given of the researcher's personal and professional context, as this affects the reason for conducting the research, type of questions asked and the interpretation of the findings (Plowright, 2012);
- The organisational context in which the research is being conducted was clearly defined, e.g. the inclusive education system in the South African context;

- Careful consideration was given to who the participants should be, data-source management and sampling strategy as inappropriate decisions will lead to the data collection not contributing to providing an accurate answer to the research question;
- Methods of data collection, e.g. survey and written questions, gave a general overview of the participants' perspective of the knowledge management maturity and the proposed model. Furthermore, the semi-structured discussions during the focus group discussions with selected subject experts provided a detailed and in-depth insight of their views of the proposed model;
- Numerical data and narrative data were collected;
- Great care was taken with the analysis of the data, e.g. to ensure that the correct calculations were carried out during the analysis of the numerical data; likewise, appropriate analysis of narrative data was undertaken.

2.6 ETHICAL CONSIDERATIONS

According to Babbie and Mouton (2003) ethical issues arise when there is interaction with other people. In this study the researcher, educators and teachers interacted with one another, and as such it has an ethical dimension. In this sense, Plowright's (2012) argument is more appropriate in referring to the ethical considerations in a study as *ethical behaviour* or *ethical practice* than the term ethics.

As this study is embedded in ethical behaviour and practices, it is necessary to consider the origins of the concept "ethics".

The word "ethics" is derived from the Greek word "ethos", meaning one's character or disposition. It is related to the term "morality", derived from the Latin term "moralis", meaning one's manners or character (Bless, Higson-Smith & Kagee, 2006). Against this background, research ethics refers to the system of moral principles by which researchers can judge their actions as right or wrong, or good or bad (Denscombe, 2010). Researchers' motivation to operate ethically should be a matter of professional integrity (Denscombe, 2010).

Distinct requirements shaped the ethical considerations of this study and were effective during the various phases of the study. Firstly, the study had to meet the standards set by Stellenbosch University's Research Ethics Committee (REC). Secondly, the study had to meet the general accepted ethical standards expected in research.

To meet the requirements of general accepted ethical standards I made use of two approaches. The first was the implementation of an ethical grid developed by Stutchbury and Fox (2009). The second entailed the recommendations as indicated by Denscombe (2010), Creswell (2009), Bless et al., (2006), Babbie and Mouton (2003), and Creswell (2003) that ethical considerations should be considered in all phases of the research. This study has not only been shaped by the ethical considerations I took into account but also by my role and limitations as discussed in section 1.6.

Elliot (2005) emphasises the importance of being aware of ethical and political issues when conducting research. Elliot (2005:134) refers to "ethical" as those issues that relate to the relationship between the researcher and the participants, and the impact of the research process on them, while the term "political" is used to describe the broader implication of the research impact on society or on specific subgroups in society.

To ensure that all ethical considerations will be accounted for in the current study, the researcher employed the ethical grid developed by Stutchbury and Fox (2009) during the planning phase of the study. This was used to ensure effective analysis of the ethical issues that may occur and to ensure a high standard of ethical practice.

Table 2.2 Ethical considerations (adapted from Stutchbury & Fox, 2009)

Rationale	No.	Question to consider	How addressed
External/ecological considerations: These include all the external issues, such as the law, codes of practice and use of available resources. The user is encouraged to reflect upon the implications of the context in which they are working.			
Cultural sensitivity	1.	What are the values, norms and roles in the environment in which I am working and are they likely to be changed by the research?	See Figure 1.1
Awareness of all parts of the institution	2.	What is the relationship between the groups/individuals I am working with and the institution as a whole?	See Figure 1.1
Responsive communication –	3.	How my work might be viewed/interpreted by others in the institution? How will the language I use be interpreted?	See section 5.4

Rationale	No.	Question to consider	How addressed
awareness of the wishes of others			
Responsibility to sponsors	4	What are my responsibilities to the people paying for or supporting this research (local authority, my school and/or external bodies)?	No sponsors were involved
Code of practice	5.	Have I worked within the university guidelines? Are there other relevant codes that might also be applicable? Am I aware of my rights and responsibilities throughout the research process to publication?	See Appendix A and A-1
Efficiency/use of resources	6.	Have I made efficient use of the resources available to me, including people's time?	See section 5.4
Quality of evidence on which conclusions are based	7.	Do I have enough evidence to support my conclusions and recommendations?	See section 5.4
The law	8.	What legal requirements relating to working with children do I need to comply with? Am I aware of my data protection responsibilities? Am I aware of the need for disclosure of criminal activities? Do I need written permissions?	See appendix A-2
Risk	9.	Are there any risks to anyone as a result of this research?	NO. See appendix A-2
Consequential/utilitarian considerations: These encourage the user to think about the consequences of possible actions for society, for individuals or for particular groups of people.			
Benefits for individuals	10.	What are the benefits of my doing this research to the participants? Would an alternative methodology bring greater individual benefits?	See appendix A-1 and A-2
Benefits for particular groups/organisation	11.	What are the benefits of my research to the school/department? Could these be increased in any way? How will I ensure that they know about my findings? Is my work relevant to the school development plan? Can I justify my choice of methods to my sponsors?	See section 1.1
Most benefits for society	12.	Is this a worthwhile area to research? Am I contributing to the "greater good"? Is it high quality and open to scrutiny?	See section 1.1
Avoidance of harm	13.	Are there any sensitive issues likely to be discussed or aspects of the study likely to cause discomfort or stress?	See appendix A-1 and A-2
Benefits for the researcher	14.	Am I going to be able to get enough data to write a good thesis or paper? Am I aware of my publication rights? What might I learn from this project? Will it help me in my long-term life goal?	See Chapter 5 section 5.4
Deontological Considerations: These cover issues related to "duty" and consideration of possible actions. It is concerned with the way in which things are done, rather than the consequences of doing them. It includes issues such as "telling the truth" and "minimising harm".			
Avoidance of wrong – honesty and candour	15.	Have I been open and honest in advance with everyone who might be affected by the research? Are they aware that they can withdraw, in full or in part, if they wish?	See appendix A-1 and A-2
Fairness	16.	Have I treated all participants fairly? Am I using incentives fairly? Will I acknowledge everyone involved fairly? Can I treat all participants equally?	See appendix A-1 and A-2
Reciprocity	17.	Have I explained all the implications and expectations to the participants? Have I negotiated mutually beneficial arrangements? Have I made myself available when those involved might wish me to be? Are the participants clear about roles, including my own, as they relate to expectations?	See appendix A-1 and A-2
Tell the truth	18.	If there is any need to covert research, how will I deal with this? What will I do if I find out something that the participants/school/department do/does not like? How will I report unpopular findings?	See appendix A-1 and A-2

Rationale	No.	Question to consider	How addressed
Keep promises	19.	Have I clarified access to the raw data? How will I share findings including at the point of publication? How will I ensure confidentiality?	See appendix A-1 and A-2
Do the most good	20.	Is there any other way I could carry out this research that would bring more benefits to those involved?	See section 1.1
Relational/individual considerations: These include issues of respect for the individual and autonomy.			
Genuine collaboration/trust establishment	21	Who are the key people involved? How can I build a constructive relationship with them?	See section 1.1
Avoid imposition/respect autonomy	22.	Am I making unreasonable or sensitive demands on any individual? Do they appreciate that participation is voluntary?	See appendix A-1 and A-2
Confirmation of findings	23.	What steps will I take in my methodology to ensure the validity and reliability of my findings? Can I involve participants in validation? Will I report in an accessible way to those involved?	See Chapter 2
Respect people's equality	24.	How will I demonstrate respect for all participants? Have I treated non-teachers in the same way as teachers?	See appendix A-1 and A-2

From the above, the researcher made the deduction that specific attention should be given to the ethical considerations involving the participants and during the different phases of the study.

With regard to the ethical well-being of the participants, it was accounted for in the study by providing each participant with a hard copy of a consent form (see Appendix A-2). This provided participants with all the details of the following areas:

- Purpose of the study;
- Procedures;
- Potential risks and discomfort;
- Potential benefits to the participants and/or to society;
- Payment for participation;
- Confidentiality;
- Participation and withdrawal;
- Identification of investigators; and
- The rights of research participants.

In the above section, the focus was on ethical issues as they relate to the participants, but in this section, a wider perspective of ethical issues that are associated with other stages in the study will be discussed. Plowright (2013) and

Creswell (2003) recommend that ethical issues should be anticipated and accounted for at the various stages of the research process, including:

- Problem statement, purpose statement and questions;
- Data collection;
- Data analysis and interpretation; and
- During the writing and dissemination of the research.

In the current study, these stages were accounted for as follows:

- **Ethical issues in the problem statement:** The focus of the study (see Chapter 5) is of such a nature that it will not marginalise or disempower the participants; on the contrary, it will benefit them in that they can be empowered to take control of their own knowledge development.
- **Ethical issues in the purpose statement and research question:** As indicated above (see Appendix A-2), the purpose of the study was conveyed and described to the participants to eliminate the possibility of deception in that the participants might have had a different understanding of the purpose of this study than what the researcher had in mind. The activities, e.g. focus group discussions and answering a self-administered questionnaire, in which the participants were required to participate, were clearly explained to them. The researcher also made it known that there were no sponsors involved in the study.
- **Ethical issues in data collection:** A number of ethical issues, mainly in the way the participants are treated, arose during this stage of the research. The researcher was sensitive to this, as the following had bearing on this study:
 - The nature of the study was such that the participants were not put at risk;
 - Individuals could voluntarily participate in the research; and
 - The privacy/anonymity/confidentiality of the participants would be protected should they disclose harmful information, e.g. officials and teachers criticising the education system/policymakers during the data collection process. However, it was also explained to the participants that should they disclose any information, which could lead the researcher to suspect that the law has been broken, that the information may be forwarded to the

appropriate authorities. The risks of group interviews were discussed. This was conveyed to all individuals involved in the study (see Appendix A-2).

- **Ethical issues in data analysis and interpretation:** The ethical practices during this phase were concerned with the management of the collected data:
 - Confidentiality and anonymity of individuals would be protected;
 - Data collected, recordings and questionnaires used would be kept in a locked filing cabinet for a reasonable period of time, which would not exceed two years. After this, it would be discarded;
 - All data would be the sole property of the researcher. In the interpretation of the data, the researcher would provide an accurate account of the information.
- **Ethical issues in writing and disseminating the research:** The researcher would not use language or words that are biased against people because of gender, sexual orientation, racial or ethnic group, or disability. In writing up the research, the researcher would not:
 - Suppress, falsify or invent findings to meet his or an audience's needs;
 - Misuse the results to the advantage of one group or another;
 - Release the details of the research with the study design so that readers can determine for themselves the credibility of the study.

All the above ethical considerations influenced the researcher. These influences constituted the ethical practices he employed in this study, e.g. development of the research questions; choice of unit of analysis; methods used to collect, analyse and interpret data; and the writing and dissemination of the final report. These considerations were based on the guidelines given by Plowright (2013) and Creswell (2003) to ensure a high standard of compliance with ethical practice throughout all the phases of the study.

Not only did the ethical considerations have an influence on the role of the researcher, but contextual factors also played a role. In the following section, these influences will be discussed.

2.7 CHAPTER SUMMARY

In this Chapter, an overview was given of the processes followed to answer the research question. The first process was the establishment of the unit of analysis. Based on the needs of the research question, the unit was identified to be subject experts in the field of inclusive education. They were selected by using a single stage sampling design in which a non-probability strategy, by means of purposive and convenience sampling, was employed.

The method employed to collect, analyse and interpret the data took the form of a mixed-methods research methodology. In the quantitative phase, two concurrent surveys were used to collect data, i.e. the knowledge management maturity questionnaire and a model evaluation questionnaire. During the qualitative phase, the data was collected by means of a focus group discussion. Two types of data were accordingly collected, i.e. numerical data and narrative data. The numerical data was collected by using the knowledge management maturity questionnaire and the model evaluation questionnaire. Narrative data was collected during the focus group discussion and written comments in the model evaluation questionnaire.

The data analysis was done by using statistical principles to sort the numerical data. In turn, the narrative data was analysed for frequently recurring themes and outlier comments that had significant bearing on the study. These data sets were merged to provide a comprehensive picture of the investigation.

In order to ensure that the conclusions made after merging the different sets of data were indeed justified, the researcher used backing conditions and qualifying conditions to support the conclusions reached in the study. It was not only necessary that the outcome of the study had to be justified, but it also had to comply with a high standard of ethical practices. These practices had to occur in the following areas of the study: the setting of the research questions, the relationship with the participants and all aspects of data collection, and data analysis and interpretation through to the final stages of writing and disseminating the final research report.

Throughout the aspects considered above, the researcher played a meaningful role. This role was influenced by his professional context, the organisational context in which the study took place, the policies that directed the field of study, the national

context in which the study was embedded and the theoretical context that encompassed the study, i.e. the field of knowledge management and inclusive education.

In the following Chapters, the field of knowledge management and inclusive education will be discussed in detail to highlight their respective directional influences on the current study.

CHAPTER 3

KNOWLEDGE MANAGEMENT: A CONCEPTUAL AND THEORETICAL ANALYSIS

3.1 INTRODUCTION

In the previous Chapter, an outline and description were given of the Research Design and Methodology used in this study to answer the research questions which investigated knowledge management utilisation in inclusive education. The current Chapter focuses on a conceptual and theoretical analysis of knowledge management.

In the literature knowledge management is put forward as a “conscious strategy of getting the right knowledge to the right people at the right time and helping people share and put information into action in ways that strive to improve organisational performance” (Roberts, 2000; O’Dell & Jackson, 1998:4). Knowledge management can thus be viewed as the foundation for the continuous knowledge development of employees in organisations. The deduction is made that an efficient and effective knowledge management system plays an important role in an organisation’s success (Pai & Chang, 2013).

The reported and proven role of knowledge management in knowledge development made it an area to investigate further as a tool to improve the knowledge of teachers in inclusive education. Real-world experience and research (see sections 1.1 and 4.7) in South Africa and other countries have indicated that the current practices in the professional development for teachers, e.g. initial teacher education and continuous professional development, are not meeting teachers’ need for knowledge in the field of inclusive education.

In order to give relevance to this thought the subject of analysis will be the identification of principles and strategies underpinning knowledge management that could support teachers in the development of their knowledge. To reach an informed conclusion knowledge management will be discussed in the following five interrelated sections.

- 1) Overview of its historical development, varied definitions thereof, and conceptual clarification of core aspects related to knowledge management activities;
- 2) Theoretical approaches underpinning knowledge management;
- 3) Models used in knowledge management;
- 4) Steps in the knowledge management process; and
- 5) Overview of knowledge management in organisations.

The chapter will be concluded with a summary of the criteria identified that have an impact on the knowledge development of employees in organisations. These criteria will then be used in Chapter 4 to evaluate their compatibility and applicability to knowledge development of teachers in the field of inclusive education. With this knowledge I will develop (see Chapter 5) a model based on these criteria for the personal continuous knowledge development of teachers in the field of inclusive education.

In the following sections, attention will be given to the historical development of knowledge management, definitions of knowledge management and clarification of key concepts.

3.2 HISTORICAL DEVELOPMENT OF KNOWLEDGE MANAGEMENT

The meaning of the word knowledge has been discussed for thousands of years (Avdic & Westin, 2002). It has always been associated with the concept power (Saade, Nebebe, & Mak, 2011) and with individuals in organisations who possess this knowledge (Davenport & Prusak, 2002).

From very early times, wise people have secured sustained succession by transferring in-depth knowledge to the next generation (Chamberlain, 2001). Knowledge has therefore been managed implicitly as long as people have thought seriously about their work (Wiig, 1997). It is not strange then that the timeline given for the development of knowledge management is indicated as a gradual development over time starting as far back as 3500 BC (Knowledge Street: Knowledge Management Timeline, 2011).

The timeline approach emphasises the development of knowledge management in what Prusak (2001) refers to as a practitioner-based substantive response to real social and economic trends as indicated below.

The world of business has increased its reliance on knowledge because of the shifts in economic focus, as illustrated by the following six descriptive stages:

- The first stage is that of the *Agrarian Economics* with its focus on agriculture;
- The second stage is that of *Natural Resource Economics* with its focus on how natural resource exploitation dominated while customer intimacy was pursued separately by expert tradesmen and guilds;
- The third stage is the *Industrial Revolution* with its focus on operational excellence through efficiency;
- The fourth stage is that of *Product Revolution* with its focus on product leadership through variability and sophistication;
- The fifth stage is that of the *Information Revolution* with its continued focus on operational excellence and product leadership; and
- The last stage is that of the *Knowledge Revolution* with its new focus on customer intimacy (Wiig, 1997, 4–5; Allen & Sandown, cited in Senge, 2006).

Out of these developments grew a need to formalise an approach to utilise the knowledge in the organisations to get an advantage in an increasingly competitive market place. The result was what Prusak (2001) refer to as an important milestone that marks the beginning of the modern-day knowledge management timeline e.g. the first conference devoted to knowledge management held in Boston in early 1993. According to Prusak (2001), most of the discussions at this conference were theoretical in nature as the field was new and untested. However, he (Prusak, 2001) states that reference was made to promising “real-time” knowledge projects that were initiated by global companies such as the General Motors Corporation, the Xerox Corporation, and the Hewlett-Packard Company.

Prusak (2001) further argues that although these knowledge-related conversations and initiatives were new, they had both intellectual and practical sources. By considering these sources, one will find a reasonably good picture of where the

practice of knowledge management came from, and what its important elements were then and still are today. Firstly, the intellectual foundation included disciplines such as Economics, Sociology, Philosophy and Psychology (see section 3.3). This gives knowledge management the intellectual scope and substance it needs to deal with the real human and structural complexities of knowledge in an organisation by combining the conceptual rigour of Economics, the observational richness of Sociology, and the understanding of Philosophy and Psychology (Prusak, 2001). Secondly, the three real-time practices that have brought the most content to knowledge management are information management, the quality movement, and the human factors/human capital movement (Prusak, 2001).

The above historical perspectives give an indication of the intention of the concept of knowledge management, namely the improvement of employees' knowledge in order to achieve a competitive advantage. In terms of inclusive education I argue that it could lead to improved knowledge of teachers which could result in effective teaching in diverse classrooms. In the following section, the knowledge management phenomenon will be explored further by focusing on the definitions of it.

3.3 DEFINITIONS OF KNOWLEDGE MANAGEMENT

Haslinda and Sarinah (2009) highlight the existence of multiple definitions of knowledge management, while Onions (2010:2) states that many authors "have acknowledged the diversity or variety of knowledge management theory and perspectives". The conclusion is therefore made that knowledge management is not a monolithic concept and is as such a very difficult concept to demarcate (Onions, 2010). That said, knowledge management is considered an invented phenomenon that follows principles established by people, with boundaries set by people, and is researched and practiced in a human context (Onions, 2010).

The role of the human context is further emphasised by Ding, Akoozie and Pavlovich (2009) who argue that management lies at the intersection of a variety of disciplines. These disciplines are Philosophy, Cognitive Science, Social science, Management Science, Information Science, Knowledge Engineering, Artificial Intelligence, Economics and Psychology (Moteleb & Woodman, 2007; Kakabadse, Kakabadse & Kouzmin, 2003; Prusak, 2001). It is therefore not strange that a wide variety of

disciplines has informed and influenced the field of knowledge management thinking and praxis. As a result, many working definitions and philosophies of knowledge management are reflected in the literature and in practice in businesses worldwide (Kakabadse et al., 2003).

According to Firestone (2001), some approaches to knowledge management seem to view any manipulation of knowledge as knowledge management. He poses the following question: "Is knowledge management really everything and anything having to do with knowledge and knowledge processing?" He then distinguishes knowledge use and knowledge processing from knowledge management. In his view, the use of knowledge occurs whenever any agent makes a decision and it is therefore part of every business process. Knowledge processing is described as knowledge production and knowledge integration. Knowledge management is knowledge process management, that is, the management of knowledge production, knowledge integration, the knowledge life cycle, and their immediate outcomes (Firestone, 2001).

Bacerra-Fernandez, Gonzalez and Sabherwal (2004) offer the following more detailed definition of knowledge management: "Knowledge management can be defined as performing the activities involved in discovering, capturing, sharing, and applying knowledge so as to enhance, in a cost-effective fashion, the impact of knowledge on the unit's goal achievement" (Becerra-Fernandez et al., 2004:31).

Furthermore, knowledge management can be defined as the name given to the set of systematic and disciplined actions that an organisation can take to obtain the greatest value from the knowledge available to it (Lee, 2004: ix). These systematic and disciplined actions will include a conscious integration of people, processes and technology brought together for the purpose of collecting, sharing, and using information to build organisational capacity for continuous improvement (Petrides, 2006). Other definitions of knowledge management include the following:

- "[A] systematic and organisationally specific process for acquiring, organising, and communicating both tacit and explicit knowledge of employees so that other employees may make use of it to be more effective and productive in their work" (Alavi & Leidner, 1999).

- “[A] process of organising and distributing an organisation’s collective wisdom so the right information gets to the right people at the right time” (Robbins, 2003). The latter can be viewed as “just-in-time learning” (Alter, 2005).
- “[A] practice that finds valuable information and transforms it into necessary knowledge critical to decision making and action” (Van Beveren, 2002).
- Onions (2011) advocates the treatment of the concept knowledge management as an umbrella term. Knowledge management is an umbrella term encompassing multiple perspectives, approaches, theories, concepts, models, frameworks, solutions, tools and techniques that involve all types of knowledge and all knowledge activities (Onions, 2011:8).

A consistent theme in definitions of knowledge management is that it provides a framework that builds on experiences and creates new mechanisms for exchanging and creating knowledge (Kakabadse et al., 2003). These definitions also imply the effective management of an organisation’s knowledge by means of the interaction between technology, techniques, and people (Bhatt, 2001). This is achieved by creating a nurturing and “learning-by-doing” environment, so that an organisation can sustain its competitive advantage (Bhatt, 2001).

With reference to the latter, two further themes emerged. Firstly, knowledge management is about organisational knowledge and, secondly, it is about employees’ interaction with that knowledge. It is therefore relevant to clarify these two concepts that underpin knowledge management, i.e. organisational knowledge and employees’ interaction with that knowledge.

3.4 CLARIFICATION OF THE CONCEPTS ORGANISATIONAL KNOWLEDGE AND THE HUMAN COMPONENT OF KNOWLEDGE MANAGEMENT

According to Saade, Nebebe and Mak (2011) most researchers agree that knowledge management is a difficult task. For them the difficulty relates to the inherent nature of knowledge, which is highly dependent on two primary variables: the human element and the social context.

In this section, the following five interrelated aspects of organisational knowledge are considered:

- 1) The relationship between knowledge, information and data;
- 2) The classification of knowledge;
- 3) Different perspectives on knowledge;
- 4) Location of knowledge in the organisation; and
- 5) Knowledge processes.

The question of defining the general concept of knowledge has occupied the minds of philosophers since the classical Greek era and has led to many invigorating epistemological debates over the years (Alavi & Leidner, 2001). The Greek philosopher Plato defined the concept knowledge as “justified true belief”. This definition has been predominant in Western philosophy ever since (Kakabadse et al., 2003; Nonaka & Takeuchi, 1995).

With regards to knowledge management in the business world Alavi and Leidner (2001) state that the knowledge-based theory of organisational knowledge was never built on a universal truth of what knowledge really is but rather on a practical interest in being able to manage organisational knowledge. To this end, some authors address the question of defining organisational knowledge by distinguishing between knowledge, information and data (Alavi & Leidner, 2001). As a result of the focus on defining organisational knowledge, these three interrelated elements, i.e. knowledge, information and data, have become key terms and fundamental concepts in knowledge management (Liew, 2007).

Their relationship is often described as a hierarchy or pyramid consisting of data at the bottom, followed by information, and knowledge with wisdom at the top (Bellinger, Castro & Mills, 2004; Stenmark, 2001). According to Tuomi (1999), this often-assumed hierarchy from data to knowledge is actually the opposite way around. Knowledge should exist before information can be formulated and before data can be measured to form information. As such, “raw data” does not exist as even the most elementary piece of “data” has already been influenced by the thought or knowledge processes that led to its identification and collection (Alavi & Leidner, 2001).

Table 3.1 Defining data, information and knowledge

Data	Information	Knowledge
<p>Data comprises of facts, observations, or perceptions (which may or may not be correct). Alone, data represents raw numbers or assertions, and may therefore be devoid of context, meaning, or intent (Bacerra-Fernandez et al., 2004:12). Although data is devoid of context, meaning, or intent, it can be easily captured, stored, and communicated electronically or through other media. Data can be considered as being reasonably “objective” as it is devoid of context and, meaning.</p> <p>Data consists of recorded (captured and stored) symbols and signal readings (Liew, 2007). Data refers to semantic representations of reality by means of symbols such as words and numbers (Malgalhæs, 2004:5). Symbols include words (text and/or verbal), numbers, diagrams and images (still and/or video), which are the building blocks of communication (Liew, 2007). Signals include sensor and/or sensory readings of light, sound, smell, taste and touch (Liew, 2007). All data is historical, unless used for illustration purposes, such as forecasting (Liew, 2007).</p> <p>The main purpose of data are to provide captured activities and situations, to attempt to capture the true picture or real event (Liew, 2007).</p>	<p>Information is a message that contains relevant meaning, implications, or input for decisions and/or actions (Liew, 2007).</p> <p>Information comes from both current (communication) and historical (processed data or “reconstructed picture”) sources. (Liew, 2007)</p> <p>Information is the result of a combination of data, thus giving the different data meaning (Malgalhæs, 2004:5). It is therefore seen as a subset of data, including only data that possesses context, relevance, and purpose. Information typically involves the manipulation of raw data to obtain a more meaningful indication of trends or patterns in the data (Bacerra-Fernandez et al., 2004:13). Information cannot be an objective concept. For there to be meaning, there must be some form of human cognitive intervention and if there is human intervention, information is subjective (Malgalhæs, 2004:5) Widén-Wulff (2007:8) defines information as communicated knowledge or data with a meaning. The consideration whether certain facts are only information or only data, depends on the individual who is using those facts (Bacerra-Fernandez et al., 2004:13).</p> <p>The purpose of information is to aid in making decisions and/or solving problems or realising opportunities (Liew, 2007).</p>	<p>Knowledge is the (1) cognition or recognition (know-what), (2) capacity to act (know-how), and (3) understanding (know-why) that reside in the mind or the brain (Liew, 2007).</p> <p>Knowledge is often understood to be a kind of major store of information, which can be recorded indiscriminately in peoples' minds or on computer discs (Malgalhæs, 2004:5). Bacerra-Fernandez et al. (2004:13) define knowledge in an area as justified beliefs about relationships among concepts relevant to that particular area. The processes of interpretation of data and attribution of meaning that we call information must be informed against some form of personal and pre-existing cognitive backdrop. This backdrop or personal context is what we understand as being knowledge. Individual knowledge is something subjective, partly explicit but mostly tacit, hence not amenable to be recorded, stored, or retrieved electronically regardless of the kind of technological means used (Malgalhæs, 2004:6). Alavi and Leidner (2001: 109) state that critical to this argument is the fact that knowledge does not exist outside of an agent (a knower). Instead, it is indelibly shaped by one's needs as well as one's initial stock of knowledge (Fahey & Prusak, 1998; Tuomi, 1999).</p> <p>Knowledge is thus the result of cognitive processing triggered by the inflow of new stimuli, according to Alavi and Leidner, (2001:109). They (Alavi & Leidner, 2001:109) also state that information becomes knowledge once it is processed in the mind of individuals and knowledge becomes information once it is articulated and presented in the form of text, graphics, words, or other symbolic forms. A significant implication of this view of knowledge is that for individuals to arrive at the same understanding of the same data or information, they must share a certain knowledge base (Alavi & Leidner, 2001:109).</p> <p>The purpose of knowledge is to better our lives. In the context of business, the purpose of knowledge is to create or increase value for the enterprise and all its stakeholders. The ultimate purpose of knowledge is therefore to create value (Liew, 2007).</p>

This persistent linking of the three concepts in the knowledge management literature emphasises the importance of having a clear understanding of what is meant by each, how they relate to one another, and what impact their combination has on knowledge management.

It is, however, not an easy task as it involves extensive conceptual thinking, dealing with many abstract concepts and dealing with semantics (Liew, 2007). The logical point to start would firstly be to define these three concepts. There are many attempts documented in the knowledge management literature to define these concepts. Some of these attempts have been captured in Table 3.1 above.

A commonly held view with minor variations is that data is raw numbers and facts, information is processed data, and knowledge is authentic information (Dretske, 1981; Machlup, 1983; Vance, 1997). With these definitions of data, information and knowledge as background, the relationship between them can be explored. For Liew (2007), the key to understand their intricate relationship lies at the source of data and information, namely activities and situations. Both generate information (i.e. “relevant meaning” to someone) that is either captured, thus becoming data, or is lost (Liew, 2007).

The following activities and situations that are inherent to the field of inclusive education illustrates the generation of information and data. Educational activities such as enrolment of children (e.g. children with disabilities to support-level schools – see tables 4.8 and 4.9) and support of children (e.g. categories of disabilities, severity of disability – see section 4.4) generate information from which data can be collected. Not only does this information generate data, but it also highlights certain aspects about which decisions will have to be made, e.g. regarding teachers’ training needs. Activities can thus be described as generating information from which data can be collected and gives rise to decisions that should be taken. However it should also be noted that “differing definitions of disability, combined with ineffective data collection, means that statistics – where available – are seldom reliable” (ACPF, 2011: v).

Situations in turn refer to changes in the environment which affects decisions (Liew, 2007). An example of changes in the environment that are related to human activities

is the implementation of inclusive education in the South African education system (see section 4.4). The South African education system was previously marked by segregation and exclusion and has been transformed to employ an inclusive approach. This change represents a major change in the teaching environment, which has affected the human activity of teaching. For example, the teaching of children with disabilities in a regular classroom will require decisions with regard to the adaptations of the curriculum and teaching strategies.

From the above, it is clear that activities and situations generate information that feeds into the decision-making process. In addition, another spin-off of this generation of information is that data can be extracted from it. The value of this extracted data, is that it can be processed back to information through compilation and analysis (Liew, 2007). We can therefore reconstruct a picture of past activities and situations (Liew, 2007).

This data processing, compilation, and/or analysis are/is based on two fundamental aspects, namely data-to-data and data-to-context (Liew, 2007). An example of data-to-data processing in the field of inclusive education could be the data of “cerebral palsy” that represents a category of disability and the data “*athetoid cerebral palsy*” that represents a type of cerebral palsy. These two pieces of data may have a relationship, such as ownership, e.g. a child with *athetoid cerebral palsy*; in turn this relationship implies that specific educational and therapeutic support must be given to that child. A further compilation of categories of disabilities and their subtypes may lead to information of what magnitude the support needs will be. It may also lead to decisions with regard to the staff complement that will be required to address these needs and teachers’ training needs.

An example of data-to-context processing is number of children with cerebral palsy (data) enrolled in ordinary schools (context) and number of children with cerebral palsy (data) enrolled in special schools (context) (see Tables 4.8 and 4.9). The same data (e.g. cerebral palsy) in different contexts (e.g. ordinary schools vs. special schools) would yield different meaning, implications or information that may necessitate a different decision or consequence (Liew, 2007). The difference between the two contexts is as a result of the level of support needed in each context (see section 4.4). With this understanding of the interrelationship between data and

information, we can explore their relationship to the third aspect namely that of knowledge.

For Liew (2007), the key to understand the relationship between information and knowledge is to know where information about a specific topic is to be found. Drawing on the discussion on information above, it is clear that information holds the centre stage as it resides in two places. Firstly, it resides in storage media (database, print, and video tapes) in the form of data and, secondly, in the minds of humans as knowledge (in its simplest form as know-what or in higher forms of know-how and know-why) (Liew, 2007). From this way of reasoning, the overlap between data and information and subsequently that between information and knowledge becomes evident – i.e. they occupy different spaces at the same time (Liew, 2007).

The characteristic of occupying different spaces at the same time explains why many perceive data and information, as well as information and knowledge as interchangeable (Liew, 2007). However, based on their accepted distinct definitions, they are not interchangeable (Liew, 2007). For example, when asking the question “What is a book: knowledge, information or data?” Liew (2007) suggests that it is knowledge, information and data, depending on the context, e.g. a book is knowledge from the author’s perspective, information for the potential reader, and data contained in a storage medium, namely the physical book (Liew, 2007). With this understanding of the definitions of data, information and knowledge as well as their interrelationship, we can explore their relationship to knowledge management.

Based on their definitions, these three concepts are distinct in nature and as such must be managed differently. Liew (2007) gives the following descriptions of how each should be managed:

- **Data management** is the capture, storage, structure, compilation, retrieval, and analysis of records. It is the reconstruction of recent or historical events as inputs for decision-making and/or problem-solving.
- **Information management** is the reconstruction of a picture of historical events, collection of current or recent market intelligence, projection of possible future events (forecasting and scenario planning), and analysis for

decision-making and/or problem-solving. Thereafter, action can be taken, which can then be reviewed.

- **Knowledge management** is, in essence, the management of human capital (tacit knowledge that resides in the human mind); relationship capital (customer, supplier, strategic alliance); social capital (tacit and explicit); and structural capital (explicit knowledge, i.e. data and information, the source and stock of knowledge; and the flow of knowledge as in knowledge creation, sharing, and application to create and/or sustain organisational value and competitive advantage).

To manage an organisation's knowledge effectively, e.g. to get the most out of it to ensure a competitive advantage, it is important to have a clear understanding of the different types of knowledge present in the organisation. In accordance with this, Balboul (2009) considers knowledge as a very multifaceted concept with many different variations and definitions, resulting in a state where there is no consensus on the nature of knowledge (Firestone, 2001). This has given rise to the rediscovery of the knowledge debate, starting with scholars from economics, organisational theory, philosophy and other disciplines who were concerned with the characteristics of knowledge and its role in the organisation (Kakabadse et al., 2003).

The following definition of knowledge serves as an example of how knowledge is understood in organisations:

Knowledge is a fluid mix of framed experiences, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organisations, it often becomes embedded, not only in documents or repositories but also in organisational routine, processes, practices and norms.
(Davenport & Prusak, 2000:5)

This definition captures the complexity of knowledge and gives rise to the fact that it is viewed from several perspectives, namely as (1) a state of mind, (2) an object, (3) a process, (4) a condition of having access to information, or (5) a capacity (Alavi & Leidner, 2001). Bacerra-Fernandez et al. (2004:18) expand on these perspectives

and state that knowledge can be viewed from a subjective or an objective stance. The subjective view represents knowledge by viewing knowledge in two possible ways, namely as a state of mind or as a practice. The objective view represents knowledge in three possible perspectives, namely as an object, as access to information or as a capacity. See Figure 3.1 below.

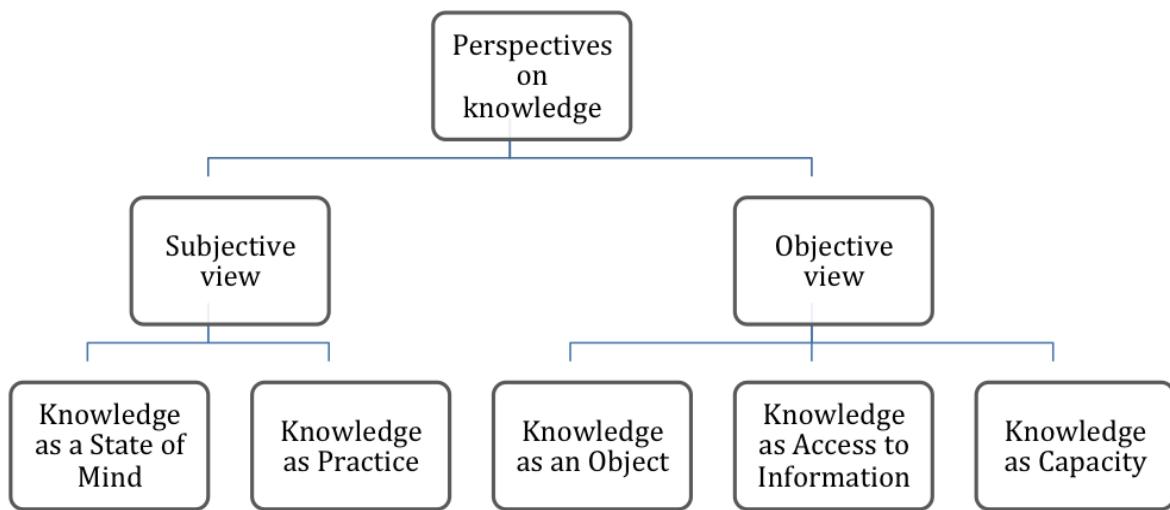


Figure 3.1 Perspectives on knowledge (Bacerra-Fernandez et al., 2004:17).

Not only is knowledge viewed from different perspectives, but it is also classified and characterised in several different ways. Knowledge can be individual, social, casual, conditional, relational, pragmatic, embodied, encoded, procedural (tacit or explicit and general or specific), declarative (tacit or explicit and general or specific), tacit or explicit, and general or specific (Bacerra-Fernandez et al., 2004; Alavi & Leidner, 2001; Venzin, Von Krogh & Roos, 1998).

Apart from the above types of knowledge, we can also view knowledge in terms of its quality. If knowledge is evaluated as being of a higher quality, such knowledge can be defined as “expertise”, which is specific knowledge at its best (Bacerra-Fernandez et al., 2004). Expertise can be classified into three distinct categories, namely associational, motor skills, and theoretical (deep) knowledge (Bacerra-Fernandez et al., 2004). To manage this wide spectrum of knowledge available in an organisation, it is important to know where to find the required knowledge. Organisations’ knowledge does not reside in one single location but rather in several different ones

or reservoirs, such as people (individuals and groups), artefacts and organisational entities (Bacerra-Fernandez et al., 2004:24) as illustrated in Figure 3.2.

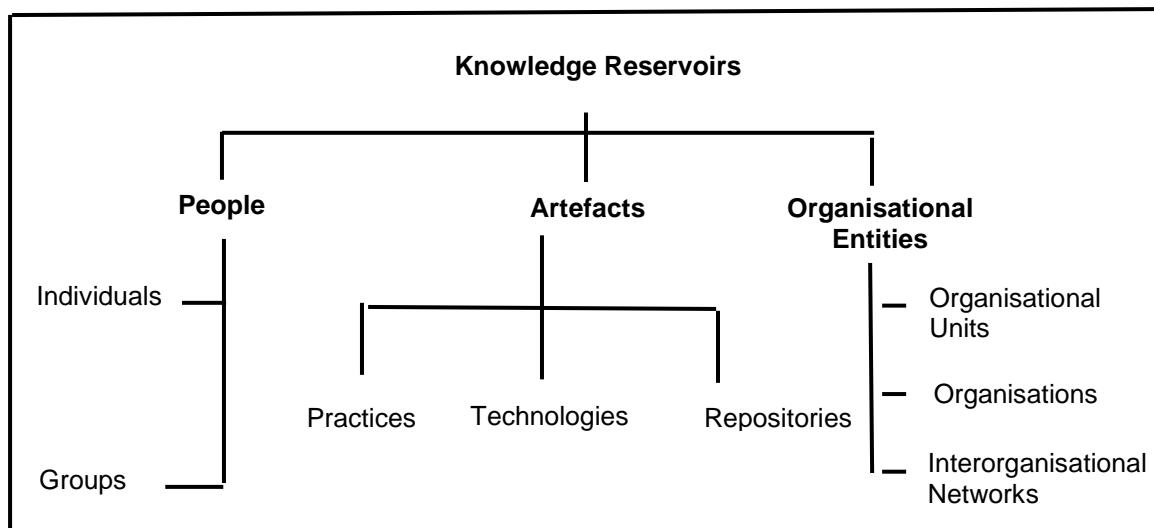


Figure 3.2 The reservoirs of knowledge (adapted from Bacerra-Fernandez et al., 2004:24)

Although knowledge is stored in “knowledge reservoirs”, it does not mean that it is a static phenomenon. Instead, knowledge has a life cycle of its own. This is reflected in the framework developed by Alavi and Leidner (2001). It is grounded in the sociology of knowledge and is based on the view of organisations as social collectives and “knowledge systems” (Alavi & Leidner, 2001). According to this framework, organisations as knowledge systems consist of four sets of socially enacted “knowledge processes”: (1) discovery (creation or construction), (2) capture (storage or retrieval), (3) sharing or transfer, and (4) application. These processes do not represent a monolithic set of activities, but an interconnected and intertwined set of activities.

In this section, the various interconnected aspects of knowledge, as it manifests in organisations, have been analysed. From these observations, Alavi and Leidner’s (2001) view is relevant in that organisations are knowledge systems that represent both the cognitive and the social nature of organisational knowledge and its embodiment in the individual’s cognition and practices, as well as the collective (e.g. organisational) practices and culture. This prominent role of the human component in the organisational knowledge will be explored in the following section.

As indicated in section 3.3, for an organisation to manage its available knowledge effectively there should be interaction between technology, techniques, and people (Bhatt, 2001). The recognition of the human component emphasises the fact that knowledge management takes place in a social context and thus people (e.g. managers and employees) are responsible for the knowledge activities in an organisation.

It is therefore not strange that intellectual capital is regarded as the most valuable resource in an enterprise, as it comprises human and structural capital (Bacerra-Fernandez et al., 2004). Structural capital refers to an organisation's capability. It can be defined as everything that remains when the employees go home, e.g. database, files, software, manuals and organisational structures.

Human capital refers to the body of knowledge an organisation possesses. It may reside not only in the minds of employees, but also in other knowledgeable organisations with which they are affiliated. This highlights the important role of employees and consequently reference is made to them as knowledge workers. The "knowledge worker" concept was first advanced by Peter F. Drucker in 1959 by referring to someone who works primarily with information or someone who develops and uses knowledge in the workplace (Wu, 2008; Kakabadse et al., 2003).

In today's workforce, knowledge workers are individuals that are valued for their ability to interpret information within a specific subject area. They will often advance the overall understanding of that subject through focused analysis, design and/or development. They use research skills to define problems and to identify alternatives (Balboul, 2009). They typically engage in peer-to-peer knowledge sharing across organisational and company boundaries, forming networks of expertise. In this regard, Wu (2008) states that research has shown that knowledge workers obtain 70% of their knowledge in the workplace from informal communication. They are therefore able to work collaboratively with and learn from one another and they are willing to take risks, expecting to learn from their mistakes rather than be criticised for them (Rogoski, 1999). Furthermore, knowledge workers are continually learning and are aware that knowledge has a limited shelf life (Allee, 1997).

Wu (2008) argues that in order to achieve effective management of knowledge workers, it is necessary to constitute a systematic, comprehensive and pointed management strategy according to the characteristics of knowledge workers as indicated above. The managerial task should be to remove obstacles to performance and channelling efforts into areas that will contribute to the accomplishment of organisations' objectives (Serrat, 2008). Managing talented workers for performance is best understood as a process of influence (Serrat, 2008). This observation correlates with Koteinikov's (2011) view that to manage knowledge workers effectively in the modern knowledge-driven enterprise, modern managers should balance management with leadership and coaching.

According to Jafari, Akhavan and Mortezaei (2009), leadership is a cardinal thread that runs through the whole range of the knowledge management initiatives in an organisation. As such, the leaders must be designers, teachers and stewards (Senge, 2006). In the role of designer, a leader must be willing to allow others to continue to evolve the infrastructure to suit their own situations and not to feel the need to control the process (Senge, 2006). A great teacher is someone around whom others learn. The spirit of the leader should be that of a grower of people (Senge, 2006). Stewardship in turn is doing what is right for the whole (Senge, 2006). This commitment brings with it a shift in that the leader becomes a steward of the organisation's vision.

As it is true that leaders in every organisation set the example for others, it is assumed that they have direct impact on how the organisation should approach and deal with knowledge management processes and practices. De Tienne, Dyer, Hoopes and Harris (2004) argue that if knowledge management does not permeate all levels in the organisation, beginning at the top, it is unlikely that knowledge management programmes will ever be effective. This argument is supported by Kluge, Stein and Licht (2001) who point out that while leaders across all levels of organisations have unique and important roles to play in knowledge management, it is particularly important for the chief executive officer (CEO) to be involved in the knowledge-sharing process. They further state that if the senior leaders take knowledge seriously, the rest of the members in the organisation will follow automatically.

This important role of leadership is further emphasised by Steward (1977) who asserts that even companies with promising cultures and highly effective incentive programmes will not succeed without having dedicated and responsible managers. It is subsequently important to take note of Jafari et al.'s (2009) view that the manager-thinker in the areas of knowledge management should give importance to leaders and especially to their leadership styles in ensuring that an organisation's knowledge management initiatives succeed. The following serves as strategies that managers can use to enhance knowledge management in their organisations: collaboration, community of practice, knowledge networks, and learning organisation.

Effective knowledge management requires a collaborative culture (Gold et al., 2001; O'Dell & Grayson, 1999). Collaboration can be defined as the degree to which people in a group actively support and help one another in their work to create value and to create new sources of value (Hurley & Hult, 1998). The interrelationship of collaboration with km is further highlighted by Senge (2006:270) as he refers to collaboration as the "flip side" of knowledge management. He believes that you cannot talk about the one without talking about the other. The reason for this is that knowledge is social – "Knowledge is what we know how to do, and we do things with one another" (Senge 2006: 270). In terms of this view, to manage knowledge, you need to address collaboration and tools that help people collaborate. Senge (2006) describes knowledge management as a very organic process and that there are ways to understand it and ways to aid rather than hinder it. Exchanging knowledge, the core of the aforementioned collaborative process, among different members is a prerequisite for knowledge creation. Collaborative interactions foster this type of exchange by reducing fear and increasing openness to other members. Therefore, collaborative interactions such as open dialogue, social interaction, and coactivity can help create organisational knowledge (Nahapiet & Ghoshal, 1998).

For Lave and Wenger (1991), learning is inherently a social process that cannot be separated from the context in which it takes place. Learning refers to the relationship between people, which gave rise to their use of the term "communities of practice". "Communities of practice" refer to organic and self-organised groups of individuals who are dispersed geographically or organisationally, but communicate regularly to discuss issues of mutual interest (Lave & Wenger, 1991). Lesser and Prusak (1999)

define communities of practice as collections of individuals who are bounded by informal relationships by sharing similar work roles and a common context. This increases the probability that at least one of them can provide useful knowledge (Becerra-Fernandez et al., 2004). A further value of communities of practice is that they provide access to external knowledge sources. These external sources provide a far greater knowledge reservoir than just that of the organisation (Choo, 1998).

Communities of practice differ notably from conventional units of organisations, such as teams or work groups. This difference can be found in that communities of practice are defined by knowledge rather than task. Their life cycle is determined by the value they create for their members and not by project deadlines (Allee, 2000). They exist in all organisations without formal charters or organisational mandates and they are formed over time by individuals with a need to associate themselves with others facing similar issues and challenges in an organisation (Lesser & Prusak, 1999).

Closely related to communities of practice is another phenomenon, namely knowledge networks (KNs). From a knowledge management perspective, knowledge networks can be defined as different types of team or social networks and communities in the organisation. These team or social networks and communities add significant value to the creation, dissemination and application of higher quality knowledge at a much faster rate than what individuals are capable of on their own. The format in which knowledge networks operate in an organisation are communities of practice, communities of interest, knowledge forums and knowledge cafés, knowledge teams, unstructured and structured discussion forums, and storytelling (<http://www.knowledge-management.online.com/KnowledgeNetworks.html>, retrieved 02/08/2010).

Literature on high-performance teams has shown that the degree to which individuals can better communicate and collaborate in a team, across teams and across entire organisations, has a direct link to the rate new knowledge, insights and ideas will be created, transferred, shared, absorbed and leveraged. The value of a network approach lies in the application of existing knowledge, exploration of new links among different kinds of knowledge, improvement of the access, the transfer and the

integration of knowledge and the improvement of the knowledge sharing process (Canzano & Grimaldi, 2004).

From the above discussions on collaboration, communities of practice and knowledge networks, it becomes clear that the latter develop spontaneously, as members of organisations search for knowledge. A more formal approach to assist employees in their search for knowledge is to transform the organisation to become a learning organisation. A learning organisation is one that encourages learning among its people by promoting an exchange of information between employees, hence creating a more knowledgeable workforce. As a result, organisations are more flexible as an enhanced knowledge base enables the workforce to improve their practices through adapting to new ideas (Taylor, 1998:1). A learning organisation can therefore be viewed as a group of people working together to enhance their capacities to create the results they value (Senge, 1994).

Ratner (1997, 1-34) defines a learning organisation as “one in which people at all levels, individually and collectively, are continually increasing their capacity to produce results they really care about”. Organisational learning is focused on the processes involved in individual and collective learning inside organisations (Serrat, 2009). Organisational learning is more than individual learning and arises through the interaction of individuals in groups and teams of different sizes. It is therefore the activity and the process by which organisations eventually reach the ideal of a learning organisation. Thus, learning organisations are organisations that generate, communicate, and leverage their intellectual assets. Senge (2006:3) describes these organisations as “organisations where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together”.

For Senge (1990), the fundamental difference between learning organisations and traditional authoritarian “controlling organisations” is the mastery of five basic disciplines. These are personal mastery, shared vision, mental models, team learning, and systems thinking. It is the fifth discipline, namely systems thinking, that integrates the other four. Senge proposes that people put aside their old ways of thinking (mental models), learn to be open with others (personal mastery),

understand how their organisation really works (systems thinking), form a plan everyone can agree on (shared vision), and then work together to achieve that vision (team learning).

The role of leadership in the learning organisation is highlighted by Senge (1994) in that leaders must encourage organisational members to think creatively, i.e. to imagine possibilities that do not already exist. Managing knowledge therefore helps create a learning organisation – one that is skilled at creating, acquiring, and transferring knowledge and modifying behaviour to reflect new knowledge and insight (Senge, 1994). The following serves as examples of techniques an organisation can use to enhance learning:

- **Training:** Meyer and Fourie (2004) define training as the process whereby the organisation provides skills to employees to enable them to carry out their tasks and duties more effectively. Employees are therefore empowered to carry out their tasks and duties.
- **Empowerment:** According to Fleming and Taylor (2003:27), empowerment involves “giving individuals responsibility and authority for making decisions at their own level”. This then allows individuals to take more control of what they do as well as how they carry out their responsibilities.
- **Coaching:** Coaching can be defined as the one-to-one supportive relationship provided by one individual, an expert in a particular field, to another individual (Van der Molen, 2009). He further stats that it is focused on the improvement of the performance of the latter individual and aims to achieve improved work-related skills and competencies through guidance and modelling, collaboration, autonomy, and accountability. Following this, it is clear that coaching is what Hunt and Weintraub (2002: xiv) describe as “learning oriented rather than compliance oriented [...] encourages employees to take greater responsibility for their own learning”. A further aspect of coaching is that it focuses on “unlocking a person’s potential to maximize their own performance. It is helping them to learn rather than teaching them” (Whitman, 2002).

- **Mentoring:** Mentoring is probably one of the oldest (and most successful) forms of human development dating back to the Palaeolithic era, when those with very specialised talents and skills, such as healing or the making of stone tools, instructed younger people in these ancient, but essential arts (Chamberlain, 2001:1).
- **Consulting:** Meyer and Fourie (2004) express the view that during a consulting process a transfer of knowledge is not necessarily expected. Consulting is considered to be a form of developmental relationship. In the consultation process, it is required that a relationship is developed between the client and the organisation to find a solution to a work-related problem or issue (Van der Molen, 2009).
- **Advising:** This entails giving opinions and information.
- **Instructing:** This entails teaching and informing others.
- **Counselling:** This entails encouraging someone to take responsibility for a problem or for improving a situation.

In this section, an overview was given of the role that employees at the different levels in an organisation play in the knowledge management process, as well as ways to assist them in their search for knowledge. In the following section, an analysis will be provided of the theoretical approaches on which knowledge management is based.

3.5 KNOWLEDGE MANAGEMENT: THEORETICAL APPROACHES

As indicated in section 3.3, the development of knowledge management has been influenced by various domains and disciplines. As a result, diverse and varied theories underpin knowledge management, which led to two trains of thought. On the one hand, there are those who see this diversity as a problem. They argue that the absence of a clearly defined and universally accepted theory of knowledge management has a detrimental effect on research and give rise to uncertainty in practice. On the other hand, there are those who see this diversity in knowledge management theory as natural and essential that should be embraced (Onions, 2010).

Although a generally accepted and unifying theory does not exist, there are many theoretical perspectives in use to explain various aspects of knowledge management. The following serves as examples of the areas that these theoretical perspectives focus on, e.g. cognitive abilities and organisational structures, cultural differences, differentiating between information and knowledge, and inter-firm cooperation. A short description of each is provided below.

- **Cognitive abilities of knowledge workers and organisational structures:** For Misch and Tobin (2006:135), many of the theoretical approaches to knowledge management appear to have neglected to differentiate between various levels of information (and knowledge) complexity, and appeared to have failed to bring into reckoning the cognitive processes applied by individuals as they process information. With this as point of departure, they (Misch & Tobin, 2006) introduced a new dimension to knowledge management. This approach did not only take cognisance of traditional technocratic, economic and behavioural approaches to knowledge management, but also introduced an awareness of how cognitive abilities of knowledge workers and organisational structures affect an organisation's ability to harness knowledge in the quest for sustainable competitive advantage. Misch and Tobin's (2006) approach is based on the Stratified Systems Theory of Jacques and Clement (1991). For Misch and Tobin (2006), this approach is of particular relevance in South Africa where racial, cultural, and language barriers often obscure real potential and real shortcomings by providing a more objective measure of ability that cut across culturally based assessment models and frameworks.
- **Cultural styles towards knowledge process:** Botha (2005) highlights the impact that the differences in preferences among cultural styles have towards the knowledge process and thus of knowledge management initiatives in multinational organisations. For Botha (2005), these organisations should take into account, understand and value the differing cultural styles of employees to be able to be competitive and to sustain their position of competitiveness. Botha (2005) suggests that this would only be possible if managers make a concerted effort to truly "manage" cultural diversity through scientific methods such as Geert Hofstede's model of cultural variables.

- **Inter-firm cooperation:** According to Pavlovich and Akoorie (2003) and Hyder and Abraha (cited in Ding, Akoorie and Pavlovich 2009), there is a worldwide recognition of the benefits of inter-organisational cooperation and therefore has been utilised substantially in nearly all industry sectors. The first approach offered by Ding et al. (2009) is that of transaction cost economic theory (TCE). The value of this approach is that it focuses on the economic implication, i.e. the minimisation of transaction cost of organisational behaviour. The second approach proposed by Ding et al. (2009) is that of Resource-Based Theory (RBT). It is an alternative for explaining the phenomenon of inter-firm cooperation. The third approach offered by Ding et al. (2009) is that of the knowledge-based view (KBV). These theoretical approaches provide an understanding of the increased use of the “alliance mode” (Ding et al., 2009). The basic premises of this mode are outlined by Pavlovich and Akoorie (2003), who pointed out that different knowledge is owned by different partners and that the alliance phenomenon is not unexpected given that knowledge could not be obtained by other means.

As a result, Onions (2010) recommends the abandonment of the search for a unifying theory of knowledge management in knowledge management research and practice. As indicated in section 3.2.2, Onions (2010) advocates the treatment of the subject as an umbrella term. However, by treating knowledge management as an umbrella term, Onions (2010) argues that such an approach will need a new method. He proposes a knowledge management body of knowledge approach (Onions, 2010:8). The vitality of the body of knowledge concept is captured by Wiig's (1994) comparison of the body of knowledge in an organisation to a living organism with all its flows and functions that energise, motivate, and revitalise the enterprise and make it possible for it to function. Such an approach will require that the field of km should agree on an underlying methodology or model. Onions (2010) suggests one pragmatic route offered by a life cycle, such as the implementation phases of knowledge management initiative as proposed by Rubenstein-Montano, Leibowitz, Buchwalter, McCaw, Newman and Rebeck (2001). Another option is a functional approach that is structured around knowledge process, such as the Socialisation, Externalisation, Combination and Internalisation (SECI) model (Nonaka & Takeuchi, 1995), or the underpinning commonalities found by Heisig (2009). Application-centric

models, such as the RICE model (Curley & Kivowitz, 2001) that shows which tools and techniques to apply in a particular situation, are an alternative (Onions, 2010:8).

Haslinda and Sarinah (2009) argue that given the importance of knowledge management and the complexity of its nature, it is necessary to try to understand the latest theories underlying knowledge and knowledge management. In an attempt to do so, it is necessary to critically examine the latest models of knowledge management.

3.6 KNOWLEDGE MANAGEMENT MODELS

As in the case with knowledge management theory and definitions there does not exist a generally accepted and unifying model for knowledge management. In the knowledge management literature and praxis, a multitude of knowledge management models are apparent (Haslinda & Sarinah, 2009; Moteleb & Woodman, 2007; Kakabadse, Kakabadse & Kouzmin, 2003). Each model treats knowledge in its own particular way, resulting in different knowledge management approaches (Swan & Newell, 2000).

We use models all the time in daily activities, but we work mostly with informal models like the images we carry in our minds as simplified representations of complex systems (Ford, 2009). These informal models are sometimes referred to as “mental models”. Senge (2006:8) describes mental models as “deeply ingrained assumptions, generalisations, or even pictures or images that influence how we understand the world and how we take action. Often, we are not aware of our mental models or the effect they have on our behaviour”. We constantly use mental models to interpret the world around us. We may not even realise that we are doing so.

Knowledge management models as “mental models” of knowledge are needed by companies to manage their assets and develop their knowledge management systems in the best possible way to have advantages over their competitors. An overview of knowledge management’s classification and various models will be given in the following section. There have been different attempts to classify knowledge management models. According to Moteleb and Woodman (2007), some scholars such as Earl, (2001) and Kakabadse et al. (2003) provide a classification of

knowledge management models into different schools and approaches according to their orientation. Others such as Gebert, Geib, Kolbe and Brenner (2003), and Herder, Veeneman, Buitenhuis and Schaller (2003) perceive different dichotomies in knowledge management models. Numerous models of knowledge management can be found in the literature. In an overview of knowledge management Models Haslinda and Sarinah (2009) include the following models:

- Boisot's knowledge category models;
- Nonaka's knowledge management model;
- Hedlund and Nonaka's knowledge management model;
- Skandia intellectual capital model of knowledge management;
- Demerest's knowledge management model;
- Frid's knowledge management model;
- Stankosky and Baldanza's knowledge management framework;
- Kogut and Zander's knowledge management model;
- Ackoff's pyramid to wisdom;
- The Six Knows;
- McElroy's model;
- Tiwana's model; and
- Nonaka's SECI (Socialisation, Externalisation, Combination and Internalisation) spiral.

For the purposes of this study, the Nonaka's SECI Spiral model will be discussed in more detail. The reason for my focus on the SECI model was motivated by two aspects thereof as they epitomise the intention for the personal continuous knowledge development (PCKD) model being developed in this study.

Firstly, the core behavioural assumption in the SECI model is that knowledge creating organisations continually encourage the flow of knowledge between individuals and staff groups to improve both tacit and explicit knowledge stock. Secondly, the critical knowledge management assumption of the SECI process is that knowledge is created and improved as it flows through different levels of the organisation and between individuals and groups. Thus, knowledge value is created

through synergies between knowledge holders (both individuals and groups) within a supportive and developmental organisational context.

The SECI model is the most widely accepted knowledge management model in the theory of knowledge creation (Nonaka & Takeuchi, 1991). This is a useful and rigorous approach to describe the ways knowledge is generated, transferred and recreated in organisations. Nonaka (1994) describes the model's four modes of knowledge creation as socialisation, externalisation, combination and internalisation. These four modes, as defined below, should not be viewed as pure, as they are interdependent and intertwined.

- The *socialisation mode* refers to the conversion of tacit knowledge to new tacit knowledge through social interaction and shared experience among the organisation's members.
- *Externalisation* refers to converting tacit knowledge to new explicit knowledge.
- The *combination mode* refers to the creation of new explicit knowledge by merging, categorising, reclassifying and synthesising existing explicit knowledge.
- *Internalisation* refers to the creation of new tacit knowledge from explicit knowledge. These last two modes therefore involve the interaction and conversion between tacit and explicit knowledge (Alavi & Leidner, 2001:116).

The interplay among Nonaka's (1994) knowledge creation modes is illustrated in Figure 3.3. In addition, this interplay is useful in interpreting relationships between the four modes as interdependent and intertwined. In doing so, the following assumptions should be considered:

Assumption 1:

- Knowledge consists of both tacit and explicit elements.
- Tacit knowledge is not verbalised, intuitive or articulated, but explicit knowledge is articulated and can be specified in writing, drawings, computer programming and other ways (Haslinda & Sarinah, 2009).

Assumption 2:

- Tacit knowledge can be transferred into tacit knowledge in others through *socialisation*.

Assumption 3:

- Tacit knowledge can be transferred into explicit knowledge in others through formalising a body of knowledge or through an *externalisation process*.

Assumption 4:

- Explicit knowledge can be transferred into tacit knowledge in others by translating theory into practice – known as a process of *internalisation*.

Assumption 5:

- Explicit knowledge can be transferred into explicit knowledge in others by combining various existing theories – known as a *combination process*.

Assumption 6:

- Each of the modes referred to above may independently create knowledge.

Assumption 7:

- The organisational knowledge creation process only occurs when all four modes are organisationally managed and interact dynamically.

Assumption 8:

- This process, which is highly iterative, constitutes the “knowledge spiral” which occurs mainly through informal networks of relationships in the organisation starting from the individual level, then moving up to the group (collective) level, and eventually progressing to the organisational level.

Assumption 9:

- This “spiral effect” of knowledge accumulation and growth promotes organisational innovation and learning.

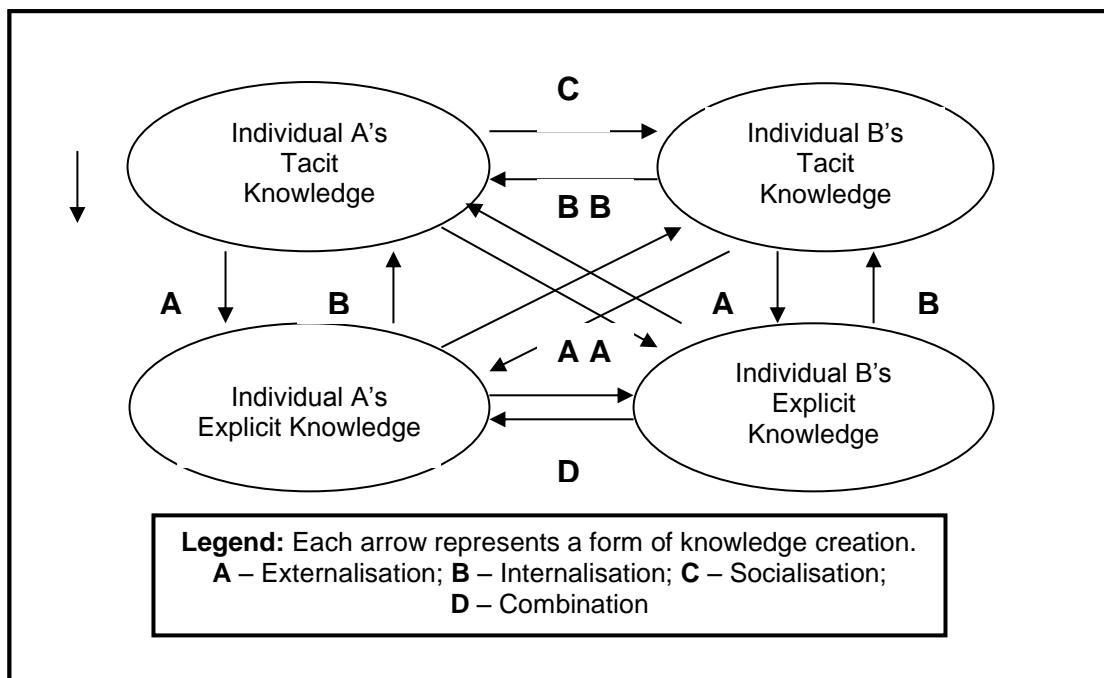


Figure 3.3 Interaction of knowledge creation modes (adapted from Alavi & Leidner, 2001:117)

Each mode relies on, contributes to, and benefits from other modes. Alavi and Leidner (2001:116) describe these symbiotic relationships by asserting that, on the one hand, the socialisation mode can result in creation of new knowledge when an individual obtains a new insight triggered by interaction with others. On the other hand, the socialisation mode can involve transferring existing tacit knowledge from one member to another through the discussion of ideas. New organisational knowledge may not be created per se, but knowledge that is new to the recipient may be produced. The combination mode in most cases involves an intermediate step, namely that of an individual drawing insight from explicit sources (i.e. internalisation) and then coding the new knowledge into an explicit form (externalisation). Internalisation in turn may consist of the simple conversion of existing explicit knowledge to an individual's tacit knowledge as well as the creation of new organisational knowledge when the explicit source triggers a new insight (Alavi & Leidner, 2001:116).

Malgalhães (2004) describes Nonaka and Takeuchi's (1995) theory of knowledge creation as featuring a central model where the various elements of knowledge creation are interrelated in a dynamic whole, which incorporates four modes

(Socialisation, Externalisation, Combination and Internalisation) and four processes (Dialogue, Networking, Learning by Doing and Field Building) as illustrated in Figure 3.4 below.

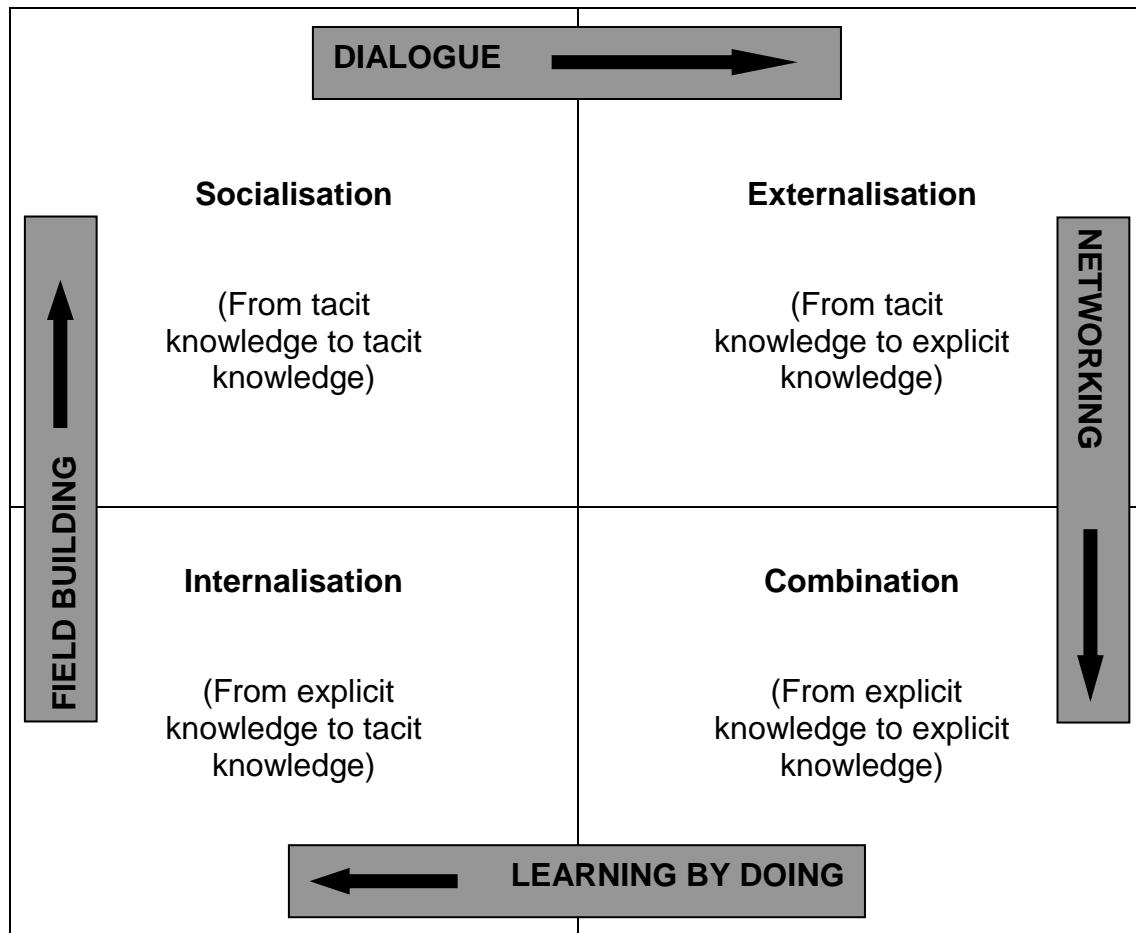


Figure 3.4 Modes and processes of knowledge creation (adapted from Malgalhães, 2004:210)

Socialisation starts with the building of a field of interaction, which enables the sharing of experiences and mental models among organisational members (Malgalhães, 2004:210). Externalisation is triggered by dialogue or collective reflection. Combination is triggered by networking of newly created or existing knowledge from different parts of the organisation, while learning by doing is the key process in the facilitation of the internalisation mode. By analysing these modes, an understanding of the ways knowledge is generated, transferred and recreated in organisations is gained. In the following section, these processes and the management's support in these processes will be discussed in more detail.

3.7 KNOWLEDGE MANAGEMENT PROCESSES

Knowledge management literature usually portrays knowledge management processes as being the basic knowledge processes of knowledge discovery, capturing, sharing, and application (Jafari & Ashraf, 2009). According to Firestone (2001), this approach is one-sided as it only focuses on one core aspect, namely the knowledge processes and ignores the supporting aspect of management. Knowledge management processes have a management and knowledge dimension. In the discussion of knowledge management processes, these should both be reflected (Firestone, 2001).

Knowledge management processes should therefore be seen as an ongoing, persistent, purposeful network of interactions among managers and employees in an organisation. In these interactions, the aim of the managers is to manage (e.g. handling, directing, governing, controlling, coordinating, planning and organising) other employees, components and activities involved in the basic knowledge processes in order to produce a planned, directed, unified whole, producing, maintaining, enhancing, acquiring and transmitting the enterprise's knowledge base (Firestone, 2001).

In Figure 3.5, the knowledge management processes model advocated by Flynn (2004) for describing the concept of knowledge management processes reflects the management and knowledge processes in ten interrelated and sequential steps.

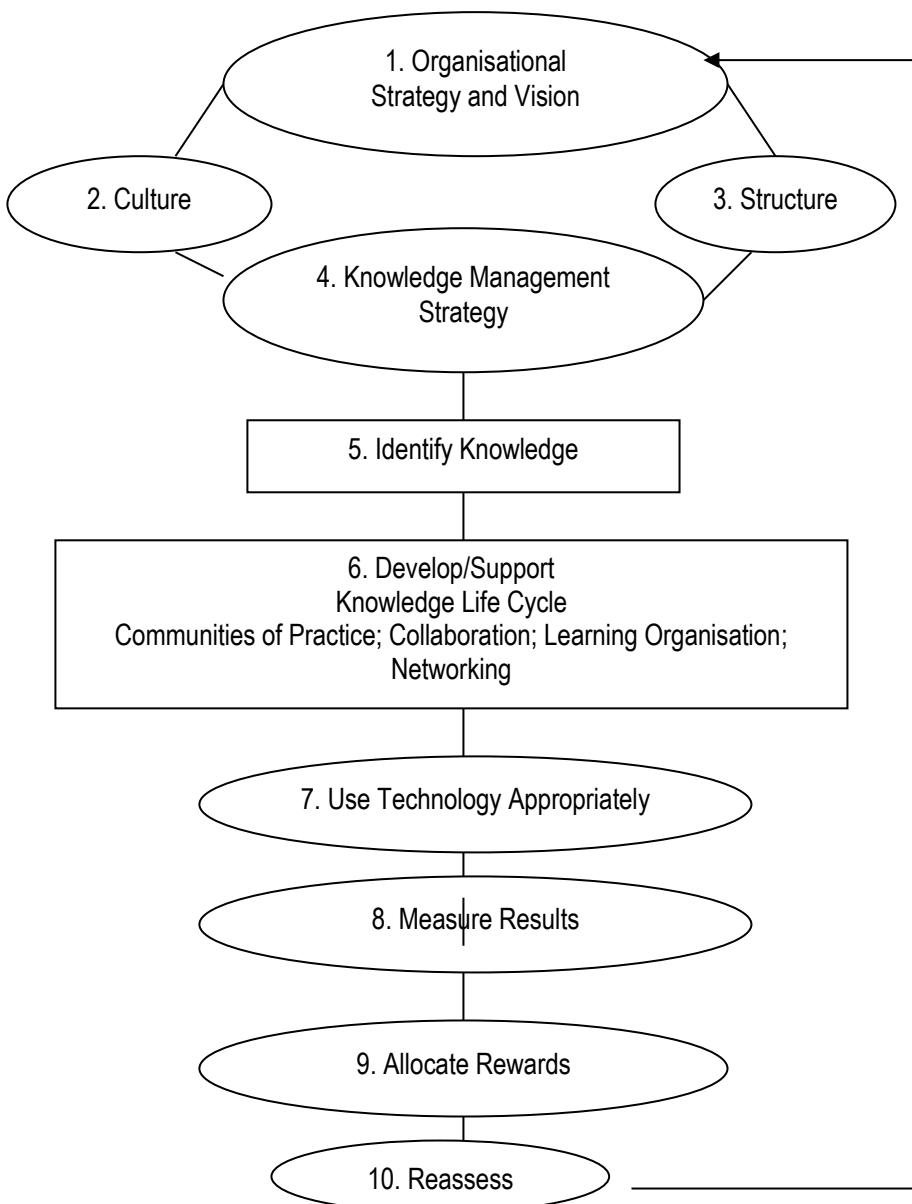


Figure 3.5 Knowledge management process (adapted from Flynn, 2004)

Step 1: Organisational Strategy and Vision

The first step in the knowledge management processes is that of aligning the organisation's knowledge management strategy with its business strategy. It therefore stands to reason that the development of the organisation's KMS should not be done as a separate entity but should be an integral part of the organisation's BS. Furthermore, Nicoliades advocates that a prerequisite should be that the people who implement the strategy are present when the knowledge strategy is laid out. This

implies both a top-down and bottom-up approach in developing an organisation's strategy.

According to Manning (2001), the development of strategy is the ultimate responsibility of every business leader. Companies succeed when they get it right and they fail when they get it wrong. This is equally true of knowledge management strategy due to the important role of knowledge as the foundation from which competitive advantage can be established. Therefore, if companies want to compete in the world of economics, they should capitalise on what they know and align their knowledge management strategy with their business strategy.

For Flynn (2004), the knowledge management process should be based on a solid business case that demonstrates how to use knowledge to benefit stakeholders and constituencies. This requires those driving the initiative to link knowledge management to organisational strategy, goals and objectives (Flynn, 2004).

Step 2: Knowledge Culture Audit

The second step in the knowledge management process would be to undertake a knowledge culture audit of the organisation. Flynn (2004) says that such an audit may reveal significant barriers that should be addressed. These include:

- An unwillingness to share knowledge;
- The fear of knowledge sharing (job security);
- Not tolerating mistakes;
- Too little time to share knowledge;
- Not using appropriate technology;
- An information overload;
- Equating information or data with knowledge;
- Taylorism and bureaucracy;
- A command and control culture;
- Not recognising commonalities across dissimilar business units;
- Business pressures that reduce time available; and
- Organisational rigidity restricts flow of knowledge.

According to Firestone (2001) and Flynn (2004), these “cultural” barriers are often held responsible for failure to share and transfer knowledge in organisations. If this is true, KM should undertake the difficult task of changing an organisation’s culture to achieve the knowledge sharing and transfer necessary to realise the full value of the organisation’s knowledge resources (Firestone, 2001; Flynn, 2004).

Step 3: Structure audit

The third step in the knowledge management process would be to undertake an audit of the organisational structure. As in the case with the cultural audit, it may reveal significant barriers that must be addressed. Jaques and Clement (cited in Misch and Tobin, 2006:142) are of the opinion “that the larger the range of interactions of knowledge workers within an organisation (with the least amount of formal hierarchical or vertical boundaries and obstacles), the more knowledge will flow within the organisation and the more effective such knowledge flows will be” (also see section 3.4 on high-performance groups). Misch and Tobin (2006:142) note that this does not suggest “the radical de-layering of organisational structures, or the removal of all formal structures and hierarchies altogether”. They base their observation on the work of Jaques and Clement (cited in Misch and Tobin, 2006:142) who assert that the structure of an organisation determines roles and functions and the relationship between these roles and functions.

Hierarchical layering therefore not only provides structure but also meaning (Misch & Tobin, 2006). Seen from a knowledge management perspective these successive layers should represent successive categories of task complexity and cognitive ability (Jaques & Clement (cited in Misch and Tobin, 2006:142). The value of this view is that it “allows managers in the next higher hierarchical layer to exercise their vested authority, to provide direction and set contexts” (Misch & Tobin, 2006:142). For Rumizen (cited in Misch and Tobin, 2006:142) “the internal structures within an organisation represents the organisational capabilities to meet customers’ requirements and that it is these structures that make available to others what one person knows”. In addition, Misch and Tobin (2006:143) state that

a certain number of hierarchical layers (determined by the nature and complexity of the task to be executed) is therefore an essential

feature in organisational design, and one that supports knowledge flows and productivity through the creation of responsibilities, accountability, respect, motivation and direction. The existence of too many layers in the hierarchical structure of an organisation (or the existence of hierarchical layers not structured according to the information complexity of the task to be performed at the level of the cognitive abilities required at that level), on the other hand, would be one certain way of ensuring that information is either lost within the structure or is only accessible by bypassing formal reporting structures.

Step 4: Determine a Knowledge Management Strategy

According to Zack (1999), the knowledge management strategy employed by an organisation can be inferred from observing their knowledge management activities. (Zack, 1999) argues that, from analysing the literature on knowledge management strategies, a triad of principles can be deducted on which organisations' knowledge management strategies are based, namely influencing, alignment and management. These principles can be defined as follows:

- **The principle of influencing**

According to Kakabadse et al. (2003), it can be argued that knowledge management is not about managing knowledge but about changing entire businesses' cultures and strategies of organisations to one culture and one strategy that value learning and sharing. This change (influencing) is stimulated by the fact that knowledge management is a set of activities that helps an organisation acquire knowledge from both inside and outside its boundaries. It is also helped by the understanding that it could be expected that by utilising the information provided through knowledge management, they will accomplish their mission (Jafari et al., 2009).

- **The principle of alignment**

A KM strategy adopted by an organisation should be aligned with the organisation's objectives and corporate strategies. The essence of such a

strategy should therefore be to sustain and improve the organisation's core competencies (Poh & Wee, 2004).

- **The principle of management**

Although there is an argument that knowledge cannot be managed, some aspects of knowledge can be managed, e.g. culture, organisation structure, communication processes and infrastructure (Kakabadse, 2003). In developing a knowledge management strategy for an organisation, the designers should ensure that these three principles form the basis of such a strategy.

Step 5: Identify Knowledge

In KM, knowledge-based assets are mobilised to enhance the individual and organisational performance. According to Flynn (2004), knowledge-based assets may be explicit or tacit. They should be captured and made accessible and useable (Flynn, 2004). This can be done by creating a culture of knowledge-sharing, identifying tacit knowledge-holders, building institutional memory in order to support future work, and identifying, recognising, generating, sharing and managing tacit knowledge.

Step 6: Measure results

The need for measuring knowledge management practices can be identified along two lines of thought. Firstly, it is necessary to determine the knowledge management maturity of an organisation (see Chapter 5) and, secondly, it is necessary to measure the effectiveness of knowledge management practices. The value of measuring is twofold in that it helps to change the behaviour of employees towards knowledge management as it focuses employees' efforts on specific goals and enables knowledge management practitioners to show the business value that knowledge sharing and reuse bring to the organisation (Vestal, 2002).

Vestal (2002:5) refers to the "Knowledge Management Measurement Bell Curve" to illustrate the pattern that measurement follows through a business life cycle.

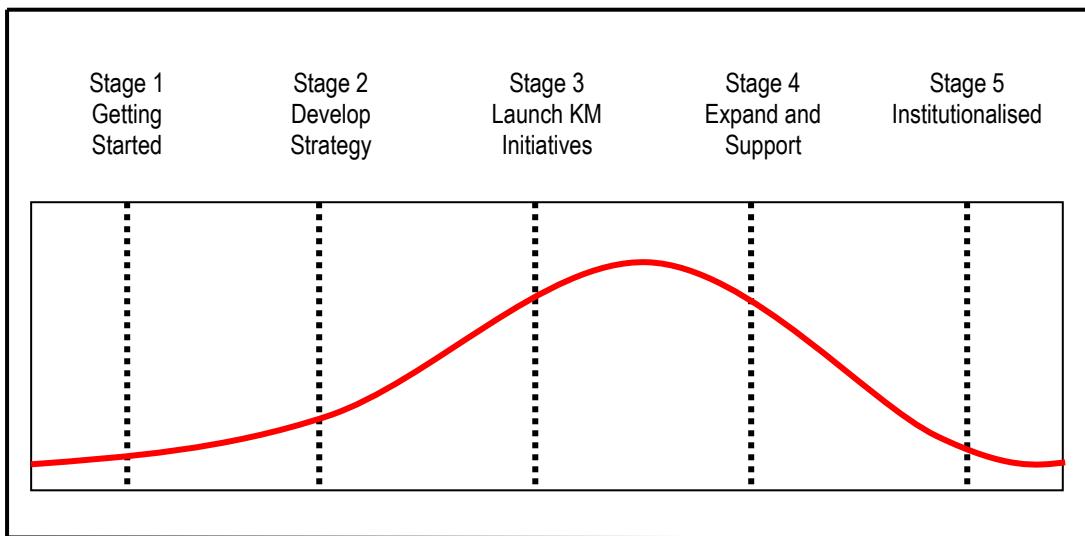


Figure 3.6 Knowledge Management Measurement Bell Curve (adopted from Vestal, 2002:5)

From Figure 3.6, it is clear that formal measurement rarely takes place and is not required in the earliest stages of knowledge management implementation. The need for measurement gradually increases as knowledge management becomes more structured and widespread and as it moves through stages 2, 3, and 4. In stage 5, which represents the institutionalisation of knowledge management as the way of doing business, there is a diminished need for and implementation of knowledge management-specific measurements. In this phase, it is replaced by needs to measure effectiveness of knowledge-intensive processes (Lopez, Hartz, Sammis, Hofer-Alfeis, Raybourn & Neumann Wilson, 2001).

Step 7: Allocate rewards

According to Flynn (2004), measurement and reward systems should be incorporated in the organisation's commitment to knowledge management. Ostendorf (2002:1) define rewards and recognition as follows: "Recognition is visible, public reinforcement to individuals and teams for contributions and role modelling of behaviour, such as a formal thank-you". Furthermore, rewards are more tangible, e.g. "money, promotion, and substantial gifts" (Ostendorf, 2002:1).

Step 8: Reassess

The knowledge management process, like all business processes, should constantly be reassessed to ensure the continuous improvement of knowledge management efforts in the organisation (Flynn, 2004).

3.8 KNOWLEDGE MANAGEMENT: THE ORGANISATIONAL PERSPECTIVE

As indicated above, knowledge is highly dependent on the two primary variables – the human element and the social context (Saade, Nebebe & Mak, 2011). Knowledge management is seen by many as structured ways of making knowledge explicit and sharable in a specific context in a specific community, accomplished in several ways with or without information technology (Avdic & Westin, 2002)

In this section, a contextual analysis will be made of how knowledge management influences organisational actions, e.g. approaches to knowledge management, distinguishing between related functions, operational objectives, the impact on various organisational aspects, and key elements that are prevalent in organisations that fully embrace knowledge management.

Management can approach knowledge management from a hierarchical or organic perspective. The difference between these approaches lies in the degree of control. In the hierarchical approach, the focus is on designing and implementing a set of well-articulated, rule-governed business processes. These process then inform the implementation of knowledge production or knowledge integration, handed down by knowledge managers, in a manner reminiscent of business process re-engineering. This approach is frequently called the “Newtonian” approach (Firestone, 2001). In the organic approach, however, the focus falls on implementing policies that support “natural” tendencies of existing knowledge processing patterns occurring in communities of practice, for example, (see section 3.4) and generally outside the formal lines of the organisational authority. This approach is referred to as the “Knowledge Ecology” (Firestone, 2001).

Distinction should be made between knowledge management, information management, data management, as there are distinct differences between knowledge, information and data (see section 3.4).

The relationship between knowledge management and human resource management (HRM) is important. Both knowledge management and HRM are focused on harnessing the available knowledge asset and preventing a knowledge drain (Suresh, 2002). Therefore, there is a need for the integration between the organisation's knowledge management and HRM policies (Jafari, 2009). Firstly, in recruitment practices, the aim should be to select and recruit individuals who would subscribe to the culture of sharing information and the dissemination of knowledge. Secondly, organisations only encourage and retain those people who are willing to share knowledge and work towards the holistic improvement of the organisation, i.e. people who do not just solve problems localised around their personal expertise. Thirdly, the organisation should have an appropriate reward and incentive system, which would recognise performance and adequately reward those who share knowledge with the others in the organisation (Suresh, 2002).

The operational objective of knowledge management is to ensure that the right knowledge is available to the right processors, in the right form and at the right time for performing their knowledge activities (Holsapple & Joshi, 2000:237). These specific instances of knowledge activities and their associated knowledge flows are termed knowledge management episodes (KME) (Holsapple & Joshi 2000:237). Knowledge management therefore focuses on organising and making important knowledge available, wherever and whenever it is needed (Bacerra-Fernandez et al., 2004).

The traditional emphasis in knowledge management has been on knowledge that is recognised and already articulated in some form (including knowledge about processes, procedures, intellectual property, documented best practices, forecasts, lessons learned, and solutions to recurring problems). Lately, the focus of knowledge management has also moved to managing important knowledge that resides solely in the minds of an organisation's experts. Bacerra-Fernandez et al. (2004:3) state that today organisations rely on their decision-makers to make "mission-critical" decisions based on inputs from multiple domains, such as increased domain complexity, accelerated education volatility, intensified speed of responsiveness and diminished individual experience.

According to Becerra-Fernandez et al. (2004), knowledge management can affect organisations and organisational performance at four levels, namely people, processes, products, and overall organisational performance. This can be done in two main ways. Firstly, knowledge management can help create knowledge, which can then contribute to improved performance of organisations along these four dimensions. Secondly, knowledge management can directly cause improvements along these four dimensions (Becerra-Fernandez et al., 2004:51). This process is illustrated in Figure 3.7:

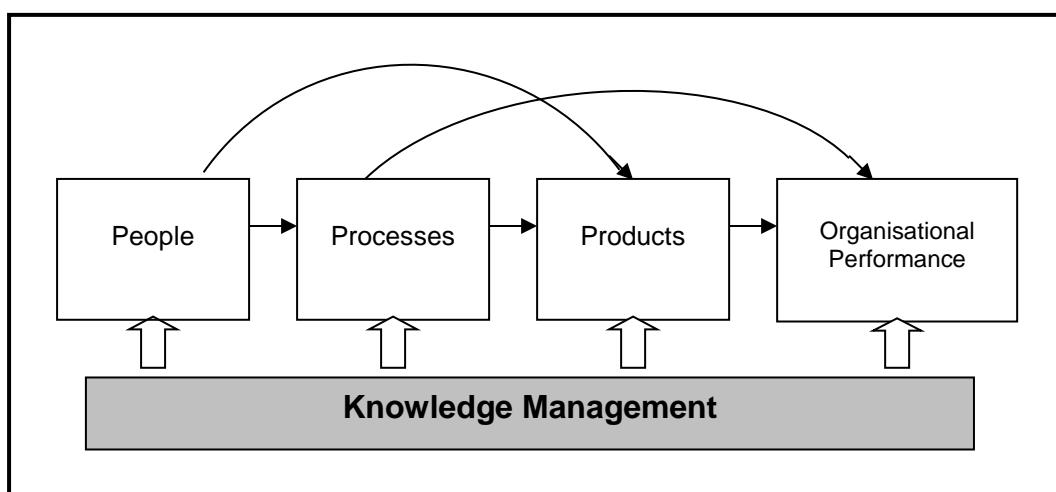


Figure 3.7 Impact of Knowledge Management (adapted from Becerra-Fernandez et al., 2004:52)

Impact on People

The impact can, according to Becerra-Fernandez et al. (2004:52–53), manifest along three major dimensions, namely employee learning, employee adaptability and employee job satisfaction. These dimensions can be summarised as follows:

- **Impact on Employee Learning:** Knowledge management can help enhance employees' learning and exposure to the latest knowledge in their fields. This can be accomplished in a variety of ways as illustrated in Figure 3.4, including externalisation (the process of converting tacit knowledge into explicit forms) and internalisation (the process of converting explicit knowledge into tacit knowledge), socialisation (individuals acquire knowledge through joint activities, such as meetings and informal conversations). One specific but

important way in which learning through socialisation can be facilitated involves the use of a community of practice as discussed in section 3.4 (Becerra-Fernandez et al., 2004:52–53).

- **Impact on Employee Adaptability:** Knowledge management is likely to engender greater adaptability among employees if the km process of the organisation encourages its employees to continually learn from each other. Also see section 3.4 page 86 for a discussion on the learning organisation. The employees are then likely to possess the information and knowledge required to adapt whenever organisational circumstances necessitate it (Becerra-Fernandez et al., 2004:54).
- **Impact on Employee Job Satisfaction:** The impact of the above two benefits of knowledge management for employees lies in the fact that it makes the employees feel better because of the knowledge acquisition and skill enhancement. In addition, knowledge management also provides employees with solutions to problems they face in case those same problems were encountered earlier and were effectively addressed (Becerra-Fernandez et al., 2004:54).

Impact on Processes

According to Becerra-Fernandez et al. (2004:52–53), this impact can be seen along three major dimensions: effectiveness, efficiency and degree of innovation of the processes.

Impact on Products

Knowledge management also impacts on the organisation's products. The impact of on an organisation's products can be observed in value-added products and knowledge-based products (Becerra-Fernandez et al., 2004:58).

Impact on Organisational Performance

In addition to the potential impact on people, processes and products, knowledge management may also affect the overall performance of the organisation. This impact on the overall organisational performance may either be direct or indirect

(Becerra-Fernandez et al., 2004:60). This direct or indirect impact of knowledge management on organisational performance can be summarised as follows:

- **Direct impact on organisational performance:** In business, the direct impact of knowledge management on an organisation's performance is relatively straightforward. It can be observed in terms of improvements in return on investment (ROI) (Becerra-Fernandez et al., 2004:60). To achieve this, knowledge should be used to create innovative products that will generate revenue and profit or the knowledge management strategy should be aligned with the organisation's vision and business strategy.
- **Indirect impact on organisational performance:** Unlike direct impact, however, indirect impact cannot be associated with transactions and, therefore, cannot be measured easily. Indirect impact of knowledge management on organisational performance stems from activities that are not directly linked to the organisation's vision, strategy, revenue or cost. Examples of indirect benefits include: 1) the use of knowledge management to achieve economies of scale and scope, and 2) knowledge management's provision of sustainable competitive advantage (Becerra-Fernandez et al., 2004:61–62).

In the literature, four strategies are highlighted that are prevalent in organisations that fully embrace knowledge management. They are: (1) collaboration, (2) the value of communities of practice in creating and sharing knowledge, (3) developing the organisation to be a learning organisation and (4) networks (Owen-Smith & Powell 2004; Büchel & Ruab, 2002; Allee, 2000; Augier & Vendelø, 1999).

The above strategies must be seen in relationship to the concepts knowledge sharing capability, absorptive capability, dynamic capability, and organisational innovative performance. The relationship of these concepts was investigated in a study by Pai and Chang (2013). Their study results showed the positive effect of knowledge absorptive capability on dynamic capability and then on organisational innovation performance.

For them, based on the work of Cohen and Levinthal (1990), knowledge absorptive capability must be seen from the perspective of acquisition and innovation. To elaborate on this concept further they also refer to the work of March and Simons

(1958) who noted that most innovative activities come from “borrowing” rather than “inventions. Here, “borrowing” refers to observing knowledge or experiences from other organisations and creating new ideas, whereas “invention” means creating new ideas (Pai & Chang, 2013:85).

From this they made the deduction that the capability of introducing new knowledge in the organisation is a key factor to the organisations innovation capability. In this study as indicated in Chapter 5 on the personal continuous knowledge development (PCKD) model the knowledge absorptive capacity of schools advocated by managements encouragement and motivation of teachers that they should source the knowledge they need from knowledgeable others and then using it to improve on their teaching in diverse classrooms

Pai and Chang (2013:85) describe innovation as the gathering of ideas from internal and external sources and then producing valuable products or services, and it includes related technology, products and processes. In this study the PCKD model discussed in Chapter 5 is aimed at supporting teachers to be innovative by gathering the knowledge they need, by using the strategies mentioned above, from knowledgeable other outside or within the school. In this manner they will be able to strengthen their knowledge base and improving their teaching children with diverse barriers to learning including those with disabilities.

Teece, Pisano and Shuen (cited in Pai and Chang, 2013:86), define dynamic capabilities as a firm’s ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments. In this study, as indicated in Chapter 5 on the development of the PCKD model, the dynamic capabilities of the school in relationship to IE is emphasised in the role that school leaders should play in developing an inclusive ethos in the school, the developing the school as an learning organisation and supporting and motivating teachers to develop and use their personal agency to develop their own personal knowledge of how to be effective in a diverse classroom.

The PCKD model described in Chapter 5 is aimed at strengthening the school to provide quality education to all children including those with a barrier to learning and disabilities. The model attempts to achieve this by utilising the value of the

relationships among knowledge sharing, absorptive capability, dynamic capability, and the schools innovative performance in terms of quality education to all children.

3.9 SUMMARY AND CONCLUSION

In this Chapter, a conceptual and theoretical analysis was made of knowledge management as the foundation for continuous knowledge development in organisations. This was done with what Weber (1949:90) referred to as ideal type of organisation in mind. He (Weber, 1949:90) explained it as follows:

An ideal type is formed by the one-sided accentuation of one or more points of view and by the synthesis of a great many diffuse, discrete, more or less present and occasionally absent concrete individual phenomena, which are arranged according to those one-sidedly emphasized viewpoints into a unified analytical construct ...

An ideal type is formed from characteristics and elements of the given phenomena, in this case the practice of knowledge management, but it is not meant to correspond with all of the characteristics of any particular case. It is not meant to refer to perfect things, moral ideas nor to statistical averages but rather to stress certain elements common to most cases of the given phenomena.

The core characteristics and elements identified in this Chapter can be formulated as the following criteria:

- Criterion 1:** Management at all levels should endorse and support knowledge management all levels.
- Criterion 2:** knowledge management should be enshrined in the organisation's development strategy.
- Criterion 3:** Management styles should accommodate the characteristics of knowledge workers.
- Criterion 4:** The organisational culture must encourage continuous knowledge development through collaboration, the formation of communities of practice, value learning by being learning organisations, and

transcending internal and external boundaries of the organisation through networking.

The above criteria will form the basis for the conception, planning and design of a knowledge management model as an approach to improve support to teachers in inclusive education classrooms.

CHAPTER 4

INCLUSIVE EDUCATION: TEACHER LEARNING

4.1 INTRODUCTION

In the previous Chapter, it was established that knowledge management serves as a foundation for continuous knowledge development (CKD) of employees in the business world. I argue that this characteristic of knowledge management can contribute to the knowledge development of teachers in inclusive education. This Chapter's focus (as reported in section 1.1) is on teacher learning in inclusive education. The reason for this focus is that although teachers are regarded as the most important role players in inclusive education, it is often reported that they are not informed practitioners due to a lack of knowledge.

Forlin (2012) is of the opinion that teachers will more likely endeavour to become effective inclusive practitioners if they are supported by means of appropriate pre-service preparation (e.g. initial teacher education) and opportunities for ongoing professional learning (e.g. continuous professional development). Worldwide, these two approaches are recognised as standard practices with regard to teacher learning in the field of inclusive education (see section 4.7). Despite these efforts, there is a persistent outcry in South Africa and internationally that teachers lack knowledge and skills (as reflected in section 1.1). As a result, to make an informed contribution to the debate on effective teacher learning, I embarked on an in-depth study of what constitutes IE and how it should inform and continuous professional development.

In the following sections, an overview will be given of inclusive education. These sections provide:

- A summary of its international and local historical development;
- A definition of inclusive education and related concepts;
- An overview of implementation in schools;
- A discussion of the impact on school management and teachers – including professional development needs of teachers; and

- An overview of the professional development and support given to teachers.

4.2 HISTORICAL DEVELOPMENT TOWARDS INCLUSIVE EDUCATION PRACTICES: AN INTERNATIONAL AND SOUTH AFRICAN PERSPECTIVE

As illustrated in Figure 4.1 the development towards inclusive education is inextricably linked to the educational phases that developed worldwide for children with disabilities and South Africa has been no exception.

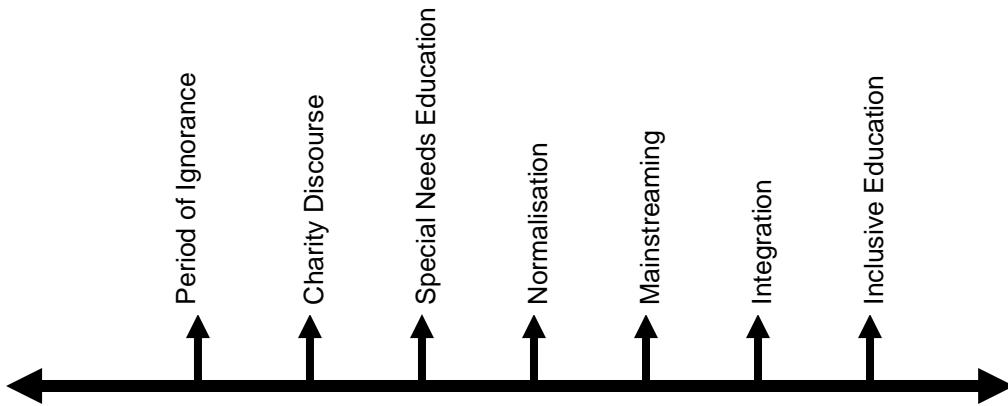


Figure 4.1 Phases of development towards inclusive education (Adapted from Engelbrecht, Green, Naicker & Engelbrecht, 1999)

I view these phases as the beginning of inclusive practices. The argument is that they all represent efforts based on good intentions to include children with disabilities in the realm of education. Each phase reflects that phase's collective philosophical way of thinking about the education of children who have been perceived to be different (see Table 4.1).

My observations and reality show that practices associated with a specific phase do not cease to exist with the move to a new phase. It is therefore not strange to find remnants of past practices still in operation today (Swart & Pettipher, 2011). To this end, Rouse (2012) observes that many school systems perpetuate existing inequalities and intergenerational underachievement. Although there are many reasons for this, it is mostly associated with deeply embedded attitudes to, and beliefs about, human difference (WHO, 2011).

Table 4.1 Sequential Development towards Inclusive Education

The Six Sequential Development Phases of Inclusive Education	
Period of ignorance	The exclusion from education offered by the state of any child perceived to be “different” was the practice at one stage in the past (Waitoller & Kozleski, 2013; Engelbrecht & Green, 2001; Engelbrecht et al., 1999; Naicker, 1999). This materialised in that children with any obvious disability were judged incapable of benefiting from education that was offered for children in mainstream education. They were considered potentially disturbing and were consequently excluded (Green & Engelbrecht, 2007). In order to provide for the needs of children that were affected by this way of thinking, a charity discourse (Fulcher, 1989) subsequently emerged.
Charity Discourse	The generally accepted views of the charity discourse were based on the assumption that children with disabilities were inevitably dependent and deserved pity and assistance. The education they received relied for its existence on the generosity and goodwill of individuals and charitable groupings.
Special Needs Education	From the charity discourse, a medical deficit or with-in-child mode of thinking developed. This was generally known as the medical model. In this model, children with disabilities were conceptualised as abnormal and in the need of the attention of specialists. This led to the practice that medical, paramedical and special needs education experts assessed and classified children with disabilities. As a result, the creation of categories of disabilities occurred. Based on the assessment and categories special needs education opportunities were determined and made available to them. This special needs education developed as a parallel system to mainstream education (Swart & Pettipher, 2008; Green & Engelbrecht, 2007; Du Toit, 1996). Frequently, if not always, it was believed that this segregation was in the best interest of children with disabilities.
Normalisation	This development was stimulated by concerns about segregated special needs education due to the prominence of criticism of the medical model. The development of social and ecologically inclined theoretical models followed (Bailey, 1998). These models promoted the participation of all people, especially those with “differences”, in society’s everyday life (Florian, 1998) and the removal of stumbling blocks in society that prevented it. This was reflected in changes in attitudes, regulations and institutions that created and maintained exclusion (Swart & Pettipher, 2008). The result was a paradigm shift away from the “specialness” of children and the “special” forms of provision they were considered to need to a more “normal” provisioning of services and views of children with disabilities. This idea of normalisation developed in Scandinavia in the 1950s and came to the fore in Western societies in the late 1960s. Its philosophical point of departure was in direct conflict with the earlier practice of separate schools and soon gave rise to the policies of mainstreaming and integration (Swart & Pettipher, 2008).
Mainstreaming	The mainstreaming model was based on the assumption that people with disabilities have a right to life experiences that are the same as, or similar to, that of their peers. The main goal is to return children with disabilities to the mainstream of education as much as possible. In general, the practice was that children with disabilities “visit” general education classes for short periods, most commonly in the non-academic portion of the general education programme, including art, music, and physical education (Turnbull et al., 2002). Most of the children were still enrolled in self-contained special needs classes. Few, if any, support services followed the children into mainstream classes – children needed to prove their readiness to “fit in”. Should special education provisions be necessary, it was provided in special environments such as self-contained classes and resource rooms.

The Six Sequential Development Phases of Inclusive Education	
Integration	Integration aims to maximise the social integration between “disabled” and “non-disabled”. Since the concept of integration did not specify what exactly was to be done instead of exclusion and segregation, many different interpretations and examples emerged. The onus was on these children to “fit in” (Frederickson & Cline, 2002). Significant instruction time in separate settings still prevailed. Special services followed the children to the regular school. Only a limited number of additional provisions were made and the onus was still on the learner to “fit in”.

The above developments were motivated by promoting the valuing of human rights and social justice paradigms emphasised in policies and legal frameworks of the United Nations since 1948. See Table 4.2 in this regard.

Table 4.2 United Nations Policies and Legal Frameworks promoting inclusive education

UN Policies and Legal Frameworks promoting inclusive education
1948 – The Universal Declaration of Human Rights (UDHR) In Article 26, it is stated that “Everyone has a Right to Education”. However, children and adults with disabilities are frequently denied this fundamental right. Lobbying by disability groups has ensured that subsequent UN Human Rights instruments make specific mention of people with disabilities, and emphasised that <i>all</i> persons with disabilities, no matter how severely disabled, have a right to education (Stubb, 2002).
1960 – The Convention against Discrimination in Education
1989 – The United Nations Convention on the Rights of the Child (UNCRC) The UNCRC took the right to education a step further than the 1948 UDHR by stating in Article 28 that primary education should be “Compulsory and available to all”. In Article 23, specific mention is made of the rights of children with disabilities. However, it makes their right “subject to available resources” and it focuses on “special needs” without defining it. The rights of children with disabilities according to the UNCRC should be considered in the context of the underpinning principles, e.g. non-discrimination (Article 2), making specific mention of children with disabilities; best interest of the child (Article 3); right to survival and development, and respect for the views of the child (Article 12); and Articles 28 and 29 on education that applies to <i>all</i> children.
2005 – The Convention on the Protection and Promotion of Diversity in Cultural Expressions
2006 – The Convention on the Rights of Persons with Disabilities (UNCRPD) All the efforts since 1948 are supported by the Convention on the Rights of Persons with Disabilities.

In these documents, the right of all children to have access to quality education is emphasised. This right was further reinforced by international conferences and declarations that took place between 1990 and 2000. They are summarised chronologically in Tables 4.3 to 4.5.

Table 4.3 Education for All (EFA)

1990 – Education for All (EFA) in Jomtien, Thailand

In the years that followed the UNCRC (1989), the growth towards universal education did not take place as was anticipated. It was recognised that “education for all” was not just going to happen automatically (Stubbs, 2002) and needed to be addressed. As a result, these challenges were addressed at the Jomtien World Declaration on Education for All in Thailand in 1990. In Article iii – Universalising Access and Promoting Equity, it went a step further than the UDHR (1948) by recognising that educational disparities existed and that many specific groups were vulnerable to discrimination and exclusion. These groups included girls, the poor, street and working children, rural and remote populations, ethnic minorities and other groups, and particular mention was made of people with disabilities. It also clearly states, although the term “inclusion” is not used, the importance of ensuring that people in marginalised groups should have access to education in the mainstream system. Therefore, the Jomtien Declaration restated that education is a basic right for ALL people.

From the Jomtien Declaration, it should be noted that inclusive education is not only about the inclusion of children with disabilities, as many vulnerable groups are excluded from education. Inclusion is essentially about creating a system to accommodate all children. The following documents (see Tables 4.4 and 4.5) that build on the Jomtien Declaration give further clarity about what people with disabilities’ right to education means in practice.

Table 4.4 The Standard Rules on the Equalisation of Opportunities for Persons with Disabilities

1993: The Standard Rules on the Equalisation of Opportunities for Persons with Disabilities

The Standard Rules (SR) stem from the Disability Rights movement and govern all aspects of the rights of people with disabilities. Rule 6 focuses on education and correlates with the Jomtien Declarations in that it states that children with disabilities should be educated as an integral part of the mainstream, and that the State should have responsibility for the education of persons with disabilities

In this document, children with disabilities’ right to education are emphasised.

At the World Conference on Special Needs Education that was held in Salamanca, Spain, in 1994, the inclusive education approach received its first major impetus as the growing community of those opposed to separate special needs education reached a critical mass with the adoption of UNESCO’s Salamanca Statement and Framework for Action on Special Needs Education (Green & Engelbrecht, 2007). This became the key international document on the principles and practice of IE (see Table 4.5). Its guiding principle was based on the social perspective of inclusion as a right of all children in mainstream schools. In the Framework for Action (Article 3), a comprehensive description is given of the groups that constitute the concept “all

children" (see Table 4.5) who should be included. The key difference between the Standard Rules (see Table 4.4) and the Salamanca Statement (see Table 4.5) is that the Standard Rules focused on a particular group, namely people with disabilities, while the Salamanca Statement focused on a wider range of characteristics and educational needs.

Table 4.5 The Salamanca Statement and Framework for Action on Special Needs Education

1994 – The Salamanca Statement and Framework for Action on Special Needs Education Salamanca Statement)
Article 2
<ul style="list-style-type: none"> • Education systems should take into account the wide diversity of children's different characteristics and needs. • Regular schools with this inclusive orientation are the most effective means of combating discriminatory attitudes, creating welcoming communities, building an inclusive society and achieving education for all; moreover, they provide an effective education to the majority of children and improve the efficiency and ultimately the cost-effectiveness of the entire education system.
Article 3
<ul style="list-style-type: none"> • [Adopt] as a matter of law or policy the principle of inclusive education [...], unless there are compelling reasons for doing otherwise.
The Framework of Action
Article 3
<ul style="list-style-type: none"> • The guiding principle of this framework is that schools should accommodate all children ... [T]his should include disabled and gifted children, street and working children, children from remote or nomadic populations, children from linguistic, ethnic or cultural minorities, and children from other disadvantaged or marginalised areas or groups ... The challenge confronting the inclusive school is that of developing a child-centred pedagogy capable of educating all children.
Article 4:
Human differences are normal and learning must be adapted to the needs of the child rather than the child fitted to preordained assumptions [...], a child-centred pedagogy is beneficial to all students, and, as a consequence, to society as a whole, it can substantially reduce the drop-out and repetition, while ensuring higher average levels of achievement ... Child-centred schools are, moreover, the training ground for people-orientated society that respects both the differences and dignity of all human beings.
Article 6:
Inclusion and participation are essential to human dignity and to the enjoyment and exercise of human rights.
Article 7:
The fundamental principle of the inclusive school is that all children should learn together, wherever possible, regardless of any difficulties or differences they may have. Inclusive schools must recognise and respond to the diverse needs of their students, accommodating both different styles and rates of learning.
Article 10:
Experience suggests that inclusive schools, serving all of the children in a community, are most successful in eliciting community support and in finding imaginative and innovative ways of using the limited resources that are available.
Article 18:
Educational policies at all levels, from the national to the local, should stipulate that a child with a disability should attend the neighbourhood school, i.e. the school that would be attended if the child did not have a disability.

Following the Salamanca conference, the third conference was the World Education Forum that was held in Dakar in 2000 to review progress and to set new international targets for achieving Education for All. In response to concerns that Education for All initiatives adopted at this conference did not necessarily include children with disabilities, UNESCO worked with international disability-focused organisations to establish an Education for All flagship, namely “The Right to Education for Persons with Disabilities: Towards Inclusion” (Miles, 2005).

As indicated above, the recognition of inclusive education as a human right has developed gradually over decades as a result of United Nations (UN) declarations and conventions indicating education as a right for *all* children. The result is that the movement towards inclusive education gained ground in education systems worldwide (Wah, 2010). This suggests that inclusive education will persist rather than disappear (Oswald, 2007). It should therefore not be viewed and treated as the latest educational “fad or bandwagon” (Stanovich & Jordan, 2002:147) but as a serious attempt to optimise the education opportunities of all children including children with disabilities and those vulnerable to discrimination and exclusion (see section 4.2 - Table 4.5).

Inclusive education is, however, not the norm, as UNESCO has indicated in 2011 that more than 70 million children worldwide still do not have access to education (UNESCO, 2011). In South Africa, there were 548 776 children aged 7 to 18 not attending school in 2012. Of these children, 5% (27 439) were children with disabilities. In the same period, 92% of 7-year-olds to 15-year-olds with a disability were attending schools, which mean that 8% of this group did not attend school. In the age group 16-year-olds to 18-year-olds, 67% of children with a disability attended schools, which means that a significant proportion (33%) of children in this age group is not participating in any form of education (DoBE, 2013).

The development towards inclusive education in the South African context is marked by contextual influences that distinguish the development of education, including special needs education, from that of other countries (Engelbrecht, 2006). The inclusive approach to education has been stimulated by the history of colonialism and the political dispensation based on segregation in all areas of social life (Engelbrecht, Howell & Bassett, 2002; Artiles & Larsen, 1998). Furthermore, international

developments as indicated above were locally echoed by the advocacy of parent groups, non-governmental organisations, and acceptance by Government.

The South African Government's commitment is visible through a number of key provisions: e.g. the Constitution (Act 108 of 1996) recognises basic human rights (Section 1a) for all citizens, including key socioeconomic rights. One of these basic rights is the right to education. As a result, the legislative and policy framework for inclusive education in South Africa is directed by the Constitution (Act 108 of 1996).

Based on the requirements of the Constitution, much research was done that resulted in the publication of twelve documents referred to in Table 4.6.

Table 4.6 Inclusive Education policy development in South Africa

Year	Document that directs Inclusive Education in South Africa
1996	National Education Policy Act 27 of 1996
1996	South African Schools Act 84 of 1996
1997	White Paper on an Integrated National Disability Strategy (DoE, 1997)
1997	Report of the National Commission on Special Needs in Education and Training (NCSNET) and the National Committee on Education Support Services: Quality for All (NCESS) (DoE, 1997)
1999	Consultative Paper no. 1 on Special Education (DoE, 1999)
2000	Draft White Paper on Special Needs Education (DoE, 2000)
2001	Education White Paper 6: Building an Inclusive Education and Training System (DoE, 2001)
2007	Guidelines to Ensure Quality Education and Support in Special Schools and Special Schools Resource Centres (DoE 2007)
2008	National Strategy on Screening, Identification, Assessment and Support (DoE, 2008)
2010	Guidelines for Full-service/Inclusive Schools (DoE, 2010)
2010	Action Steps: National Model Care and Support for Teaching and Learning (CSTL) Conceptual Framework (DoE 2009)
2011	Guidelines for Responding to Learner Diversity in the Classroom through Curriculum and Assessment Policy Statements (DoE 2011)

These documents have irreversibly shaped the transforming special needs education in South Africa and ensured the implementation of inclusive education. Inclusive education is thus a given, as it is enshrined in the legislation and policy documents discussed above. In addition, the commitment towards inclusive education was endorsed by the signing of the United Nations Declaration on the Rights of Persons with Disabilities in 2007. This is evident in the schooling options based on the continuum-of-services model and support structures that have been put in place to

execute the implementation of inclusive education (see section 4.4) and enrolment of children with disabilities in schools (see Tables 4.8 and 4.9).

The above overview of the historical developments towards inclusive education sketches a picture of intention underlying inclusive education. Terminology that frequented in these discussions were “education for all”, “children with disabilities” and “groups vulnerable to discrimination and exclusion”. In the following section, the understanding of inclusive education will be consolidated by defining it and describing its key elements.

4.3 DEFINING INCLUSIVE EDUCATION

In this section, inclusive education will be defined from an international and a context-specific (e.g. South African) perspective. The formulation of these definitions is informed by a discourse community through theory, practice, and research. The formulation is further influenced by the socio-historical and cultural context in which the discourse is immersed (Walton & Nel, 2012; Green & Engelbrecht, 2007).

It is therefore not surprising that Mitchell (2005) contends that inclusive education is a complex, multidimensional, and problematic concept – one that resists a universally accepted definition. This state of affairs has resulted in that there is no legal or generally agreed upon definition of inclusion or inclusive education, as organisations and advocacy groups have developed their own definitions (Waitoller & Artiles, 2013; Walton & Nel, 2012). This enormous variation in the ways in which inclusion is defined poses one of the biggest challenges for preparing teachers for inclusive education (Forlin, 2012).

From an international perspective, the first major attempt to define inclusive education was at the World Conference on Special Needs Education held in Salamanca, Spain, in 1994. In The Framework of Action, Article 3, it is stated that

... schools should accommodate *all children* ... [These children] should include disabled and gifted children, street and working children, children from remote or nomadic populations, children from linguistic, ethnic or cultural minorities, and children from other disadvantaged or marginalised areas or groups ... The challenge

confronting the inclusive school is that of developing a *child-centred pedagogy* capable of educating *all children* (Emphasis added) (see section 4.2 – Table 4.5).

For me the above wording gives the impression of an instruction rather than that of a definition as it lacks essential aspects e.g. what the context of the school should be, what knowledge teachers should have, how support will be given to children and teachers. However the wording must be understood against the background of the context in which it was developed as discussed in section 4.2.

The foci in this definition are twofold. Firstly *schools should accommodate all children* and secondly the *development of a child-centred pedagogy* capable of educating all children. I argue that although the accommodation of all children is the right thing to do it has implications for schools e.g. classroom sizes; physical infrastructure with regards to accessibility, toilet and ablution facilities; specialised teaching aids and assistive devices; staff provisioning to include therapists, medical staff, class assistants, facilitators and mobility trainers and others depending on the support needs of the children. As it is widely acknowledged that teachers play the most important role in the successful implementation of inclusive education it stands to reason that teachers should be equipped to teach all children irrespective of their specific educational needs. Given the evidence that and continuous professional development initiatives do not prepare teachers adequately for their task to teach effectively in an inclusive classroom alternative supplementary professional development initiatives should be developed to realise the ideal of this definition that schools should accommodate all children.

The second focus area of this definition namely the development of a child-centred pedagogy has implications at three levels. Firstly, the formulation of the content of such a pedagogy and who will be responsible for its development and how will it be disseminated; secondly, how it will be ensured that all higher education institutions incorporate similar child-centred pedagogy approaches in their programmes. The third implication lies at school level where teachers will have to be reorientated to adapt to a child-centred pedagogy.

Following the Salamanca conference, worldwide developments in thinking and insights enabled UNESCO (United Nations Educational, Scientific and Cultural Organisation) to formulate the following definition of inclusion:

Inclusion can be seen as a process of addressing and responding to the diversity of needs of all children, youth and adults through increased participation in learning, cultural and communities, and reducing and eliminating exclusion within and from education. It involves changes and modification in content, approach, structures and strategies, with a common vision that covers all children of the appropriate age range and conviction that it is the responsibility of the regular system to educate all children (UNESCO, 2009).

Emerging from these views of inclusion, UNESCO defined IE as

... a process of strengthening the capacity of the education system to reach out to all learners As an overall principle, it should guide all education policies and practices, starting from the fact that education is a basic human right and the foundation for a more just and equal society (UNESCO, 2009).

The above definition is less of an instruction than the Salamanca definition discussed above and also lacks clarity of what the context of the school should be, what knowledge teachers should have, how support will be given to children and teachers, and what is meant *with a process of strengthening the capacity of the education system to reach out to all learners*

The foci in this definition is twofold. Firstly inclusive education is seen as a process of strengthening the capacity of the education system to reach out to all learners and secondly it frames education as a human right. These focus areas has implications for individual countries. A country must take sole responsibility for the implementation of inclusive education in its territory by means of its education policies and practices to ensure that they reach out to all learners. Furthermore the definition enshrines education as a basic human right this implies that should a country not reach out to all its learners it will be in violation of a basic human right. As in the case of the previous definition this definition also has implications for schools with regards to

funding, infrastructure, specialised assistive devices and staff provisioning as well as for teacher education and professional development.

Another international definition of note was posed as a conference resolution at the Return to Salamanca conference held in 2009:

We understand inclusive education [is] a process where mainstream schools and early-year settings are transformed so that all children/students are supported to meet their academic and social potential and which involves removing barriers in environment, communication, curriculum, teaching, socialisation and assessment at all levels (Forlin, 2012:5).

The above definition refers to the transformation of mainstream schools and early-year settings but make no mention of the role of existing special schools. Furthermore as in all the definitions discussed this far it also lacks clarity of what the context of the school should be, what knowledge teachers should have, how support will be given to children and teachers.

The definition highlights that inclusive education is a process, that it requires the transformation of mainstream schools and earl-year settings, it makes provision for all children, it emphasises the need for support and the removal of barriers in various areas. As in the case of the previous definitions these focus areas have implications for schools with regards to funding, infrastructure, specialised assistive devices and staff provisioning as well as for teacher education and professional development.

Waitoller and Kozleski (2013:35) define inclusive education by synthesising definitions as a continuous struggle towards:

- (a) the *redistribution* of quality opportunities to learn and participate in education programs,
- (b) the *recognition* and value of differences as reflected in content, pedagogy, and assessment tools, and
- (c) the opportunities for marginalized groups to *represent themselves* in decision-making processes that advance and define claims of exclusion and the respective solutions that affect their children's educational future.

These authors acknowledge the difficulties experienced in reality to implement inclusive education by referring to it as a struggle thus also viewing it as a process as was emphasised in the previous definitions. They however omit to specify who should benefit from inclusive education, in what school environment it should be executed, and what support will be given to teachers and children.

Their focus areas have implications for the education system and the school in that they should ensure that all teachers have the necessary professional capacity to deliver quality education, that the necessary staff components are available to support children, that the infrastructure can accommodate the needs of the children and that the necessary specialised teaching and learning and assistive devices are available.

An example of a context-specific definition is that used in the South African education system. The value of a context-specific definition is that it allows for making an informed interpretation of the implementation of inclusive education in a given situation (Green & Engelbrecht, 2007) and to understand the approach to teacher professional development and support in that context. As indicated in section 4.2, South Africa developed its own understanding of inclusive education as a result of international influences and the country's unique historical and educational realities (Walton & Nel, 2012). Against this background, two definitions emerged. Firstly, the committees and consulting bodies (NCSNET and NCESS) (see Table 4.6 – Inclusive education policy development in South Africa) who were commissioned to investigate the future of Special Education in South Africa define an inclusive learning environment as follows:

This is a learning environment that promotes the full personal, academic and professional development of all learners irrespective of race, class, gender, disability, religion, culture, sexual perspective, learning style and language. It is one which is free from discrimination, segregation and harassment, and which intentionally tries to facilitate an atmosphere of mutual acceptance and respect. It is an environment which respects learners and values them as partners in teaching and learning. It respects the rights of all learners

and enables them to participate fully in a democratic society (DoE, 1997:vi–vii).

This definition must be seen against the time period when it was formulated e.g. South Africa moved away from a political dispensation based on segregation to a democracy and the newly established international movement towards inclusive education. The definition therefore mainly focuses on the non-discriminatory principles that must prevail. Furthermore the definition does not give an indication of the schooling options in which the intended learning environment should be implemented. Although it gives clarity of what the context of the school should be, it does not indicate what knowledge teachers should have, and how children and teachers will be supported,

Secondly, in the *Education White Paper 6 on Special Needs Education: Building an Inclusive Education and Training System* (DoE, 2001), inclusive education is described as being about:

- Acknowledging that all children and youth can learn and that all children and youth need support.
- Enabling education structures, systems and learning methodologies to meet the needs of all learners.
- Acknowledging and respecting differences in learners, whether due to age, gender, ethnicity, language, class, disability, HIV or other infectious diseases.
- Broader than formal schooling and acknowledging that learning also occurs in the home and community, and within formal and informal settings and structures.
- Changing attitudes, behaviour, teaching methods, curricula and environment to meet the needs of all learners.
- Maximising the participation of all learners in the culture and the curriculum of educational institutions and uncovering and minimising barriers to learning” (DoE, 2001:6–7).

The above must also be understood against the developments that took place in South Africa since 1994 e.g. the movement away from a political dispensation based

on segregation to a democracy and on the educational level the ascribing to the principles of inclusive education. The definition therefore is more aimed at giving a broad perspective on the general conditions that should be created to implement inclusive education. As in all the definitions discussed thus far, it also lacks giving clear indications what knowledge teachers should have, and how support will be given to children and teachers.

The above two South African definitions put a strong emphasis on the principles and values of human rights. As indicated in section 4.2, education in South Africa is directed by the Constitution (Act 108 of 1996), which includes a Bill of Rights that entrenches the right of all South Africans to basic education and access to educational institutions (RSA, 1996).

In general, all the above definitions (e.g. international and South African) indicate a movement away from the earlier widely accepted view of inclusive education as limited to placement of children with disabilities in regular schools, either within the regular classroom or within special resource classes or centres for part or all of the school day (Florian, 2009). They encompass a much broader perspective as meaning the placement of children with disabilities, learning difficulties or other potentially marginalised groups (see Tables 4.4 and 4.5) into a regular school in the least restrictive environment so that the child is not marginalised, alienated, shamed, embarrassed, rejected or excluded (Forlin, 2012). Thus, there is a move away from only disability and special educational needs to incorporate broader issues of social inclusion (Rouse, 2012:xvii).

Inclusive education is accordingly concerned with comprehensive education, equality, and collective belonging (Thomas & Loxley, 2001; Ainscow, 2009; Thomas, 2009). Collective belonging goes beyond the placement of children in regular classes and hope that they learn to socialise. Social inclusion is more than merely equity of representation; instead, it has as its foundation equity of recognition (Little & Evans, 2012). Social inclusion refers to a child's inclusion beyond academic and classroom activities. It involves active levels of social involvement with teachers and peers (Little & Evans, 2012). This view is expanded by the statement of Koster, Nakken, Pijl and Van Houten (2009) that social inclusion comprises aspects of friendships, acceptance, interaction, relationships, and social status.

These descriptions also highlight the importance of establishing an understanding of inclusive education as inclusive learning communities (Sands, Kozleski & French, 2001). The basic premise of inclusive learning communities is that all children, irrespective of the challenges that individual children face, belong in schools where the concept of inclusion, community, collaboration, democracy, and diversity are embodied in the school's philosophy and organisational system (Green & Engelbrecht, 2007). A learning community implies that everybody focuses on learning. Teachers are part of this community and therefore also focus on learning to counter what was indicated earlier in section 4.1, namely that teachers lack knowledge and skills. This focus on learning results in inclusive education no longer to be seen as a set of efforts in favour of specific groups or targeted categories but rather as a means to provide quality learning opportunities for all children, where equity and quality go hand in hand (Opertti, Brady & Duncombe, 2012).

Inclusion is therefore seen by many as the most equitable and encompassing method for educating all children (Ainscow, Booth & Dyson, 2006). It implies that the right to education is not limited to equitable access to education but is also about equitable access to quality learning outcomes (Kim & Lindeberg, 2012). The right to education consequently not only entails the right to be in a school; instead, it also entails the right to learn (UNESCO, 2010). To ensure that this right can be exercised, inclusive education is conceptualised as a process of strengthening the capacity of an education system to accommodate all children irrespective of their individual needs. In practice, this process of strengthening entails learning how to engage with diversity and how diversity between individuals and groups can foster learning as well as strengthen education systems, communities, and societies in the attainment of more inclusive and cohesive societies (Opertti et al., 2012). (See the criticism of Walton and Nel (2012) below with regards to the inclusion/exclusion dichotomy).

Furthermore, the aforementioned process is also concerned with identifying and removing the barriers to quality participation in learning for all children. It consists of an ongoing process that constantly focuses on those children excluded from accessing education as well as those attending schools but who are not taught appropriately (Kim & Lindeberg, 2012). This dynamic self-evaluating nature of inclusive education will ensure that it continues to develop (Sebba & Ainscow, 1996;

Kyriazopoulou & Weber, 2009). This development is evident in that many countries are reviewing and changing their policies and legislation for inclusive education. These changes are based on either knowledge or experience from ongoing pilot projects or by introducing new financial strategies for special needs education, or by implementing new policies/laws regarding quality systems for and monitoring of education (Kyriazopoulou & Weber, 2009).

The question is now: "How do these well-meaning intentions materialise in schools?" In the following section an overview will be given of how inclusive education is implemented in schools.

4.4 IMPLEMENTATION IN SCHOOLS

From the literature, the researcher deducted that the implementation of inclusive education in schools is worldwide determined by various interrelated and mutually supportive aspects. These aspects are as follows:

- The model that is being used,
- The schooling options,
- The curriculum,
- The pedagogy that underpins the curriculum,
- The accommodation of diversity,
- The whole-school approach,
- Collaboration with others, and
- Policies.

How the implementation of inclusive education in schools is constituted can be described as follows: The historical developments, as discussed in section 4.2, had a major impact on the movement of inclusive education to gain a high status in various education systems worldwide. However, as indicated in section 4.3, due to context specifics, such as finances, interpretation and indigenous belief systems, the result is the existence of varieties of inclusion, as it is being implemented in schools (Forlin, 2012; Dyson, 2001; Artiles & Dyson, 2005; Fletcher & Artiles, 2005; Florian, 2009; Mitchell, 2005; César & Ainscow, 2006; Artiles & Kozleski, 2007).

In general, these variations can be categorised into two basic models – full inclusion and a continuum-of-services approach. Proponents of full inclusion advocate a zero rejection admission policy in neighbourhood schools, no special needs schools, no self-contained or separate classes, and all children, without exception, should be taught together in the general classroom. In this approach, if necessary, individual support interventions would be delivered in the classroom by teachers providing special needs education (Walton & Nel, 2012).

In turn, an example of a continuum-of-services approach is the model that has been adopted in the South African education system. It implies that all children are educated under the auspices of one single education department (DoE, 2001). In this unified schooling system, various schooling options exist to accommodate children according to the levels of support they need. In South Africa, this materialises by means of the structures that the National Department of Education² has developed and outlined in policy documents such as *White Paper 6* (DoE, 2001) and others mentioned in Table 4.6 above. These structures are visible in the education departments, education districts, and at school level as indicated in Table 4.7.

Table 4.7 Structures to promote inclusive education in South African schools

Structures to promote the implementation of Inclusive Education						
National	Provincial	District	School Level			
Department of Basic Education	Provincial Education Departments	Education Districts	Public Ordinary Schools		Special Schools	
Directorate Inclusive Education	Directorate Inclusive Education	District-based Support Teams	Public Schools	Full-service School (FSS)	Special School (SS)	Special School as Resource Centre (SpS/RC)

(DoE)³

At provincial level, the day-to-day management of education has been decentralised to the various education districts. The purpose of an education district is to manage the quality of education and education institutions in a specific geographical area (WCED, 2013). One of the specific tasks is to lead, manage and coordinate special

² National Department of Education – The term Department of Education (DoE) was used up to 2010 and since then the preferred term is Department of Basic Education (DoBE).

³ Table 4.7 was developed by the researcher from various DoE documents.

needs education in the district (WCED, 2013). The execution of this task is done by District-based Support Teams (DBST). Their primary task is to promote inclusive education through professional development, curriculum delivery, distribution of resources, identifying and addressing barriers to learning, leadership, and general management (DoE, 2005).

As indicated in Table 4.7, the continuum-of-services approach is most visible at school level in the structures developed, e.g. ordinary public schools, full-service schools (FSS), special schools (SSs) and special schools as resource centres (SpS/RCs) (DoE, 2001). Policy makes provision that children with low-intensive support needs should be accommodated in ordinary public schools. These children fall into one of two categories. The first is the group of children that receives support from their class and subject teachers. The second group of children is the group that receives support from the learning support teacher (LST) in addition to the support its children receives from their class and subject teachers (DoE, 2001).

The second support structure is that of ordinary public schools as full-service schools. In these schools, children with moderate support needs receive support from various sources such as their class and subject teachers, the unit/resource class teacher, the learning support teacher and the inclusive education support team. The inclusive education support team is based at a school as resource centres. These teams normally consist of a learning support teacher, a therapist and a psychologist. Should the area not have a designated inclusive education support team, this task will be fulfilled by teachers from neighbouring special needs schools (DoE, 2009; DoE, 2001).

The third structure is that of special schools. There are two categories. The first is the traditional special schools. In these schools, children with an intensive need for educational support receive this support from their class teacher, therapists and nursing staff (DoE, 2001). The other category of special schools is that of special schools as resource centres (SpS/RCs). They differ from other special needs schools in that an inclusive education support team is attached to them. As indicated above, such a team supports children in full-service schools (DoE, 2007; DoE, 2001).

The level to which the continuum-of-services approach has been implemented in South Africa is reflected in the enrolment figures as illustrated in Table 4.8 and 4.9 below. However, as indicated by Schoeman (2012) (see section 1.1), the quality of education in these schools is hampered by a lack of knowledge of officials and teachers at district and at school levels.

Table 4.8 Enrolment in Special Schools in 2014 per category of disability (DoE, 2015)

Category of Disability	Number of children per category
Attention Deficit Disorder	3116
Autistic Spectrum Disorder	3129
Behavioural Disorder	3975
Blind	1184
Cerebral Palsy	6080
Deaf	6503
Deaf/Blind	28
Epilepsy	2238
Hard of Hearing	1239
Mild to Moderate Intellectual Disabled	31 595
Multiple Disabled	6
Other	12 388
Partially Sighted/Low Vision	2483
Physically Disabled	3863
Psychiatric Disorders	93
Severe to Profound Intellectual Disabled	26 388
Specific Learning Disabled	13 170
Grand Total	117 477

Table 4.9 Enrolment in Ordinary Public Schools in 2013 by category of disability (DoE, 2015)

Category of Disability	Number of children per category
Attention Deficit Disorder	13 905
Autistic Spectrum Disorder	760
Behavioural Disorder	3639
Blind	197
Cerebral Palsy	248
Deaf	468
Deaf/Blind	86
Epilepsy	2137
Hard of Hearing	3075
Mildly to Moderately Intellectual Disabled	20 609
Multiple Disabled	1697
Partially Sighted/Low Vision	6077
Physically Disabled	3863
Psychiatric Disorders	508
Severe to Profound Intellectual Disabled	3 344
Specific Learning Disabled	21 466
Grand Total	80 702

A further hampering effect is that schools can be sites of multiple inclusions and exclusions in time and place (Walton & Nel, 2012). This is referred to as “moments of inclusion and exclusion” (Benjamin, Nind, Hall, Collins & Sheehy, 2003:547). They describe how inclusion and exclusion are enacted in a moment-by-moment fashion by teacher and children. For example, there will be instances where a child is

excluded from meaningful participation in a lesson because of the teacher's inability to make the teaching relevant individually, while being included socially at break time (Walton & Nel, 2012).

In reaction to this inclusion/exclusion dichotomy Walton and Nel (2012:7) ask the following question: "How much inclusion is necessary or how much exclusion can be tolerated for a school to be titled inclusive"? To answer this question, I summarised (see Table 4.10) the views of Walton and Nel (2012), Forlin (2012), and Swart and Pettipher (2011), on this matter. See also section 4.5 on the requirements school principals need to ensure for a school to truly adopt an inclusive approach.

Table 4.10 Summary of requirements needed to develop an effective inclusive school

Requirements needed to develop an effective inclusive school		
Walton and Nel (2012)	Forlin (2012)	Swart and Pettipher (2011)
Inclusive culture or ethos of the school; inclusive policies; organisation and practices to support inclusion; support for individual children and teachers, training; collaboration and teamwork; a wide variety of inclusive instructional and assessment practices and physical accessibility; links to community support structures; partnerships with parents; and drawing on the expertise of special needs schools, district resources, non-government organisations and government departments like health and social services.	Accepting attitude; the capacity for continuous problem-solving or response to interventions; the flexibility to be able to make changes as needed to best meet the shifting diversity of their children population; effective child-focused pedagogies; application of universal curricula; alternative assessment; diverse outcomes; well-developed support structures; multi-agency approach; and above all suitably trained teachers. The above signifies the way schools function and expectations for teachers.	Effective interaction of strategies such as leadership, vision, attitudes, beliefs, administrative factors, support, collaboration, resources, nature and severity of education needs, and professional development.

In the above Table the three authors emphasised similar aspects that are needed to develop an effective inclusive school e.g. the school should have an inclusive culture or ethos; professional development of teachers; collaboration/multi-agency approach/links to community support structures; well-developed support structures for teachers and children; inclusive instructional and assessment practices;

Areas in which these authors differ in emphasis, e.g. Swart and Pettipher highlight leadership and administrative factors; Forlin refers to the capacity for continuous problem-solving or response to interventions and the flexibility to be able to make

changes as needed to best meet the shifting diversity of their child population; and Walton and Nel include partnership with parents and they also elaborate more on who should be included in community support structures.

The above summary highlights a wide range of aspects, e.g. suitably trained teachers, the curriculum, the pedagogy that underpins the curriculum, the accommodation of diversity, the whole-school approach, collaboration with others and policies that in combination constitute an effective inclusive school. These aspects will be discussed below.

Irrespective of the approach, e.g. full inclusion or continuum-of-services approach, when implemented, it implies that teachers should have comprehensive knowledge of disabilities, schools should be equipped with appropriate equipment and assistive devices, and schools should have adequate and appropriate provisioning of staff. In addition, the implementation of inclusive education is marked by diversity. The Organisation for Economic Co-operation and Development (OECD, 2010) define diversity as “characteristics that can affect the specific ways in which developmental potential and learning are realised, including cultural, linguistic, ethnic, religious and socio-economic differences.” In Table 4.11, a summary is given of the concepts that constitute diversity in schools as reflected in the *Salamanca Statement and Framework for Action on Special Needs Education* (see Table 4.5), *The Jomtien Declarations* (see Table 4.3) and White Paper 6 (DoE, 2001).

Table 4.11 Overview of diversity in inclusive education

Salamanca	Jomtien	White Paper 6	Guidelines for Special Schools
Accommodate all children: This should include disabled and gifted children, street and working children, children from remote or nomadic populations, children from linguistic, ethnic or cultural minorities, and children from other disadvantaged or marginalised areas or groups.	Specific groups were vulnerable to discrimination and exclusion: These groups included girls, the poor, street and working children, rural and remote populations, ethnic minorities, and other groups. Particular mention was made of people with disabilities	Acknowledge and respect differences in children: regardless of the reasons for these differences, e.g. age, gender, ethnicity, language, class, disability or HIV status. Level of Support: Intense levels High levels Mild to moderate levels (DoE, 2001)	Support programmes should address the following barriers to learning: Severe learning difficulties, Hearing, Vision, Mobility, Language use and social communication, Complex, multiple and pervasive disability, Behaviour and psycho-social factors, and Social and economic neglect (DoE, 2007:9).

A concept that occurs in all these documents, as indicated above, is that of disability. The concept disability further adds to the diversity profile in schools as children with disabilities are not a homogenous group. Instead, they are diverse and heterogeneous. This is evident in that they have diverse personal attributes with differences in gender, age, socioeconomic status, sexuality, ethnicity or cultural heritage, and severity of impairment.

Furthermore, as indicated in Table 4.11, inclusive education is not only about children with disabilities, but it includes children with a wide range of educational needs (Swart & Pettipher, 2011; Ainscow, 2009; Artiles & Kozleski, 2007; Mittler, 2000). Therefore, contrary to popular belief, inclusive education is also about the needs of gifted children (see Table 4.10). Gifted children can be defined as children who function at or above the 98th percentile. The 98th percentile is the value of a variable such that 98% of the relevant population is below that value. Without significant support in the form of trained teachers and an appropriate curriculum, such potential may never come to fruition (Gagné, 2003; DECD, 2012).

It should also be noted that international literature and national literature use different terminology to refer to children's educational needs. The term "special educational needs" that is used internationally can be equated to the term "barriers to learning" that is preferred in South Africa (Nel et al., 2013). As indicated in section 1.1 barriers to learning can be intrinsic, e.g. disabilities, or extrinsic, e.g. systemic problems or pedagogical causes (Nel et al., 2012; DoE 2001).

The embracing of diversity reflects a different way of thinking about the education of children through the conviction that everyone not only has the right but also the ability to learn if appropriate support can be provided (Green & Engelbrecht, 2007). Florian (2007) advocates the need for a new way of thinking about support. The underlying principle here is to ensure that the needs of some children are not made out to be different.

One obvious response is an appropriate curriculum. Just as teachers have been identified as playing a central role in the implementation of inclusive education (see section 4.1), an inclusive curriculum has been identified as a crucial tool for inclusion and serves the central means by which the principle of inclusion can be put into

action within an education system (UNESCO, 2009). To this end, Halinen and Savolainen (2009:2) assert that “Curriculum is without a doubt one major area that can foster development of inclusive education or, in the worst case, can be a barrier for inclusion”.

The key characteristics of an inclusive curriculum are that it must be flexible, relevant, and adjustable to the diverse characteristics and needs of children (UNESCO-IBE, 2008). In practice, this entails inclusive learning environments (Opertti et al., 2012) that encourage:

- The active role and participation of children,
- Effective and flexible curriculum frameworks that accommodate local contexts and diverse pedagogical practices,
- Stronger links between schools and society, as well as
- The use of information and communication technologies in classrooms.

It stands to reason that for an inclusive curriculum to be effective, it needs to be underpinned by a supporting pedagogical approach, such as inclusive pedagogy. Inclusive pedagogy seeks to remove limits from the expectations of both teachers and learners by providing opportunities for all children to learn within a classroom community that does not make judgment about ability (Hart, Dixon, Drummond & McIntyre, 2004).

Inclusive pedagogy is an approach to teaching and learning that supports teachers to respond to individual differences between children but avoids the marginalisation that can occur when some children are treated differently (Florian & Spratt, 2013). It rejects ability labelling, as a matter of cause. More specifically, inclusive pedagogy is opposed to practices that address education for all by offering provision for most with additional or different experiences for some. Its core focus is to ensure that teachers extend what is ordinarily available to everybody (Florian, 2010).

The notion of inclusive pedagogy is not a call for a return to a model of whole-class teaching where equality of opportunity is notionally addressed by providing identical experiences for all (Florian, 2010). Instead, it advocates an approach whereby the teacher provides a range of options that is available to everybody in the class rather

than a set of differentiated options only for some (Florian & Spratt, 2013). This is an important consideration in this study.

In the inclusive pedagogical approach, human diversity is seen as strength, rather than a problem, as children work together, share ideas and learn from their interactions with one another. A key aspect here is that the inclusive pedagogical approach fosters an open-ended view of each child's potential to learn (Florian & Spratt, 2013). This view is linked to Hart et al.'s (2004) idea of transformability in that all children's capacity to learn can change as a result of decisions and choices made in the present. In keeping with this view, teachers can and do make a difference in what and how children learn (Florian & Spratt, 2013). In a negative sense, if teachers have low expectations, they place a ceiling on what they think children can achieve. Therefore, learning is understood as inextricably linked to the choice and decisions made by teachers (Florian & Spratt, 2013). Teachers play a very important role, as highlighted in this section. However, Savolainen, Engelbrecht, Nel, and Malinen, (2010) assert that inclusive education is something that teachers cannot manage alone; instead, they need to collaborate with others (Loreman, Deppeler & Harvey, 2010).

Nel et al. (2013) refer to various international and national research findings that support the fact that effective collaboration could have a significant positive impact on the practice of inclusive education. To this end, Brock, Michalak and Brownlee (2011:5) observe that when schools adopt the philosophy and practice of a collaborative educational environment, the children, professionals, and parents benefit. This view is supported by Brownell, Adams, Sindelar, Waldron and Vanhoffer (2006) when they state that for an inclusive education system to function effectively, collaboration between teachers and support personnel is viewed as a powerful strategy for teachers to support children in their classrooms.

In order to foster collaboration, the whole-school approach to inclusion, advocated by Ainscow (1997), should be considered in detail. In the literature, there are various terms to refer to this process, e.g. "Learning School" (Davidoff & Lazarus, 2009); "Whole school development" (DoE, 2010); "team learning"; and the "learning organisation" (Senge, 2006). These terms imply that a whole-school approach is one that involves all members of the school community in the learning process (Forlin,

2012). The school community includes a diverse grouping (e.g. parents, children, teachers, therapists, psychologists, school management teams, nursing staff, administrative staff, class assistants, hostel staff, bus drivers, and maintenance staff) and seeks to include all areas of school life. In addition, It recognises that real learning occurs both through the “formal” curriculum and through the “hidden” curriculum and children’s’ experiences of life in school and in their community.

This implies that a school should be developed holistically (Davidoff & Lazarus, 2009). The value of this approach for the implementation of inclusive education is that it helps to create inclusive cultures and practices that permeate all aspects of the school and all its activities, as the whole-school approach is based on organisational development and systems theory (Swart & Pettipher, 2011). This view is supported by Mitchell (2005) who argues that inclusive education is rooted in a range of systems. The nested feature of inclusive education is best illustrated by Bronfenbrenner’s bio-ecological model of development (Bronfenbrenner, 1979, 1992; Bronfenbrenner & Morris, 1998; Bronfenbrenner & Ceci, 1994; Bronfenbrenner & Evans, 2000; Bronfenbrenner, 2005) and Davidoff and Lazarus’ (2009) model of the learning school. Both have much relevance to collaboration in the inclusive education process. They give insight into the interaction between an individual teacher and the inclusive education process within the total education system. Furthermore, these models assist us in understanding and exploring collaboration as not being only about the development of inclusive education in the schools system but also the knowledge and skills development of individual teachers.

These models assist teachers in ensuring a holistic view of the inclusive education process. While support is directed at the individual teachers, one should never lose sight of the entire education system in which the teacher functions. Efforts of collaboration are therefore directed at synergising the system as a whole with the goal of helping the system work better for individual children and teachers (Christenson & Sheridan, 2001:41).

Brantlinger (2006:46) states that the way we think about inclusion will determine how we include. The thinking about inclusion is normally formalised in policies. Therefore, in the South African context, it is stated that over and above a policy that supports an inclusive vision schools should also have a specific inclusion policy comprising:

- An inclusive transport and school trips policy;
- An equal opportunity employment policy;
- A policy for administration of medicine and personal assistance;
- A policy on support and assessment adaptations; and
- A school behaviour policy that addresses bullying (DoE, 2010).

The value of policies is that they play a role in regulating practices by giving guidelines and direction and ensuring consistency. Policies therefore contribute to inclusive practices experienced by all children throughout the school irrespective of class, subject or teacher (Walton & Nel, 2012:7).

In the following section, an analysis is made of the impact of inclusive education on teachers and school management.

4.5 IMPACT ON TEACHERS AND SCHOOL MANAGEMENT

As indicated in section 1.1, it is widely acknowledged that teachers play the most critical role in the implementation of inclusive education (Rouse, 2012; Forlin, 2012) and that teachers indicated that they are ill-equipped for this task due to a perceived lack of knowledge and training (Forlin, 2012; Dreyer, 2008; Stofile & Green, 2007; Hay et al., 2001).

Teachers are confronted daily with these two opposing forces e.g. important role vs lack of knowledge in their teaching reality. A reality, as indicated in section 4.4, in which they must deal with much greater diversity in their classrooms than previously and adapt to changes of education policy and curricular frameworks that include educational content, assessment, and pedagogy. If teachers are not informed practitioners with regard to these changes (Forlin, 2012; Swart & Pettipher, 2011), teachers' professional identity is threatened (Walton & Nel, 2012). It is therefore not strange that teachers' views of inclusive education are varied. The variations are noticeable in their reactions and actions. Internationally, reactions are marked by the following:

- Firstly, teachers who do not have training in special education may experience fears and anxieties about inclusion (Ibrahim, 2012).

- Secondly, in most instances teachers have responded and are still responding with a strong reluctance to support inclusion (Forlin, 2012).
- Thirdly, many teachers continue to emphasise academic achievement (Kantavong, 2012). The strong focus on academic performance makes it impossible for many children with special education needs to succeed at school (Wong, 2005).
- Fourthly, children with special education needs are viewed as a burden (Kantavong, 2012). In this sense, a concern for teachers is when a child's level of support increases (Woolfson & Brady, 2009).

In many countries a result of the latter is that children with disabilities are turned away from schools due to a lack of special needs education resources to support them. This situation is further exacerbated by a scarcity of trained teachers in the field of special education (Tait & Mundai, 2012). However, teachers do not only react; they also act. A study by Manisha, Ramlea and Zaizan (2006) indicated that regular teachers are reasonably positive, at least in theory, towards implementing inclusion. This is supported by studies (e.g. Ibrahim, 2012; Hilgendorff, 2007; Haniz, 1998; LeRoy & Simpson, 1996) indicating that teachers tend to show positive attitudes to inclusion if they are given appropriate resource support, e.g. learning materials, physical facilities, and human resources.

A study by Savolainen et al. (2010) revealed that there is a positive relationship between teachers' self-efficacy and their attitude towards inclusive education. For them (Savolainen et al., 2010), it indicated that teachers with a stronger sense of self-efficacy appear to hold more positive attitude towards inclusion in the classroom. This is supported by an earlier study done by Swart and Oswald (2008) in South Africa indicating that if teachers are positive towards the ideals of inclusive education, they will mobilise themselves by developing inclusive learning communities to gain the knowledge and skills they lack. This will be done to ensure that all children in teachers' classrooms get quality education in order to achieve their full potential.

As indicated in section 4.4, a trademark of a teacher committed to inclusive pedagogy is that they accept primary responsibility for the learning of all the children in their class, which includes those who are experiencing difficulties (Jordan,

Schwardt & Mc-Ghie-Richmond, 2009). A further trademark is that these teachers view difficulties in learning as dilemmas for themselves as teachers (rather than deficits in children) and they seek new approaches to support children. In order to achieve this, they work in collaboration with knowledgeable others to find ways of providing meaningful learning experiences for all children in the classroom community (Florian & Spratt, 2013). This correlates with the view held by Trent, Artiles and Ernst (1998) that, similar to children, teachers are encouraged to learn from working with others. As indicated in section 4.4, inclusive education is something that teachers cannot manage alone (Savolainen et al., 2010). It must be a team effort involving all the staff – a process in which the principal and school management team (SMT) must play a supportive role.

However, to play this role, school principals must react and fulfil the role required of them to ensure a school truly adopts an inclusive approach. In the South African context, school principals should hold an unwavering belief in the value of inclusive education. In addition, they should have the following non-negotiable traits with regard to inclusive education:

- They have considerable knowledge and skills for translating the concept into practice;
- they should be visible and vocal advocates of inclusive practices;
- they should employ unambiguous communication with staff to ensure the realisation of their expectations to establish the school as an inclusive centre of learning, care and support;
- They should ensure that school policies, improvement plans, programmes and the ethos are developed to reflect inclusive practices;
- They should create a welcoming school climate for stakeholders, so that it fosters collaboration and inclusivity;
- They should promote the view that special needs education is a service, not a place;
- They should take the lead in ensuring that there are additional support programmes for teaching and learning; and

- They should put strategies in place to celebrate the varied accomplishments of all children (DoE, 2010:14).

The above implies vision and leadership (Swart & Pettipher, 2011), which form the foundation on which all other strategies, i.e. for implementation, development and sustainability of the inclusive education process in a school, are built. Senge (2006) stresses the importance of visioning as a joint inquiry in order to unearth a shared “picture of the future”. For Burstein, Sears, Wilcoxon, Cabello and Spanga (2004), the establishment of a common understanding and shared vision of preferred conditions for the future is the first and primary step for creating an inclusive school. They suggest that any vision for an inclusive school should be based on the democratic, egalitarian principles of inclusion, belonging, and provision of quality education to all children.

In the establishment of such a vision, Swart and Pettipher (2011) indicate that the school principals must accept their responsibility in order to set the tone for the whole school to become and maintain a supportive community. The importance of strong leadership in schools is also emphasised by Davidoff and Lazarus (2009). According to Ainscow (1999), leadership style should be based on shared or transformational leadership. This organisational development role of leaders is also supported by Senge (2006:321–339) who refers to leaders as “designers”, “teachers” and “stewards”. Two characteristics of stewardship are that of “serving a larger purpose” and “doing what is right for the whole” (Senge, 2006:334, 338). In embracing these roles, school leaders will ensure the development of the school as a whole with regard to inclusive education. Furthermore, school management should value the trait of self-efficacy displayed by most teachers and acknowledge that teachers encounter many problems when practising inclusion. Through consultation, they should consider their professional development needs carefully.

4.6 PROFESSIONAL DEVELOPMENT NEEDS OF TEACHERS

By considering the discussions above, the researcher makes the deduction that inclusive education is a given and well established in most education systems worldwide. The modern-day argument should therefore no longer be whether to include or how to include but rather be what content should encompass the body of

knowledge available to teachers to best teach the diverse population of children in their inclusive classrooms.

The quest for effective teacher professional development in inclusive education is not new. In 2001, Forlin already argued that barriers to inclusive education are intensified by inadequate preparation of teachers, specifically in the area of special educational needs and the working in inclusive schools. Since then, as indicated in section 1.1, little has changed as “new graduates continue to suggest that they are inadequately prepared for real-world schools and classrooms” (Forlin, 2012:179). In keeping with this view, Rouse’s (2012) observation that teachers’ initial training does not prepare them adequately to teach all the children who they will meet in their classroom. A similar remark is made by Schoeman (2012) with regard to teachers in the South African context (see section 1.1).

In the literature there are various causes attributed to this phenomenon of “inadequate training”. One view, as mentioned in section 4.3, is that the preparation of teachers is affected by the variations in which inclusion is defined (Forlin, 2012) as these differences in defining inclusive education results in differing approaches to initial teacher education. Another reason emerging from the literature regarding the challenges in preparing teachers adequately for inclusive education is that, during the initial education of student teachers, it is impossible to anticipate every type of difficulty that student teachers might encounter in their professional lives as inclusive practitioners (Rouse, 2012). In addition, the difficulty in securing effective inclusive schools that could provide authentic quality practicum placement (see section 4.7) also add to inadequate training. The result is that pre-service teachers cannot acquire the competence needed to become inclusive practitioners through observation and participation in effective schools (Florian, 2012; Forlin, 2012).

To answer the initial question of what content a teacher’s body of knowledge should consist of, Gerber’s (2012) view becomes relevant. He argues that what teachers are taught should be contextualised with regard to the actual conditions of public schools and the constraints these conditions impose. This correlates with Grossman, McDonald, Hammerness and Ronfeldt’s (2008) suggestion that during initial teacher education student teachers should be prepared in ways that are aligned with the realities of classroom teachers.

Furthermore Oyler (2011), made the observation that pre-service teachers and beginner teachers deal with and develop their teaching identities in the midst of tensions created by the mismatch of what they learned in their tertiary programme and what actually is practised in schools.

The relevance of aligning the content of initial teacher education with the realities of classroom teachers lies in the fact that the distance between best practices (areas given attention to by teacher-education institutions) and the reality of everyday teaching is still significant enough to warrant concern (Cole, Waldron & Majd, 2004; Jackson, Ryndak & Wehmeyer, 2009). Therefore, the skills needed to establish and maintain meaningful and productive inclusion may represent an entirely different kind of expertise than has been presumed up to now (Gerber, 2012; O'Keefe, 2009).

Teacher professional development should therefore include the teaching of skills to strengthen competencies to meet the challenging demands of the circumstances in teachers' specific teaching environments. To enhance this ability training, inquiry and collaboration skills are needed (Engelbrecht et al., 2015; Ibrahim, 2012; Malinen & Savolainen, 2012). It is argued that the value of effective inquiry skills is that they improve teachers' ability to solve problems they encounter and furthermore allow them to experiment with different styles of teaching – all of which is essential for the success of inclusion.

As indicated in section 4.4, inclusive education is something that teachers cannot manage alone. Collaborative skills will enable teachers to work with, as well as learn from, other teachers, special education teachers, other personnel, and professionals in teaching the diverse group of children in their classrooms (Florian & Spratt, 2013; Ibrahim, 2012; Watkins & Donnelly, 2012). If teachers see themselves as capable of cooperating with parents, colleagues and other professionals it appears as if they hold less negative perceptions (Malinen & Savolainen, 2012).

Negative attitudes are inspired by the complicated context in which teaching occurs in public schools, as discussed earlier. One reason for this complicated situation can be the diverse needs of children in inclusive classrooms (see Table 4.8). Teacher professional development should therefore address diversity in education (Florian & Spratt, 2013; Watkins & Donnelly, 2012; Avissar, 2012). According to Florian and

Spratt (2013), Watkins and Donnelly (2012) and Avissar (2012), the aim of this professional development should be to evoke awareness to diversity as a normal and normative social phenomenon, e.g. statistics suggests that 3% of learners in the school will have disabilities and a further 30% will experience some barriers that require additional support (DoE, 2010). Furthermore, the professional development should assist teachers:

- To become acquainted with aspects of diversity and modes of researching diversity and their relevance to education;
- To acknowledge the basic dilemmas of diversity;
- To learn about the characteristics and needs of children with disabilities who are included in regular education classrooms; and
- To develop a sense of self-efficacy with regard to dealing with diversity in the classroom.

The focus in initial teacher education should be on improving the teaching and learning of all children (Florian & Spratt, 2013; Watkins & Donnelly, 2012). According to these authors, the starting point would be to instil a belief in teachers that they are qualified and capable of teaching all children. According to Slee (2001), this approach would equip young teachers to reduce the barriers to learning and participation of children, as they believe in their own capacity to promote learning for all children.

Another point that should be conveyed during initial teacher education is the fact mentioned above, namely that it is impossible to prepare teachers for all circumstances they will meet during their teaching careers as inclusive practitioners. Initial teacher education should therefore be seen as a foundation for ongoing professional learning and development. In this regard, Watkins and Donnelly (2012) make the statement that teaching is a learning activity and teachers must accept responsibility for their own lifelong learning.

Other core competencies, highlighted by researchers like Malinen and Savolainen (2012), Gerber (2012) and Avissar (2012), should include critical teaching skills such as:

- Instructional skills (e.g. systematic instructions, design, and evaluation of instruction),
- Effective classroom management,
- Behaviour management, and
- Subject knowledge expertise on designing and implementing effective interventions that support children's learning and growth.

Therefore, professional development is needed in the following areas:

- Identification of learners at risk;
- Learning disabilities;
- Learning support in reading;
- Learning support in mathematics;
- Challenges in language acquisition and needs of multilingual learners;
- Developing social skills; and
- Practical teaching with children with disabilities.

Not only teachers' professional development needs attention but also that of school leaders as a major role-player in the inclusive education process. Research by Harpell and Andrews (2010), amongst others, has identified the significant role that principals play in leading the inclusion process. Their professional development should receive greater emphasis as they need to take a proactive position to empower others to achieve the ideals of inclusion (see section 4.5). For them to be effective in this role, they need an in-depth understanding of the inclusive education philosophy, they should have positive attitudes and beliefs, and they should know the needs of their staff in implementing inclusive practices (Forlin, 2012).

In the following section, approaches to the professional development and support of teachers will be discussed.

4.7 PROFESSIONAL DEVELOPMENT AND SUPPORT OF TEACHERS

For teachers to play their very important role in the implementation of IE successfully, they should have adequate professional development, sufficient support and positive attitudes (Frankel, Gold & Ajodhia-Andrews, 2010).

Teacher professional development presents particular challenges (Forlin, 2012). One such challenge, as indicated in section 4.3, is the way in which the variations of inclusion are defined (Forlin, 2012). Another challenge is that teacher educators should be appropriately trained to meet this demanding role (Forlin, 2012). In addition, as a result of contextual factors and the definition used in a specific context, approaches to teacher professional development are varied. These differences are not only visible between countries but also within a particular country (Waitoller & Kozleski, 2013; Florian, 2012).

With regard to the latter, Schoeman (2012) observed that, in the South African context, there is no clarity about the extent to which all initial teacher education courses include core content on curriculum differentiation, learning support, responding to diversity or the methodology of curriculum differentiation, and the subsequent impact in the classroom. It is further observed that there is no consistency in the conceptualisation of terminology and role functions. This is evident in that some institutions offer courses in learning support, inclusive education, values and human rights education, learning difficulties or special needs education (Schoeman, 2012:2).

Despite the variations in teacher professional development, the current approaches worldwide, as illustrated in Figure 4.2, can be divided into two categories, namely initial teacher education and continuous professional development. In South Africa, initial teacher education consists of two interrelated aspects, namely coursework and practical teaching experience in schools. The task of this two-pronged approach is to prepare teachers to enter the teaching profession as contributors of a profession, which accepts individual and collective responsibility for improving the learning and participation of *all* children (Rouse, 2012).

Mitchell (2014) poses the question whether children with special education needs require distinct teaching strategies? He makes the assumption that the answer to this question is both Yes and No.

With regards to the “Yes” answer it is emphasised that some children – especially those with high and very high needs – do require significantly different teaching strategies to those that teachers in regular classes might usually employ. The following serves as examples:

- Some children with visual impairments are reliant on their tactile and auditory senses for learning and will require specialised technical support such as Braille and orientation and mobility professional development;
- Some children with speech and language difficulties will require specialised speech/language therapy to deal with such errors as substitution, distortion, and omissions in their speech;
- Some children who are deaf will require specific adaptations such as total communication (including signing), FM systems, and assistance with maintaining hearing aids;
- Some children with intellectual disabilities will require tasks to be broken down into very small steps and will need assistance with such matters as self-care;
- Some children with physical disabilities will need assistance with positioning and movement normally provided by specialists such as physiotherapists and occupational therapists, or with personal care needs;

In most instances, specialist teachers or therapists undertake these specialised teaching strategies.

With regards to the *No* answer to the question whether children with special education needs require distinct teaching strategies Mitchell(2014) is of the opinion that for the most part, children with special education needs simply require good teaching. As it is argued, there is little evidence to support the notion of disability-specific teaching strategies, but rather that all children benefit from a common set of strategies, even if they have to be adapted to account for varying cognitive, emotional and social capabilities. What is required is the systematic, explicit and

intensive application of a wide range of effective teaching strategies – day-by-day, minute-by-minute - in a classroom (adapted from Mitchell, 2014).

Therefore, the professional development of teachers must have as end goal the provisioning of quality education to all children (Kooy & Van Veen, 2012; Rouse, 2012; Forlin, 2012).

In this study, coursework refers to the approaches that higher education institutions employ to teach student teachers. As indicated above, there are variations but all have the same goal as to the professional development of teachers to function effectively in inclusive education environments.

Apart from separate special needs education and regular education programmes there is a third approach consisting of three models (Stayton & McCollum, 2002):

- The first is the infusion model. In this model, one or two special needs education courses are incorporated into the professional development programme for regular education and coupled with exposure to children with special education needs during practical teaching experience at schools.
- The second is the collaborative professional development model. In this model, there is collaboration between teacher educators from the special needs education and regular education programmes in teaching the pedagogical course and in mentoring during the practical teaching phase at schools.
- The third is a unified model. In this model, the special needs education and regular education programmes have been combined into one programme.

According to Waitoller and Kozleski, (2013) teacher professional development programmes should not diminish the potential for nurturing teachers who have the attitudes, disposition, understanding, and skills to teach all children, particularly children who experience intersecting forms of exclusion.

The second component of initial teacher education is the practical teaching experience occurring in schools. The practical component's aim is to assist students in what Schoeman and Mabunda (2012) refer to as the learning-to-teach process.

The complexity of this process is widely acknowledged as being a major obstacle to student learning that should be addressed in teacher education programmes (Department of Basic Education and Department of Higher Education & Training, 2011; Spalding, Klecka, Lin, Wang & Odell, 2011).

One of the obstacles, as indicated in section 4.5, is the securing of effective inclusive schools that could provide authentic quality practicum placement. The problem of finding quality practicum placement clearly emphasises the value of Cevher-Kalburan's (2014) observation, namely that pre-service teachers should have the opportunity to do practical teaching in different schooling environments. In this way, the negative impact of ineffective inclusive schools can be balanced out with the positive impact of effective inclusive schools. Although student teachers valued the practicum as a tool in the learning process of becoming a teacher, a problem related to practicum placement was that they were not satisfied with the level of support and supervision they received during this period (Schoeman & Mabunda, 2012).

Negative attitudes of teachers also influence students. Swart (2014) observed that students display a positive attitude towards inclusion during coursework, but when they return from practical teaching internships at schools, they are confused by the attitudes of teachers, and e.g. that inclusion is not a workable practice. This thesis offers three reasons for this, namely negative attitudes towards inclusive education, lack of support and a lack of knowledge. Attitudes towards inclusive education are reflected in the observation of Kauffman, Landrum, Mock, Sayeski and Sayeski (2005). They note that many teachers and teacher educators hold the classic special needs education view. This view assumes that it is not possible to include children with learning difficulties in mainstream settings because their needs are different. It further assumes that it is more efficient to group children according to the nature of their disabilities or difficulties and if they are taught by specialist teachers.

A lack of support, as indicated in section 1.1, prevails, as Schoeman (2012) observes that district support teams and institution-level support teams that are key mechanisms of support to teachers and children do not have the capacity to render the intended support. This is because of the fact that members of these teams are not adequately skilled for the tasks (*Education White Paper 6*, 2001:49). In addition to the lack of skills in this instance, section 1.1 further highlighted the lack of

knowledge, an argument supported by Donohue and Bornman (2014). Many teachers serving currently believe they do not have the necessary skills to teach children with disabilities. The reason given is that in past practice of teacher professional development students were trained to teach either general education or special needs education. A further reason is accordingly the diversity in classrooms (see Table 4.8 and section 4.6). It stands to reason that while student teachers are in ITE, it is impossible to anticipate every type of difficulty that they may encounter in their future classrooms (Rouse, 2012).

During initial teacher education, students should also be taught skills (see section 4.6) that they can use in their teaching careers to search for the knowledge they may need in a given situation. It is argued that any debate about teacher professional learning has to take a career-long perspective (Rouse, 2012). The career-long perspective brings in focus the provision of opportunities for coherent professional development (Rouse, 2012). In this sense, initial teacher education should serve as a foundation for continuous professional learning and development as the latter is seen to offer the most efficient and effective way to achieve the ideals of inclusive education (Watkins & Donnelly, 2012; Florian, 2012). The utilisation of in-service teacher professional development is regarded as a worldwide movement towards inclusive education and is a priority in many countries (Jita & Mokhele, 2014; Oswald, 2007). The reason for this according to Fraser, Kennedy, Reid and McKinney (2007) is that it is seen as the most effective approach to improve serving teachers' teaching practices.

It is therefore critically important that serving teachers are provided with access to relevant and evidence-based professional learning opportunities (Forlin, 2012). Continuous professional development can be described as those processes and activities designed to enhance the professional knowledge, skills and attitudes of teachers so that they can improve the learning of children (Coetzer, 2001; Gusky, 2000). This includes a wide range of activities in which teachers participate, such as:

- Information meetings,
- Study days,
- One-day workshops and professional development sessions,
- Coaching and interventions,

- Mentoring,
- Classroom observations,
- Participation in a network,
- Offsite team professional development sessions,
- Book and study clubs, and
- Research projects (Van Veen, Zwart & Meirink, 2012:3).

There are two approaches in presenting these continuous professional development activities, namely traditional forms and innovative forms (Van Veen et al., 2012). These authors observe that the dominant approach over the past decades was the traditional form. The preferred strategy was that it was presented at locations away from the school. The accompanying activities required teachers to play a passive role, as these activities took place in the form of lectures, 1-day workshops, seminars and conferences. In addition, it was found that most professional development sessions for regular teachers were conducted in the form of one-shot workshops (Ibrahim, 2012). A study by Lessing and De Witt (2007) noted that teachers viewed workshops as a time-consuming activity and, besides the cost of the workshops and transport, they also sacrificed time and energy. These professional development sessions normally took place after school hours, on Saturdays or during school holidays.

Many of these in-service development programmes that were intended to promote inclusive education have proved both inadequate and inappropriate, resulting in negative feelings towards the implementation of inclusive education (Oswald, 2007). This correlates with Eloff and Kgwete's (2007:353) findings that revealed that teachers indicated the in-service professional development they received in preparation for IE was too brief, as it was normally conducted in the afternoons after a long school day. Further criticism is that teachers experience professional development as episodic, superficial and disconnected from their own teaching interests or recurring challenges in practice (Little, 2012; Ibrahim, 2012).

The above supports the findings of Steyn (2011) and earlier findings of a study by Engelbrecht, Forlin, Swart and Eloff (2001) in which they reported that teachers viewed pre-service and in-service professional development as inadequate to prepare them for inclusive education. It therefore seems that traditional approaches

that focus on short-term direct transmission professional development programmes are increasingly regarded as relatively ineffective (Darling-Hammond & Baraz-Snowden, 2007). This implies that a fundamental shift in the underpinning assumptions and purpose of teacher development is needed for professional development to be taken seriously by teachers and for it to begin to influence the quality of teaching and learning in schools. Loughran (2012:50) suggests that one way of catalysing a shift away from the underpinning intentions of professional development as an exercise in topping up or implementing mandated change is to begin to challenge the structure and purpose of professional development by supporting approaches to knowledge growth based on the notion of professional learning.

This view correlates with the innovative form of professional development that refers to all those interventions in which teachers play an active role and the content of the topics is determined by their teaching practices. It also includes the discourse on professional learning communities in which the emphasis is on the collective responsibility of teachers for the learning of the children in their classes and insight on teaching and professional development (Van Veen et al., 2012:3). To this end, Florian (2012) asserts that adults who work in schools need to improve their ability to share their professional knowledge and skills with one another. This view correlates with Avalos' observation (2011) that professional development efforts (not only those with an inclusive education focus) have moved away from traditional in-service professional development towards collaborative action research projects.

The above implies a school-based approach to professional development. For Ho (2012) the characteristics of such an approach should include collaboration, job relevance, reflection and incorporation of new knowledge into existing content. To achieve these well-designed professional development interventions, (i.e. those in which teachers' learning goals and their daily teaching practice are central), teachers are actively involved in the learning process. (Van Veen et al., 2012). In this regard, Little (2012: 23) makes three observations. The first observation is that the school has a stake in teacher learning in that schools are more likely to be effective in supporting high levels of children's learning and well-being if they also play a powerful, deliberate and consequential role in teacher learning.

The second observation with regard to workplace learning is that there should be a focus on the instructional triangle, which indicates the relationships between teacher, child and content. This triangle encompasses the dynamic, fluid, and complex interactions through which teacher's help children learn challenging subject content and pursue other important intellectual and social goals. Figure 4.2 below illustrates the aforementioned interactions, suggesting that the three relationships intersect and intertwine in practice. It also highlights that each relationship places a different aspect of the instructional triangle at the centre and that each tends to emphasise a different central purpose for professional development activity (Little, 2012:26–31).

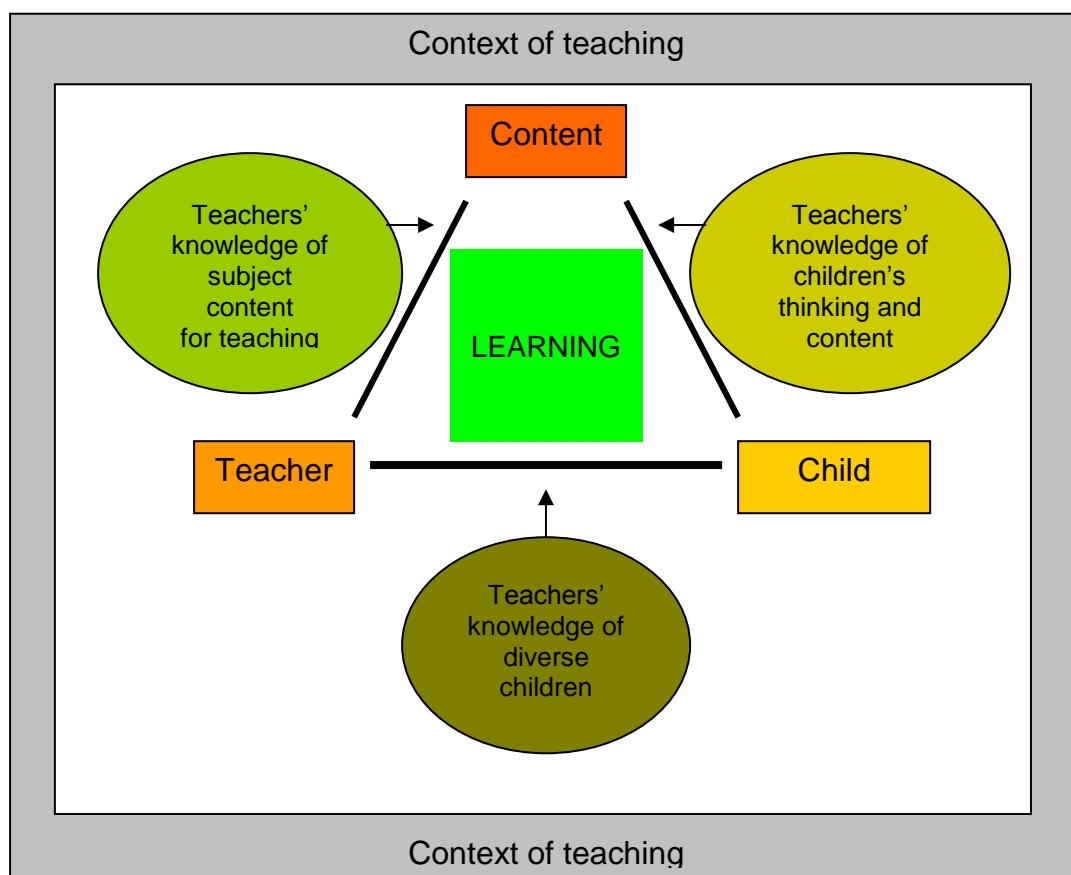


Figure 4.2 Professional development and the instructional triangle (Little, 2012)

The above leads to the third observation with regard to workplace learning, namely: If a school is organised to facilitate teachers' individual and collective efforts, Meier (1992:602) notes that it implies a school in which teachers:

- Are in frequent conversation with one another about their work,

- Have easy and necessary access to each other's classrooms,
- Take it for granted that they should comment on each other's work, and
- Have the time to develop common standards for children's work.

This implies a highly collegial and improvement-oriented school. In such schools, vigorous professional communities occupy a central role in teacher learning.

The use of the term professional community is the result of the gradual shifts over the past decade in the language uses of teachers and researchers, e.g. a movement away from "collegiality" and "collaboration" towards language centred on notions of "community" linking a "community of learners" in the classroom and "professional community" among teachers (Little, 2012).

No discussion on the concept professional community will be complete without referring to Wenger's (1998) work on "community of practice". In his view, a community of practice exists when individuals are mutually engaged in a joint enterprise and over time developed a "shared repertoire of ways of doing things. He also envisaged "constellations" of professional communities that link local communities with broader networks in shared enterprises. Therefore, schools' ability to support teachers' professional learning depends on both their internal resources and external connections and relationships.

For Little (2012) the phrase "professional community" refers to the close relationship among teachers as professional colleagues, usually with the implication that these relationships are oriented towards teacher learning and professional development (see Table 4.12).

Table 4.12 Defining Elements of Professional Community (Little, 2012)

- | |
|---|
| <ul style="list-style-type: none"> • Shared values and purpose, including shared orientation to the teaching of particular subjects. • Collective focus on and responsibility for children's learning, sometimes described as a "service ethic" with regard to children's learning and well-being. • Collaborative and coordinated efforts to improve children's learning. • Practice supportive of teacher learning, including observation, problem-solving, mutual support and advice giving – sometimes summed up as "deprivatised practice and reflective dialogue". • Collective control over important discussions affecting curriculum. |
|---|

The focus on professional communities moves the attention away from the content of professional development, as discussed under the instructional triangle of the process or means. Little (2012) places school-based professional learning communities with their focus on problems of classroom teaching and learning at the centre of a larger constellation of learning opportunities. This position is summarised in Figure 4.3.

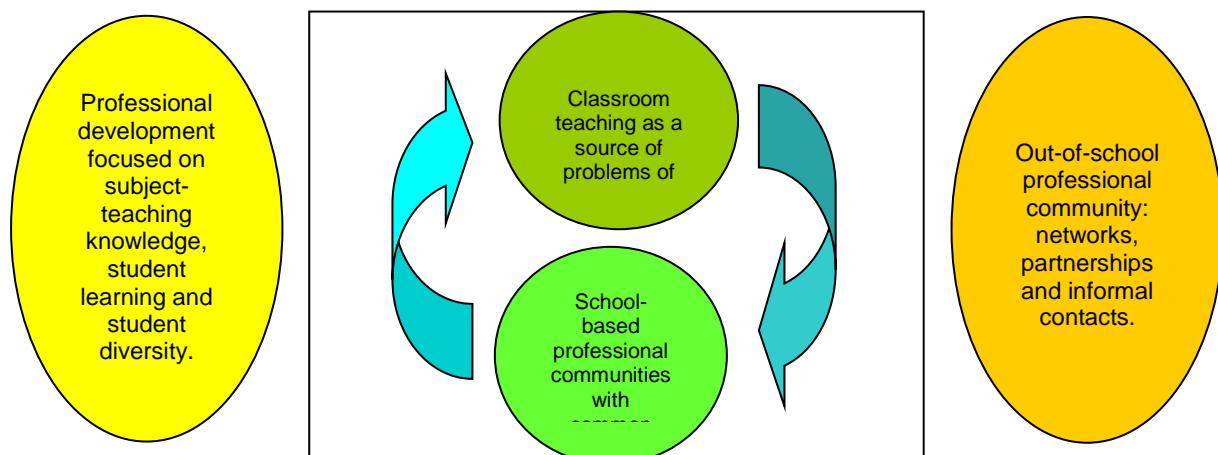


Figure 4.3 Linking professional communities and professional development (Little, 2012)

It is important to note that teachers in teacher-learning communities share certain core views and commitments towards subject matter and pedagogy. This is characterised by taking a dynamic and flexible stance towards subject teaching and regularly questioning and challenging teaching routines when they prove to be ineffective with regard to children's needs. The corresponding implication is that such communities embrace what Little (2012:35) refers to as "collective responsibility for student learning". This occurs by the communities accepting the collective obligations for children's success and well-being and developing collective expertise by employing problem-solving critique, reflection and debate (Little, 2012:35).

The above emphasises the key role teachers play in change, school improvement and the quality of teaching to realise the calling of quality education. Quality teaching therefore requires much more than acquiring new tips and tricks for classroom practice (Nilsson, 2012). It requires what Loughran (2012:50) refers to as genuine professional learning that is:

- Sustained over time;

- Responsive to the specifics of school and classroom contexts;
- Underpinned by research and practice-based evidence; and
- Supported by professional learning communities and collaboration.

As a result, there is a movement away from professional development as "something done to teachers" (Guskey, 2008:xiv) to practices of professional learning that has as foundation the working with teachers to better support the development of their skills, knowledge, and abilities in ways that are responsive to their particular pedagogical needs, issues, and concerns (Loughran, 2012).

As indicated above with regard to teacher professional development and support in South Africa, the teacher professional development situation is far from satisfactory in terms of both initial as well as continued professional development. The result is that the system still fails large numbers of children (not only children with disabilities) because the majority of teachers are not skilled or positively inclined towards minimising the barriers that children experience in classrooms (Schoeman, 2012).

The third reason Little (2012) cites for the lack of knowledge and skills of teachers and officials is the cascade model of professional development. In South Africa in terms of this model, the Department of Basic Education opts for the professional development of some teachers and officials and expect them to filter the information down to the other members of their organisations. An example of this approach is the large-scale short course orientation offered by the Department of Basic Education in 2012 to introduce subject advisors, inclusive education coordinators, circuit managers and other stakeholders to the concept of curriculum differentiation in the curriculum assessment policy statement (CAPS) (CAPS refer to the curriculum currently in use in South African schools). To this end, Schoeman (2012) observes that there is no indication of a consistent and sustained approach to train all teachers and district officials in these important concepts.

To change the attitudes, the lack of knowledge and skills in the South African inclusive education context for teacher education has to be reformed so that teachers and officials are better prepared to work according to the inclusive philosophy. A trademark of this reform should be that in-service professional development should apply to all teachers and officials – not just to some. This thesis argues for an

approach to continuous professional development based on the professional learning community as discussed above. It is further argued that one option is the implementation of knowledge management strategies, which are underpinned by the organisations knowledge absorptive capability and dynamic capability that are critical to continuous knowledge development, as discussed in Chapter 3.

The knowledge management strategy approach correlates with Waitoller and Kozleski's (2013:36) *partnership for inclusive education*. For them partnerships composed of schools, universities, non-governmental organisations (NGOs) and other services have the potential to apprentice teachers in practices that can dismantle compounding barriers that keep children with barriers to learning and disabilities from learning in schools. Therefore teacher development, in this vision, is part of a larger partnership agenda that focuses on children learning.

Waitoller and Kozleski's (2013:40) and Waitoller and Artiles (2013:344) refer to this partnerships as *boundary practice*. A boundary practice occurs when two organisations form a continuation partnership thus the overlap of two activity systems (or two individuals my interpretation) See Figure 4.4.

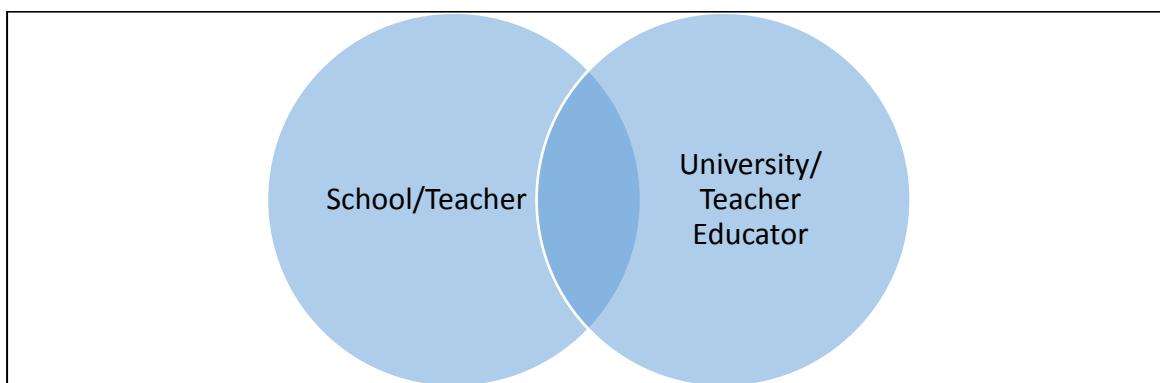


Figure 4.4 Boundary practice – overlap of activity systems

Boundary practice can be described as a practice in which two communities (e.g., a university program and a school) engage and that has “become established and provides an ongoing forum for mutual engagement” Wenger (cited in Waitoller & Kozleski, 2013:40).

The role players in the boundary practice need to enter in to one another’s territory and is called *boundary crossing* Suchman (cited in Waitoller & Kozleski, 2013:40).

The role players are referred to as *boundary brokers* (Waitoller & Kozleski, 2013:40). The key role of the brokers is to create connections between the practices of the overlapping communities and to facilitate the transactions between them by introducing elements of one practice to another Wenger (cited in Waitoller & Kozleski, 2013:40).

I make the deduction that for teachers to become informed practitioners in inclusive education their personal continuous knowledge development demands the construction of continuous professional development activities that includes meaningful partnerships that encompass overlapping kinds of expertise as the case would be with *boundary practice* and *boundary crossing*.

4.8 SUMMARY

In this Chapter a comprehensive analysis was made of inclusive education. This investigation was needed to fully understand the role of teachers in this context. It was highlighted by various researchers whose work was consulted in this study that teachers play a significant role in the implementation of inclusive education, but it was also emphasised that teachers lack knowledge to teach effectively in diverse classrooms.

Solutions offered by these researchers and policy writers are that management should play a leading role in the knowledge development of teachers and that teachers should engage in collaborative interactions with other professional, network with knowledgeable others, form communities of practice and be self-directed in their search for knowledge how best teach in diverse classrooms.

It is also emphasised by research in this study that teachers need the support and cooperation of all stakeholders involved in the school system to successfully implement inclusive education.

From analysing the content of this Chapter I made the deduction that the core elements that will play a meaningful role in the knowledge development of teachers should include the following criteria:

Criterion 1: Management at all levels should motivate and support teachers to be self-directed in their personal continuous knowledge development.

Criterion 2: Management should encourage teachers to work across professional fields, and disciplines to develop their own and the schools' capacity for inclusive education. This approach should be enshrined in the organisation's development strategy.

Criterion 3: The organisational culture must encourage and support teachers to utilise strategies such as collaboration, the formation of communities of practice, value learning by being learning organisations, and transcending internal and external boundaries of the organisation through networking in their personal continuous knowledge development.

I argue that the above criteria must form the basis for the conception, planning and design of a knowledge management model as an approach to improve support to teachers in inclusive education classrooms. In the following Chapter, this process of accessing knowledge and skills that are available in the community and the self-directed manner in which teachers access these will be investigated by developing the proposed personal continuous knowledge development (PCKD) model.

CHAPTER 5

A KNOWLEDGE MANAGEMENT MODEL FOR AIDING LEARNING IN AN INCLUSIVE EDUCATIONAL SETTING

5.1 INTRODUCTION

In the previous two Chapters, an overview was given of Knowledge Management (KM) (Chapter 3) and Inclusive Education (IE) (Chapter 4). With regard to KM, it was established that in the business world knowledge management strategies, such as collaboration, knowledge networks, communities of practice, and learning organisation, form (see section 3.4) the foundation of continuous knowledge development (CKD) of employees in organisations that fully embrace knowledge management. In the field of inclusive education, two categories of professional development, namely initial teacher education (ITE) and continuous professional development (CPD) (see section 4.7), were identified as standard practices worldwide in strengthening teachers' knowledge and skills portfolios to teach the diverse group of children found in an inclusive classroom.

However, it has been reported by various researchers (see section 1.1 and 4.7) that initial teacher training and continuous professional development initiatives do not prepare teachers effectively and adequately to teach in a diverse classroom. The result is that the gap in their knowledge and skills broadens with each unfamiliar needs profile of a child they encounter. In order to meet the continuous knowledge challenge, I argue that teachers should be lifelong learners by utilising the knowledge management strategies indicated above. The view of utilising strategies such as collaboration, networking and communities of practice is supported by various researchers as indicated in section 1.1 and in Chapter 4 - as tools to strengthen teachers' knowledge in inclusive education. I argue that these strategies should be utilised from a knowledge management perspective in the knowledge development of teachers in inclusive education. In order to achieve the latter, I propose a personal continuous knowledge development (PCKD) approach as an option in this lifelong learning process of teachers.

In order to establish the core activities that will foster such an approach, I identified criteria in Chapter 3 (knowledge management) and Chapter 4 (inclusive education). These criteria will be used in this Chapter to develop a personal continuous knowledge development (PCKD) model that can support teachers in their endeavours to gain knowledge about how to be effective and informed practitioners in inclusive education.

The goal of this Chapter is therefore to present the personal continuous knowledge development model for teachers teaching in diverse classrooms. The objectives underpinning this goal are: (1) discussing knowledge development as an individual and organisational activity; (2) examining models and their definition and application in the social sciences; (3) describing the model development process; (4) presenting the personal continuous knowledge development (PCKD) model; (5) listing and describing the key capacity elements and key capacity areas of the personal continuous knowledge development (PCKD) model; and (6) describing the model validation process.

5.2 KNOWLEDGE DEVELOPMENT AS INDIVIDUAL AND ORGANISATIONAL ACTIVITY

In the Arab Human Development Report (AHDR) 2002 of the United Nations Development Programme (UNDP), the importance of knowledge acquisitioning as a key factor to human development is emphasised:

“Acquisition of knowledge has intrinsic value by itself, but more importantly, it is an important dimension of human development because as it is a critical means of building human capacity. It is now generally accepted that knowledge is a core factor of production and a principal determinant of productivity and human capital. There is thus an important synergy between knowledge acquisitioning and the productive power of society” (AHDR, 2002:19).

It is almost without question that the acquisition of knowledge is central to human development. Knowledge acquisitioning as an activity, however, precedes the emergence of knowledge management and continuous professional development as

disciplines. This is evident as, indicated in Chapter three, it is a known fact that from very early times, wise people have secured sustained succession by transferring in-depth knowledge to the next generation (Chamberlain, 2001). Knowledge has therefore been managed implicitly as long as people have thought seriously about their work (Wiig, 1997). It is not strange then that the timeline given is indicated as a gradual development over time starting as far back as 3500 BC (Knowledge Street: Knowledge Management Timeline, 2011).

With regard to the professional development of teachers, Banda (2014) made the observation that the need to invest in professional growth of a teacher can be traced back many years to E.H. Erikson's 1959 work of *Identity and Life Cycle: Selected Papers*.

The above brief historical perspectives give an indication of the intention of the concepts knowledge management and teachers' professional development, namely the improvement of employees'/teachers' knowledge. It can thus be said that developing a model to develop the teachers' knowledge in inclusive education, is part of a long tradition of continuous professional development practice.

In the context of this dissertation, the question arises of the need for measuring the level of knowledge management maturity and the applicability of knowledge management strategies for the continuous knowledge development of teachers and therefore the need for a knowledge development model for teachers.

5.3 MODELS: DEFINITION AND APPLICATION IN THE SOCIAL SCIENCES

Frig and Hartmann (2012:1) made the observation that the increase of model-types in the philosophical literature signals that philosophers are increasingly acknowledging the importance of models and the different roles they play in the practice of science. They list the following as some of the model types that surface in the literature: probing models; phenomenological models; computational models; developmental models; explanatory models; impoverished models; testing models; idealised models; theoretical models; scale models; heuristic models; caricature models; didactic models; fantasy models; toy models; imaginary models; mathematical models; substitute models; iconic models; formal models; analogue models; and instrumental models.

Despite this proliferation of model types in the philosophical literature, some authors, e.g. Hartmann (2005:1), make the observation that although theoretical models are used to enable the activity of science and to organise data, applying theories or to make new theories, there is no proper definition of the term *model* that covers all these aspects. To the question, “What are models?” Frigg and Hartmann (2012:13) refer to “a variety of things that are commonly referred to as models: physical objects, fictional objects, set-theoretic structures, descriptions, equations, or combinations of some of these”.

There are, however, other authors who do not feel as limited as the above authors. For instance, Lave and March (1993:3) see a model as a simplified picture of the real world. It has some of the characteristics of the real world, but not all of them. It is a set of interrelated guesses about the world. Like all pictures, a model is a simplified version of the phenomenon that it is supposed to represent or explain. A model can be seen as a symbolic representation that helps the researcher to express abstract concepts and relationships more easily by using minimal words. This can be done by conveying concepts and propositions through the use of boxes, arrows or other symbols. Bahttacherjee (2012:14) describes a model as a representation of all or part of a system that is constructed to study that system, (e.g. how the system works or what triggers the system). Models are often used by decision-makers to make important decisions.

Models may be of different kinds, such as mathematical models, network models, and path models. Models can also be descriptive, predictive or normative. Descriptive models are frequently used for representing complex systems and for visualising variables and relationships in such systems. Predictive models allow forecast of future events. Normative models are used to guide our activities along commonly accepted norms or practices. Models may also be static if it represents the state of a system at one point in time, or dynamic, if it represents a system’s evolution over time (Bahttacherjee, 2012:14).

Mouton (cited in Scheepers, 2015:178) is of the opinion that “model” is one of three conceptual frameworks, e.g. typologies, models and theories. He describes them as follows:

- Typologies – Have a classifying or categorising function and are based on single variables;
- Models – Provide a systematic depiction of phenomena by identifying patterns and regularities amongst variables; and
- Theories – Provide an explanation of phenomena by suggesting an underlying causal mechanism.

In addition, Mouton (2001:196) states that the term *model* can be considered as one of the vaguest terms in the social sciences and he points to the similarities between the terms *model* and *theory*. According to him (Mouton, 2001:196) the differences between models and theories are mostly “differences of degrees”. Jaccard and Jacoby (2010:28–29) hold similar views, with one key exception. Whereas Mouton (2001) discerns major similarities between *models* and *theories* with some minor differences, they use the terms interchangeably, thus implying no difference between the terms.

According to Gilbert and Troitzsch (2005:3), “[a] model is a simplification – smaller, less detailed, less complex, or all of these together – of some other structure or system.” Importantly, they also state that building a model is a widely accepted way of understanding the world, and that, although widely used within and outside of science it is something that science and social science have honed over time.

According to Frigg and Hartmann (2012:3), models have two dissimilar representational functions:

On the one hand, a model can be a representation of a selected part of the world (the ‘target system’). Depending on the nature of the target, such models are either models of phenomena or models of data. On the other hand, a model can represent a theory in the sense that it interprets the laws and axioms of the theory. These two notions are not mutually exclusive as scientific models can be representations in both senses at the same time.

In an attempt to answer the ontological question, “What are models?”, Frigg and Hartmann (2012:13) note that physical objects, fictional objects, set-theoretical structures, descriptions, equations, and combinations of some of these are variously called models.

From the above, I made the deduction that the term *model* is difficult to define, and while there have attempts to define the concept, it has resulted in a multitude of definitions, some of which have some similarities and others which are totally disparate. For the purpose of this study, I define model as a reductionist representation of continuous knowledge development of teachers as the target system aimed at explaining and predicting phenomena.

On the spectrum of model use presented by Pidd (cited in Scheepers, 2015:178), the present model has a high level of human interaction. It is mainly concerned with knowledge discovery and utilisation. In the words of Pidd (cited in Scheepers, 2015:178), the model discussed in this study is thus a “tool for thinking”.

5.4 MODEL DEVELOPMENT PROCESS

According to Bahttacherjee (2012:14) the process of model development may involve inductive and deductive reasoning. Deduction is the process of drawing conclusions about a phenomenon or behaviour based on theoretical or logical reasons and an initial set of premises. In contrast induction is the process of drawing conclusions based on facts or observed evidence. Inductive conclusions are therefore only a hypothesis and may be disproven. Deductive conclusions generally tend to be stronger than inductive conclusions, but a deductive conclusion based on incorrect premises is also invalid.

Inductive and deductive reasoning go hand in hand in model building. Induction occurs when we observe a fact and ask “Why is this happening” In this study the observed fact is the reported lack of knowledge of teachers to teach in a diverse classroom and the question is why do they lack knowledge in spite initial teacher education and continuous professional development initiatives?

In answering this question, we advance one or more tentative explanations (hypothesis) e.g. in this study that initial teacher education and continuous professional development initiatives do not meet the needs of teachers to teach effectively in a classroom where children have diverse barriers to learning. We then use deduction to narrow down the tentative explanations to the most plausible explanation based on logic and reasonable premises (based on an understanding of the phenomenon under study). According to Bhattacherjee (2012) researchers must be able to move back and forth between inductive and deductive reasoning if they are to post extensions or modifications to a given model, or build better ones, which are the essence of scientific research

The main thrust of this model as indicated in Figure 5.1 is the adding of a teacher-driven, management-supported, cost- and time-effective approach to the current learning options available to teachers.

The model is not intended to give a 'one-size-fits-all' account of in-service teacher development. It is meant to supplement the existing learning opportunities for teachers. However the model can be applied at all levels e.g. development needs of beginner, early career and experienced teachers. It can accommodate the different needs of teachers in different types of schools in different context; and the different needs of teachers performing different roles e.g. school based support teams (SBST), school management teams (SMT) and others. This criteria is met by means of the emphasis on the personal continuous knowledge development of teachers.

In practice it will be utilised by an individual or groups to obtain specific and/or critical needed knowledge to be informed practitioners to execute their teaching, support or management task. The sophistication of the knowledge need will vary and the model does not restrict the level of knowledge that can be searched for. The key aspect here is the effort that the individual or group is prepared to invest in finding the knowledge they require.

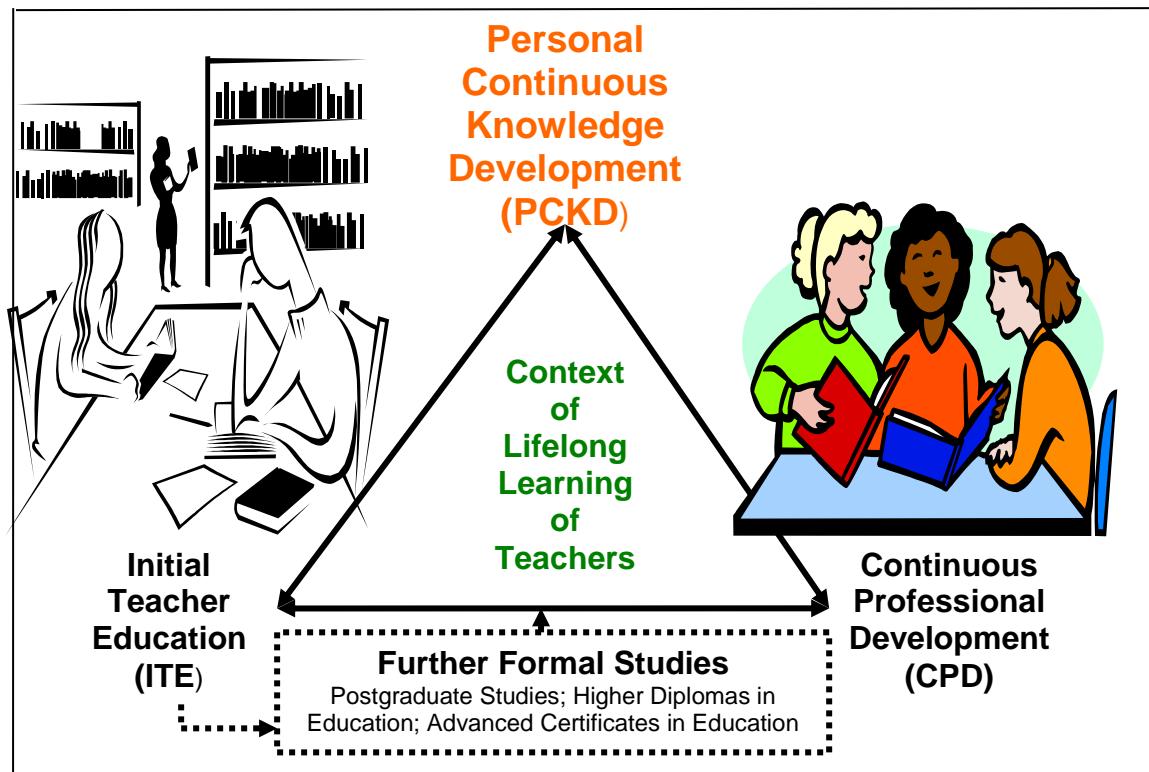


Figure 5.1 Components of the lifelong learning context of teachers

As illustrated in the above figure, the position of the personal continuous knowledge development (PCKD) approach acknowledges the value of knowledge acquired through initial teacher education, further formal studies, and continuous professional development by using that knowledge as a foundation to build on. Together these initiatives form a lifelong learning triangle of teachers in inclusive education. A further reason for this position is that this thesis advocates it to fulfil the same role as the self-actualisation phase of Maslow's hierarchical theory of motivation. As this theory is embedded in the Humanistic psychology, the notion of *becoming* is foremost. This implies that a person is never static – he or she is always in the process of becoming something different. Furthermore, humanistic theorists also stress that each individual is the chief determinant of his or her own behaviour and experience (Hjelle & Ziegler, 1976).

I therefore argue that in a South African context proposed personal continuous knowledge development (PCKD) model should be incorporated in the existing policies e.g. the *National Policy Framework for Teacher Education and Development* (DoE, 2006), that governs initial professional education of teachers (IPET) and continuing professional teacher development (CPTD).

The IPET, on the one hand, lies in the domain of higher educational institutions and includes diploma and degree qualifications. CPTD, on the other hand, falls under the jurisdiction of the South African Council for Educators (SACE). The CPTD under their control will be facilitated by service providers. Both the IPET and CPTD have a formal academic instructional approach. The policy framework therefore does not make provision for or encourage self-directed CPTD, which teachers engage in voluntary in their own time – outside the parameters of formal initiatives.

By adding the PCKD approach to the official policy, teacher education and development can be seen as a three-legged chair (Leg 1 – IPET; Leg 2 – CPTD; and Leg 3 – PCKD). If any of the legs are removed, the process is not fulfilling its role. The intention is therefore to strengthen the policy by making management aware of the benefit of this model. If accepted by national policy developers, it should be filtered through to all levels of the system to adjust their policies to incorporate the approach advocated in this model. This acceptance and implementation will ensure that the ideals of the model become a unified approach to knowledge development of teachers and ultimately the optimisation of education for children with disabilities.

With this inculcation of the approaches advocated in this model, it should become a shared vision of those who are responsible for implementing and executing knowledge-development activities at the different levels of the inclusive education system. As such, the utilisation of the core principles of the model, i.e. collaboration, communities of practice, networks, learning organisation and personal agency, will form the guiding principles for continued knowledge and skills development of serving teachers.

Not only will it be guiding principles, but it will be reflected in the strategies employed to conduct professional development in the inclusive education system. These strategies should address actions, such as: monitoring compliance with the policy, address support to teachers, motivation of teachers, enculturation of the shared vision, and promotion of the activities (collaboration, communities of practice, networks, learning organisation, and personal agency). To ensure the execution of these strategies, the necessary funding should be made available. This does not imply additional funding but rather redirection of funding that is allocated for in-service staff development.

With the above as point of departure, the development of the personal continuous knowledge development (PCKD) model followed, as illustrated in Figure 5.1, by means of four separate but interrelated sequential processes. The first step was to conceptualise the model (see section 5.2) in such a way that it could be based on knowledge management strategies and be of relevance in the field of inclusive education. The second step was the model construction phase (see section 5.3). The third step was to subject this model to vigorous analysis by subject experts in order to validate its applicability in a real-world inclusive education system. Their analysis was directed by means of two questionnaires and a focus group discussion session (see section 5.4 - Model verification). After in-depth evaluation of the comments and recommendations that emerged from the questionnaires and the focus group, the final step was to consolidate the model as discussed in section 5.5 – Model consolidation. Each of these four processes had its own unique characteristics that contributed to the development of the model.



Figure 5.2 Process in the development of the personal continuous knowledge development (PCKD) model

5.4.1 Conceptual Process

The conceptual process evolved from consideration of the following three interrelated aspects: 1) the **need** for developing the model, 2) the **intention** with the model and 3) the **assumptions** on which the model is based. This conceptual process is illustrated in Figure 5.2 and will be discussed in the section below.

The need for developing the model is grounded in the perceived role of inclusive education as the most effective way to promote equity and quality in education for all children (see section 4.5). As indicated in Chapter 4, equity in inclusive education is equal to diversity, which implies that teachers are involved with the educational needs of a diverse group of children in their classrooms daily (see Table 1.1 and section 4.6). The result is that equity and quality is in constant conflict with one another. The reason for this conflict, as reported above, is that the current initial

teacher education and continuous professional development initiatives do not meet teachers' knowledge and skills needs to teach a diverse classroom. This thesis argues that this situation has a negative impact on the quality of education of all children but specifically those with disabilities.

The quest for quality in education and more specifically the education of children with disabilities motivated the researcher to conceptualise an approach that involves teachers and school management. This thesis argues that the directing force of such an initiative should be a set of knowledge management strategies such as learning organisation, collaboration, communities of practice, knowledge networks and personal agency. As indicated in Chapter 3, these strategies are key characteristics of organisations that fully embrace knowledge management, as they ensure the development of appropriate knowledge and skills in a specific environment.

In an inclusive education environment, the relationship between teachers' own actions and management's role towards using these strategies as intended in the personal continuous knowledge development (PCKD) model is illustrated in Figure 5.3.

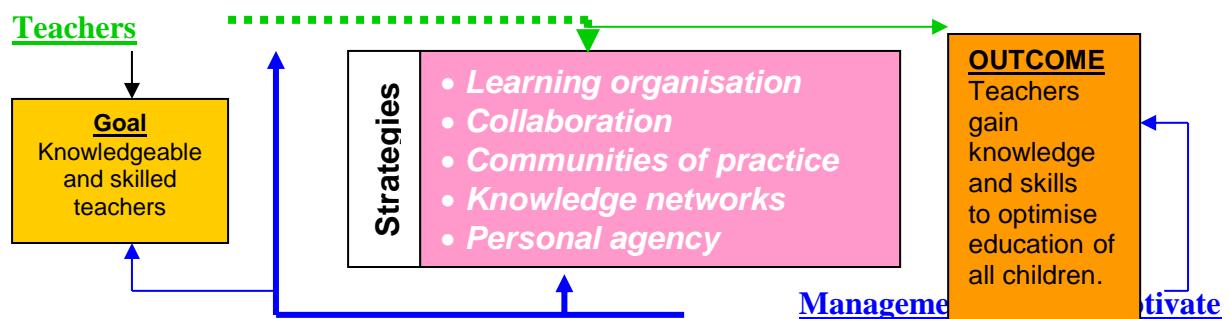


Figure 5.3 Correlation of Teachers and Management's utilisation of strategies

The intention with the personal continuous knowledge development (PCKD) model is threefold. Firstly, the model's intention is to capacitate teachers to release their own inner power of personal agency, inventiveness, creativity, caring characteristics, selflessness, and intellectual abilities. The underlying idea with this is to empower them to source knowledge, skills and support from knowledgeable others, and reputable evidence-based best practices that are acknowledged as such by professionals in education and the relevant field. Secondly, the personal continuous knowledge development (PCKD) model's intention is about directing management's

attention to the key areas in which they must support and motivate teachers. Thirdly, the model's intention is to optimise the education of all children, especially those with disabilities and special educational needs, by ensuring they receive quality education from informed practitioners. With the need and intentions defined, the final step in the conceptual process was to formulate the four assumptions on which the personal continuous knowledge development (PCKD) model is based.

1. The first assumption is that inclusive education must be understood as being about providing equitable and quality education to all children (see section 4.2). To adhere to these criteria, the South African Department of Basic Education have opted for a continuum-of-schooling options ranging from public ordinary schools, full-service schools, special schools as resource centres and special schools (see section 4.4 and Table 4.8). As indicated in Table 5.1, this schooling model implies that in all schools the classrooms will have a population of children with diverse educational and support needs (see section 4.2 and Table 4.1).

A further reality of South African schools is that conditions differ from school to school. Some schools will be highly functional while others could be classified as underperforming. The same will apply to resources. Some schools may be well resourced, while others may be under resourced. The location of schools varies from being in affluent urban areas, townships, rural towns, and deep rural areas. These aspects, namely resources and location, will affect teachers' abilities to provide quality education to all children. However, unfavourable circumstances should not be a reason for not achieving quality in education – least of all should it be due to a lack of knowledge and skills.

2. The second assumption is that teachers have a natural predisposition to learn and to take ownership and responsibility for their own knowledge and skills development. This assumption is based on Aristotle's view of men's natural desire to know and Maslow's explanation of human behaviour in terms of an individual's continuous inclination to seek personal goal states that make life rewarding and meaningful: Thus "What a man can be, he must be. He must be true to his own nature" (Maslow, 1970:46). The desire to become everything that one is capable of becoming is characterised by Maslow as self-

actualisation. Therefore, teachers must actualise their potential abilities in doing well what they can do best, namely teaching.

This thesis argues that by employing the principle of self-actualisation teachers will enhance their personal continuous knowledge development in order to overcome the gap in their knowledge and skills and minimise the unfavourable school circumstances in which they may find themselves. It will encourage them to break with the mode of feeling helpless and to take control by looking up to what they can be and then living their teaching career with zest and purpose, ensuring quality education for all children in their diverse classrooms. To capitalise on this, management should create schools to be learning organisations with a strong inclusive ethos. In such a learning environment, teachers will be motivated towards meaningful self-directed learning by using the knowledge management strategies mentioned above (see Figure 5.3).

3. The third assumption is that there is a correlation between the following three aspects: quality of education that all children including those with disabilities and other educational needs receive; the level of teachers' knowledge, skills and attitudes; and quality of support that they receive. As discussed in Chapter 4, research findings indicated that teachers have a negative attitude towards initial teacher education and continuous professional development and rated it low as a means to prepare them for teaching in inclusive classrooms. The deduction is made that the knowledge development of teachers will also be low, which will result in children receiving a poor quality of education.
4. The fourth assumption is that if it is true that all teachers want to learn, as indicated in the second assumption, there should be a natural correlation between two sets of obvious actions: firstly, *commitment* and *investigation* (see Figure 5.4) and, secondly, *personal agency* and *organisational support* (see Figure 5.5).

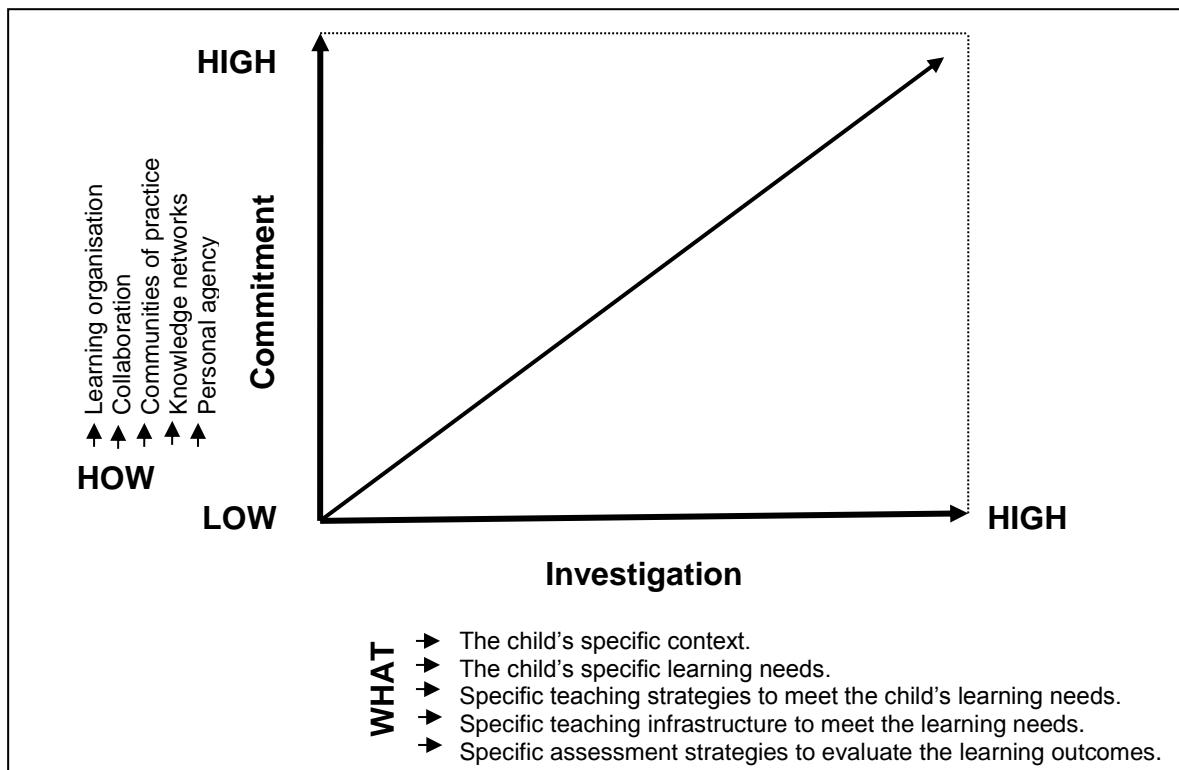


Figure 5.4 The effect of commitment and investigation on knowledge development and the quality of education

In this figure, it is illustrated that the more committed teachers are to spend time on investigating the “what” elements by using the “how” actions, their knowledge and skills of teaching in a diverse classroom will increase. The use of this gained knowledge will result in the optimising of the education of all the children. The self-driven commitment to inquire can also be referred to as personal agency.

Engelbrecht, Nel, Nel and Tlale (2015:8) also emphasise the self-driven commitment of teachers “... teachers who have a clear understanding ... what their own responsibilities are in addressing these barriers in their own classroom...”. In Figure 5.5, the link between personal agency, the support management provide to teachers, and knowledge acquisition is emphasised.

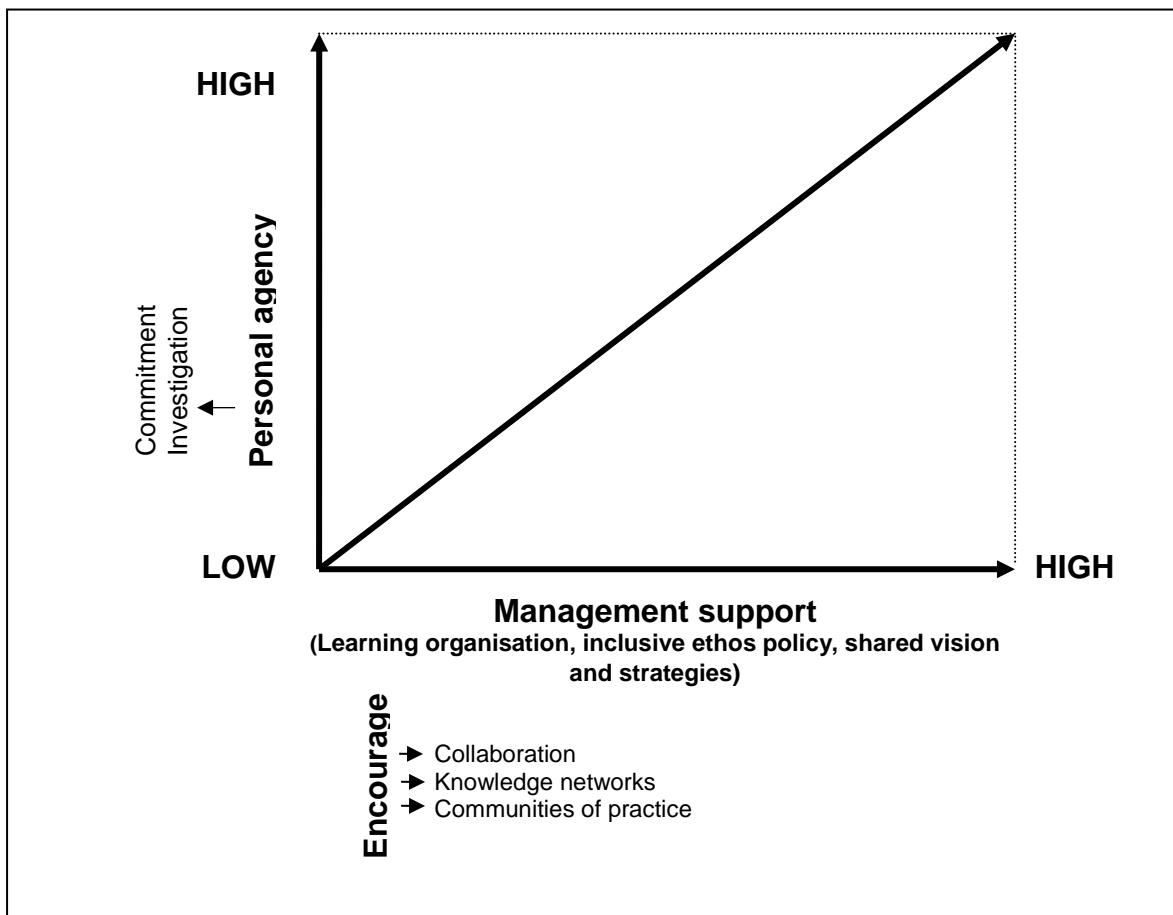


Figure 5.5 The effect of personal agency (commitment and investigation) and management support on knowledge development and the quality of education

The deduction is therefore made that management can motivate and support teachers in using knowledge management strategies by developing schools to be a learning organisation, have an inclusive ethos, shared vision, and policies that promote inclusive education. These strategies include collaboration, knowledge networks and communities of practice. In addition, if the teacher has a high personal agency drive, it is inevitable that a situation for knowledge creation and sharing will emerge. However, the opposite is also true. Should the teacher have a low personal agency drive and all the motivation and support are available, it will not result in the desired knowledge acquisition. Likewise, should the support not be available, a teacher with a high personal agency will be frustrated and will have to find the support elsewhere or give up. The latter, of course, is a situation that should be avoided at all cost. This model is therefore aimed at eliminating the mode of giving up by cultivating in teachers the awareness of strategies they can use in order to acquire

the knowledge and skills they need. In Figure 5.7, it is illustrated how this model intends to achieve this outcome.

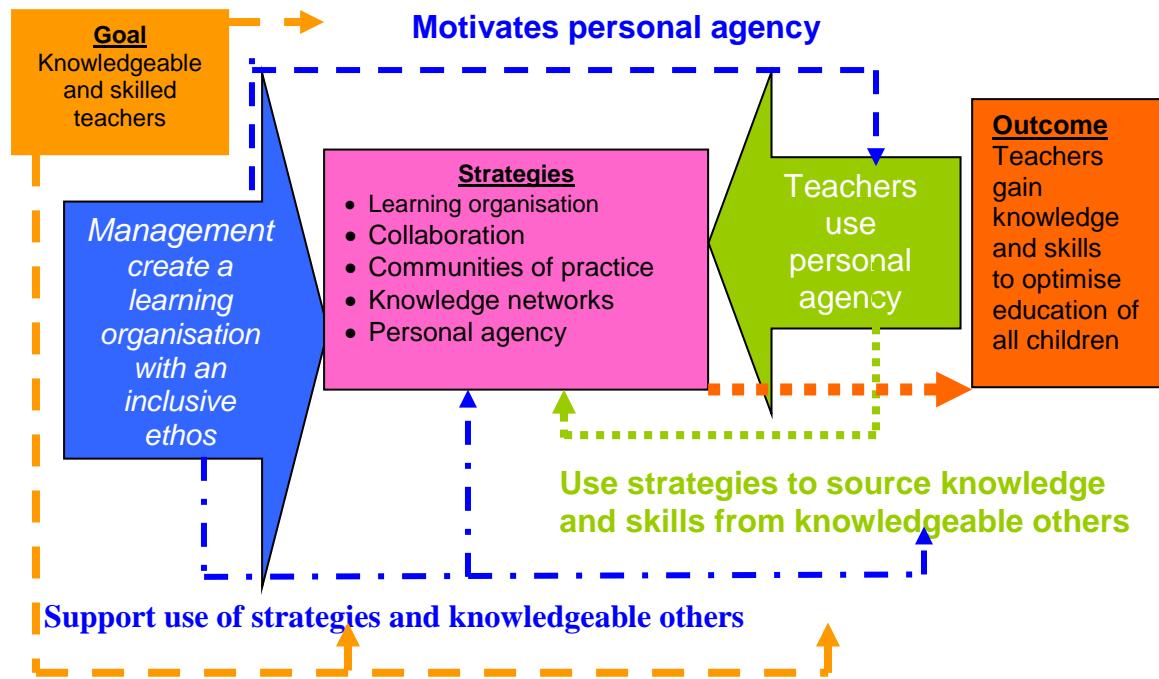


Figure 5.6 Outcome of the interplay of forces and strategies

With this conceptual framework clearly defined, the second process was initiated, namely the construction of the model. This process will be discussed in the following section.

5.4.2 Model Constructing Process

The above conceptual framework served as point of departure for the second process in the development cycle, namely the construction of the model. This process was directed by the answering of three interrelated and mutually supporting questions. They were the “why”, “how” and “what” questions relating to personal continuous knowledge and skills development of teachers in inclusive education.

The “why” question is concerned with the reason for developing the model. The answer to this question is that the model emphasises the professional status of teachers by providing them with the opportunity to participate actively in the knowledge processes (acquire, retrieve, store and share) by being self-directed. Through these, they develop own support mechanisms to compensate for limitations

in initial teacher education, continuous professional development and support received from district-based support teams (see section 4.5).

The “what” question is concerned with the desired outcome of the implementation of the personal continuous knowledge development (PCKD) model. The answer to this question is unambiguous, i.e. to optimise the education of all children, specifically those with disabilities and barriers to learning through their teachers’ improved level of knowledge and skills.

The “how” question is concerned with the structures of the model. The answer to this question is based on the fusion of the following five interrelated components (goal, outcomes, contexts, dimensions and strategies). The relationships between these components are illustrated in Figure 5.7 below.

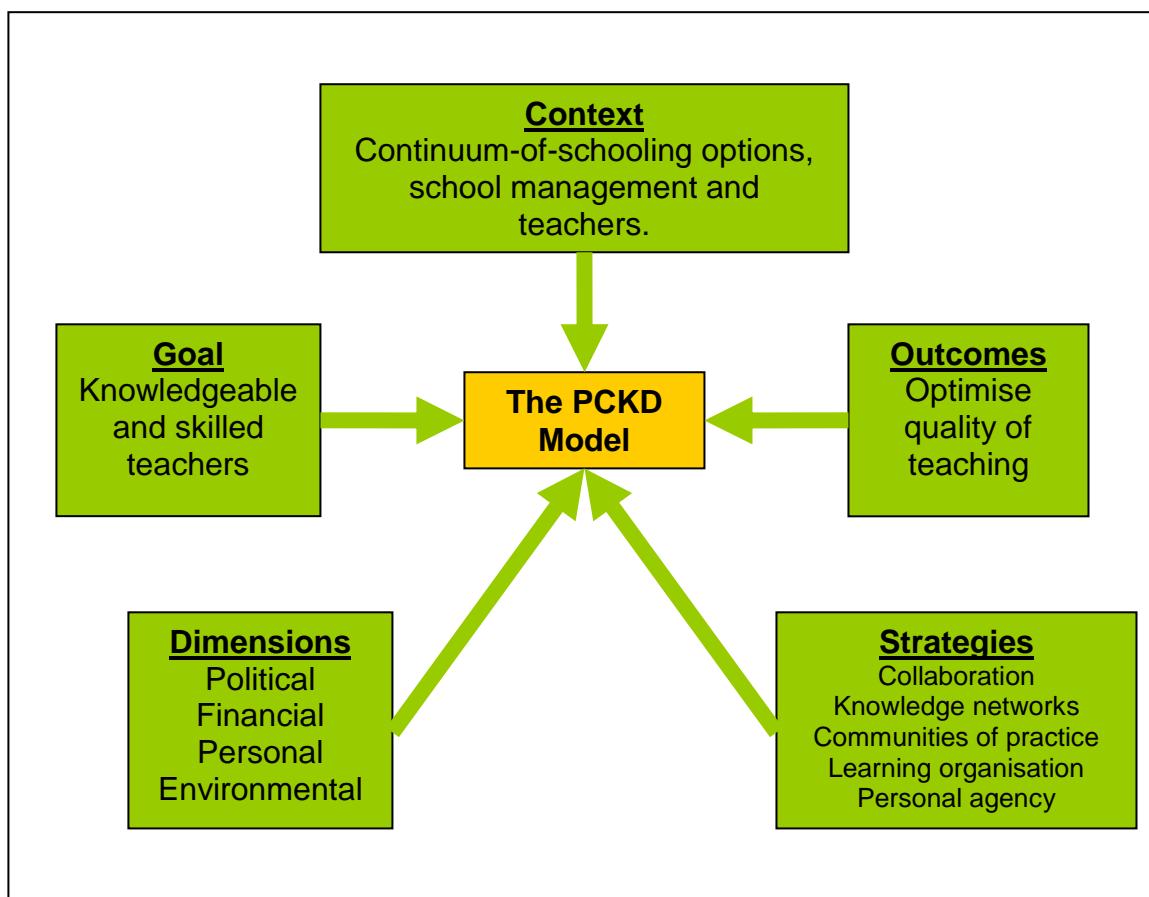


Figure 5.7 Components of the personal continuous knowledge development (PCKD) model

To describe fully how the interaction of the components constitutes the personal continuous knowledge development (PCKD) model, they will be discussed

separately. In this discussion, each individual component's importance, interrelatedness and contribution will be emphasised.

The first component is the goal of the model. The goal is to empower teachers to bridge the documented knowledge and skills gaps created by the limitations in the current initial teacher education and continuous professional development initiatives through their ability to teach in an inclusive classroom (see Table 5.2). The empowerment is embedded in encouraging teachers to be self-directed in accessing the knowledge they require in the knowledge environment in a cost- and time-effective way where and when they need it.

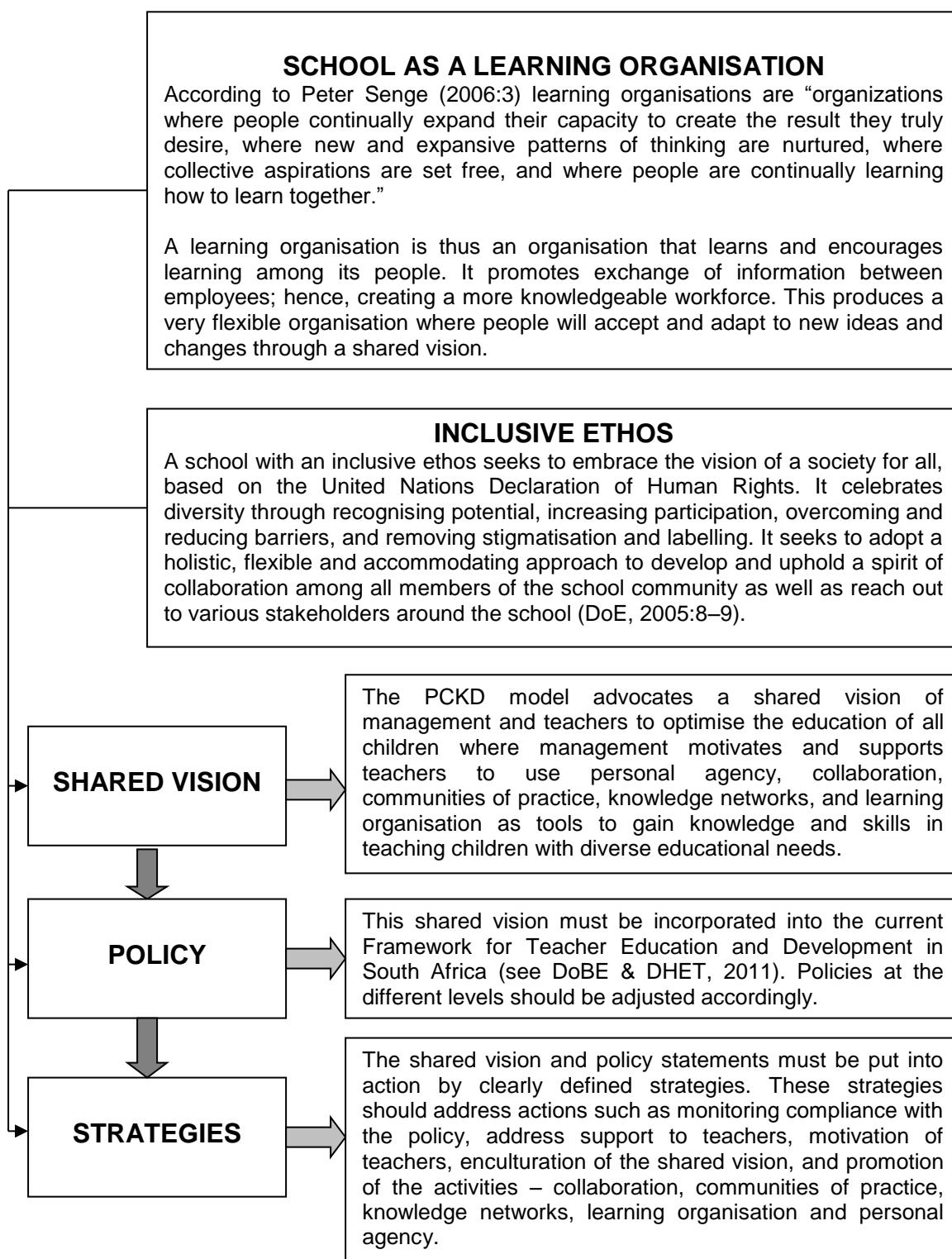
The second component is the intended outcome of the model. It is the optimising of teachers' knowledge and skills level, which will result in quality education for all children in diverse classrooms and the optimising of their learning.

The third component refers to the context in which the model will function. As the South African inclusive education system is based on the continuum-of-services approach, the personal continuous knowledge development (PCKD) model will be implemented in all categories of schools (e.g. ordinary public schools, full-service schools, special needs schools as resource centres and special needs schools). The second aspect of the context is that of the supportive role of management at national, provincial, district, and school level. The key role players are therefore teachers in the different schooling options and management at school, district, provincial, and national levels.

The fourth component of the model is its dimensions, namely political, financial, environmental and personal. These dimensions steer the implementation of the model. The political dimension (Table 5.1) falls under the responsibility of management. Reference to this dimension as the political dimension is based on its function, namely the making of binding and directional decisions with regard to personal continuous knowledge development of teachers by managers that have the power to do so. As such, it requires the involvement of management. National, provincial and district managers should mandate school managers to develop their schools to be learning organisations and to create an inclusive ethos in the school. If a school is a fully functioning learning organisation and has an inclusive ethos, these

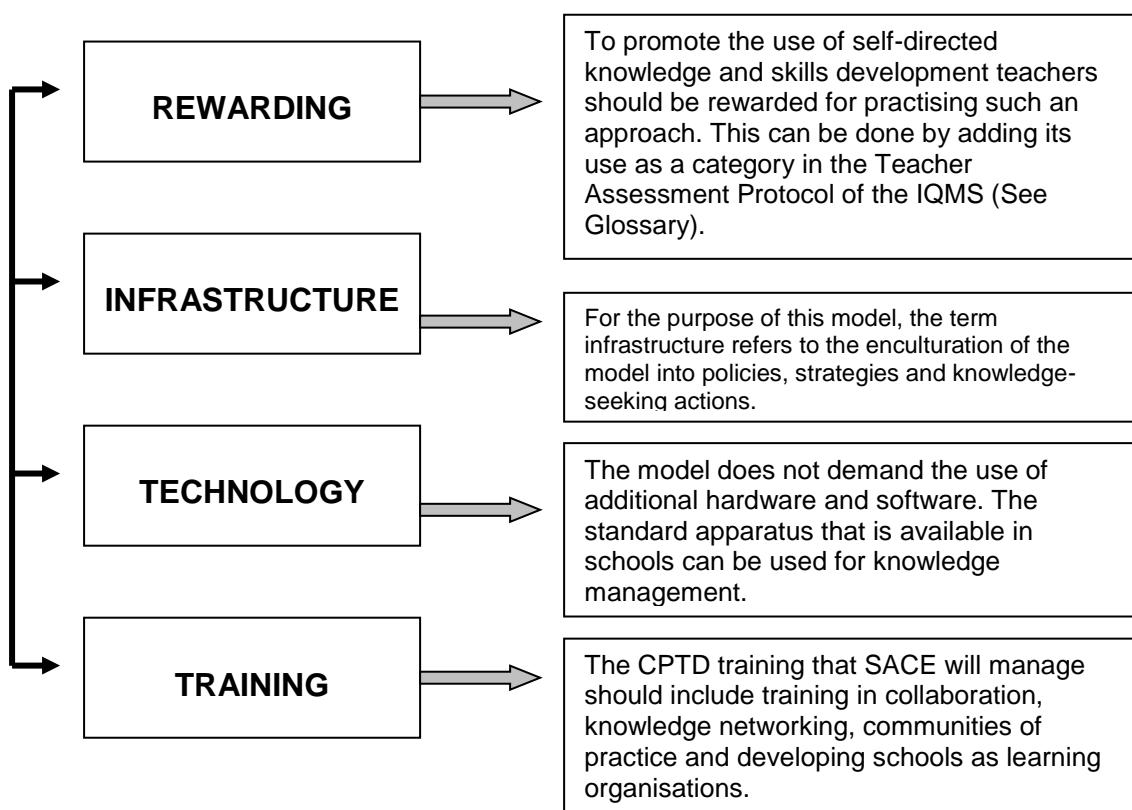
traits should be visible in three aspects, namely shared vision, policy, and strategy (see Table 5.1). These aspects form the foundation for the enculturation of the model's underlying intention into the practice of in-service teacher development. It is anticipated that this dimension should be a shared responsibility of management at the four levels of the inclusive education system.

Table 5.1 Political dimension



The second dimension that resorts under the role of management is that of finances. The financial dimension (see Table 5.2) is divided into four aspects (rewarding, infrastructure, technology and professional development). These aspects form the foundation for the motivation and support that management should give teachers.

Table 5.2 Financial dimension.



The above illustrates that the model can be incorporated into the existing structures and policies without additional funding and technological equipment. In addition, the knowledge (tacit and explicit) that teachers' need are freely available in the environment that constitutes the pool of knowledge with regard to teaching children in diverse classrooms.

The last two dimensions of the model (environmental and personal) form part of teachers' roles. The environmental dimension refers to the context in which the sourcing of knowledge should take place. This context should be understood against the backdrop of school system theory as defined by the model of Davidoff and Lazarus (2009), Bronfenbrenner's bio-ecological perspective and Joyce Epstein's model of overlapping spheres of influence of family, school, and community on children's learning (Swart & Phasha, 2016). To address this requirement, the context consists of three levels as indicated in Figure 5.8. The first level can be described as *global* as it refers to international sources. The second level is the *macro* level as it refers to the sourcing of knowledge from structures and organisations at the national,

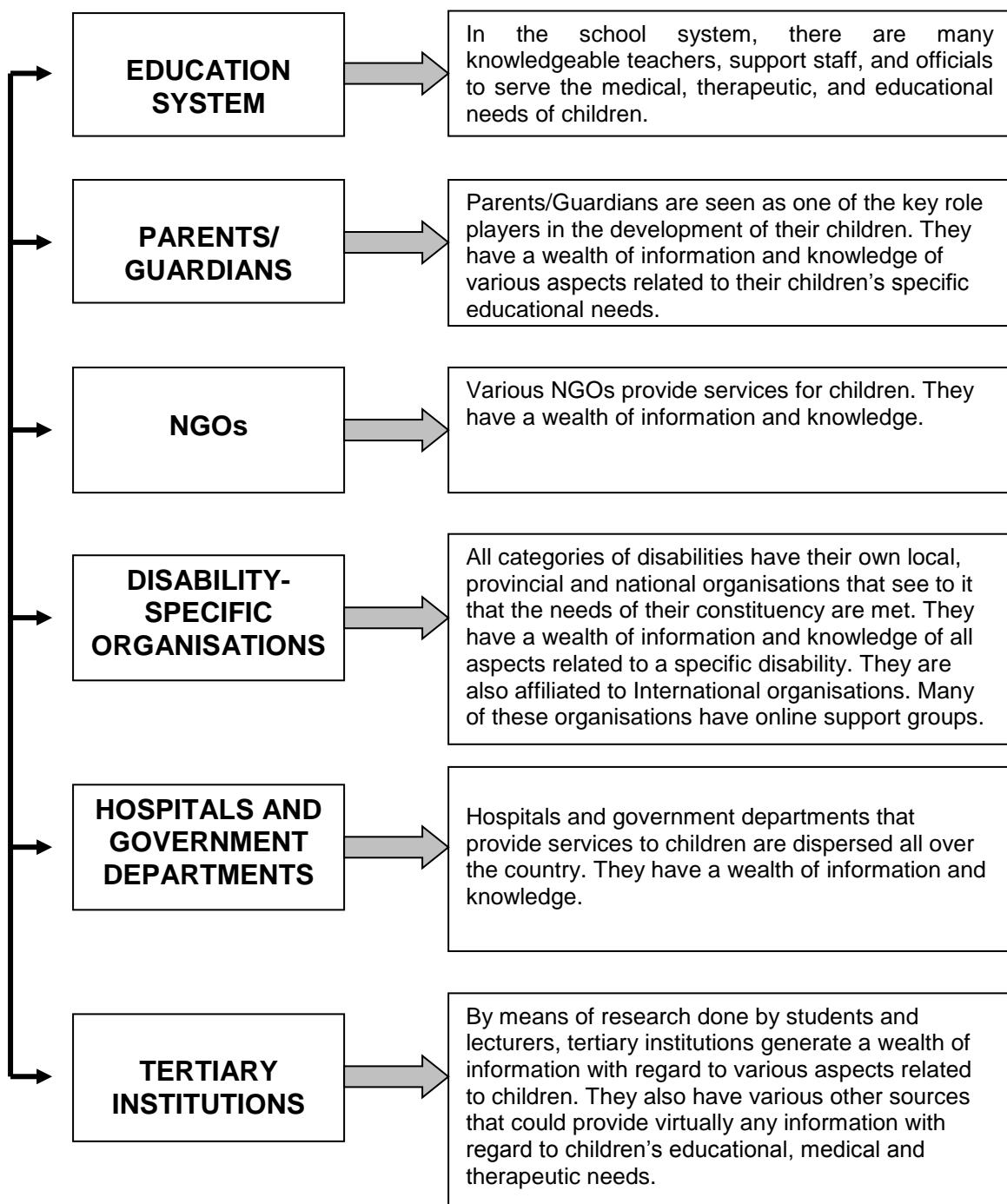
provincial and district levels. The third level is referred to as the *micro* level as it indicates sourcing knowledge from knowledgeable others in the immediate school community and its affiliates.



Figure 5.8 Context of knowledge and skills sourcing

It is a known fact that much knowledge (tacit and explicit) exists and is available within the sphere of these three levels. The way in which they direct knowledge and skills development will be outlined below in Table 5.3.

Table 5.3 Environmental dimension



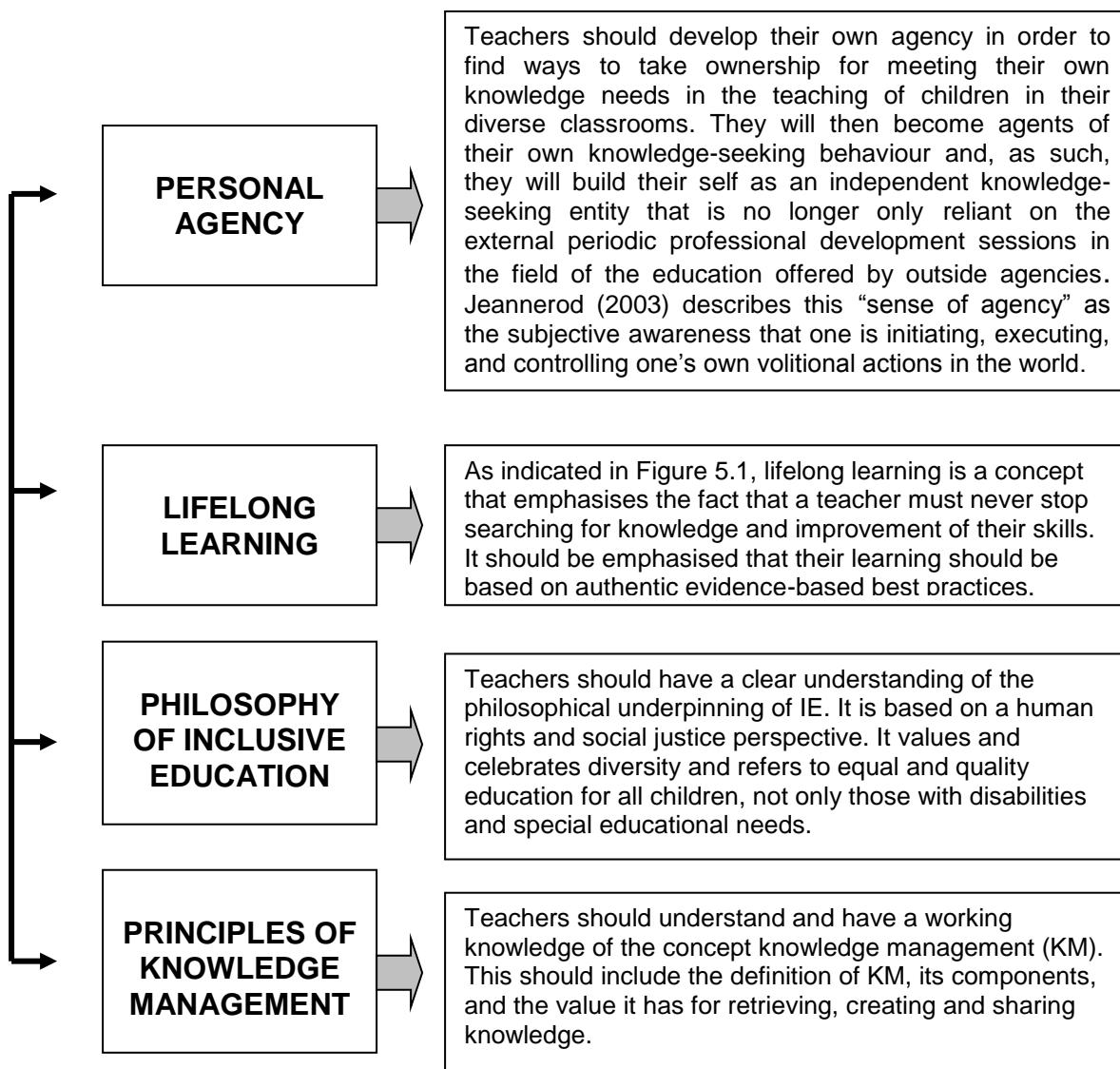
Management should encourage teachers to gain access to this freely available knowledge where and when they need it. This approach correlates with the Department of Basic Education's intention as outlined in the policy document *Action Steps: National Model Care and Support for Teaching and Learning (CSTL) Conceptual Framework* (DoE, 2010). However, the emphasis of management should be that only authentic evidence-based practices that are acknowledged and

approved by peer review should be pursued as sought-after knowledge sources. The deduction is therefore that information about these authentic evidence-based practices that are available internationally, nationally and locally within the structures of the broader education system, special needs schools and non-governmental organisations (NGOs) they are affiliated to, government departments, and tertiary institutions should be made visible to teachers by management.

Certain levels of knowledge are easily accessible via the internet, others are only available through affiliation to disability-specific organisations. More technical and advanced research findings are available through the search engines of tertiary institutions and publishing houses where accreditation is needed. At the four levels of the education system, namely national education department, provincial education department, education district and school/classroom levels the access to international knowledge is therefore freely available within the limits of availability of technology, affiliation and accreditation. This knowledge is also generated through national and international cooperation, collaborative research and pilot studies in the field of IE on national level.

All this available knowledge will stay dormant unless teachers make a concerted effort to find paths to best access it in a cost- and time-effective way that is also meaningful to them. In addition, as it will take effort, it becomes personal. This personal involvement forms the second dimension of teachers' role in their own development. Their involvement should be based on self-directedness, embracing of lifelong learning, buy in into the philosophy of inclusive education, and the principles of knowledge management. This personal dimension is summarised in Table 5.4 below.

Table 5.4 Personal dimension



The fifth component of the personal continuous knowledge development (PCKD) model consists of the strategies to access the authentic evidence-based knowledge available in the environment. With this personal involvement in their own knowledge and skills development, the model advocates collaboration, knowledge networks, communities of practice and learning organisation as the pathways that teachers can develop to gain access to the available knowledge in the environment (see Table 5.3). The model further advocates that management should motivate and support teachers to use these core knowledge management strategies. In this way, the thrust of this model of teachers’ own efforts and management’s support come together, as illustrated in Figure 5.6.

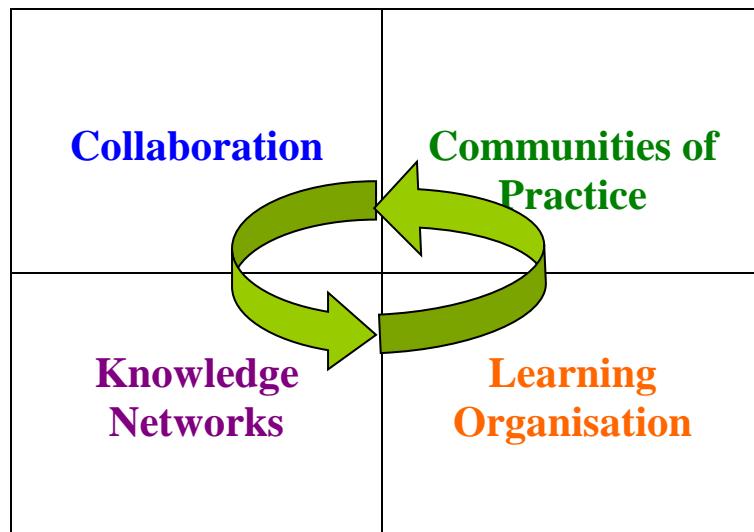


Figure 5.9 Strategies to acquire knowledge

As illustrated in Figure 5.9, these strategies can be utilised individually, but this model advocates that they should be used in conjunction with one another. It is in relation with one another that their individual strengths will fully support the teachers' knowledge development. For clarification regarding their importance in knowledge development, each one of these strategies will be described in the following section. (See Chapter 3 for a more comprehensive description.)

In this personal continuous knowledge development (PCKD) model, collaboration is seen as more than communication between teachers, professionals and knowledgeable others in the inclusive education system. Collaboration implies communication with the purpose to share knowledge and the creation of a shared context with regard to the field of teaching children in diverse classrooms. Collaboration can thus be defined as the degree to which people in a group actively support and help one another in their work (Hurley & Hult, 1998). This model advocates that the creation of a collaborative culture in the inclusive education system should be an explicit objective of education management at all levels.

This important role of management is emphasised by Gold et al. (2001) and O'Dell and Grayson (1999) who state that effective knowledge management requires a collaborative culture. This shows that collaborative interactions should be encouraged both formally and informally among different members (Nel, et al., 2014; Engelbrecht, 2007). Exchanging knowledge among different members is a

prerequisite for knowledge creation. Collaborative interactions foster this type of exchange by reducing fear and increasing openness to other members. Collaborative interactions such as open dialogue, social interaction, and coactivity can help create organisational knowledge (Nahapiet & Ghoshal, 1998).

All levels of education management, as further emphasised by the personal continuous knowledge development (PCKD) model, should encourage and support the creation of collaborative organisational structures such as knowledge networks, communities of practice and learning organisations. These structures should become the vehicle for collaboration in the system. To clarify how they will assist the development of teachers' knowledge base, these structures will be discussed below.

Community of practice is referred to by Becerra-Fernandez et al. (2004:52–53) as an organic and self-organised group of individuals who are dispersed geographically or organisationally but communicate regularly to discuss issues of mutual interest. Lesser and Prusak (1999) define communities of practice as collections of individuals who are bounded by informal relationships that share similar work roles and a common context. Communities of practice differ notably from conventional units of organisations, such as teams or work groups. The difference can be found in that communities are defined by knowledge rather than task and that its life cycle is determined by the value it creates for its members and not by project deadlines (Allee, 2000). They exist in all organisations without formal charters or organisational mandates and they are formed over time by individuals with a need to associate themselves with others facing similar issues and challenges in an organisation (Lesser & Prusak, 1999).

As teachers need to associate themselves with colleagues facing similar problems, they also need to associate with knowledgeable others by forming knowledge networks with them in their search to gain knowledge in the field of inclusive education. For the purpose of this model, knowledge networks therefore refer to the possibility to know who has what knowledge and how it can be retrieved. Knowledge networks as intended in this model have as aim the sharing of information and the creation of new knowledge. It therefore becomes the responsibility of management to map the location of expertise in the education system and across organisational borders – nationally and internationally. These knowledge maps must be made

visible throughout the IE system. Not only is it the responsibility of management, but it is the responsibility of all teachers to develop their own knowledge networks. These networks will then form the channels through which information flows from a knowledgeable other to a recipient who needs that information. It therefore stimulates learning and the development of knowledge.

An organisation that encourages learning among its people by promoting an exchange of information between employees, hence creating a more knowledgeable workforce, is defined as a learning organisation (Senge, 2006). The result is that the organisation is more flexible and as an enhanced knowledge base enables the workforce to improve their practices by adapting to new ideas (Taylor, 1998:1). A learning organisation can be viewed as a group of people working together to enhance their capacities to create the results they value (Senge, 2006:410). In an education system, this will mean that all role players at the four levels work together to enhance their capacities to achieve the ideals of inclusive education. For organisational learning to continue smoothly, role players throughout the organisation must have the political skills to make connections with and influence others.

A final perspective on the learning organisation as highlighted by Senge (2006) is that leaders should encourage organisational members to think creatively, i.e. to imagine possibilities that do not already exist. Managing knowledge therefore helps create a learning organisation – one that is skilled at creating, acquiring, and transferring knowledge and modifying behaviour to reflect new knowledge and insight (Senge, 2006).

In the final step of the model, i.e. the construction phase, all of the above are incorporated into a whole to constitute the visual presentation of the model, as illustrated in Figure 5.10 below. This Figure illustrates how the sourcing of knowledge is done by teachers themselves and how these activities are supported and motivated by management.

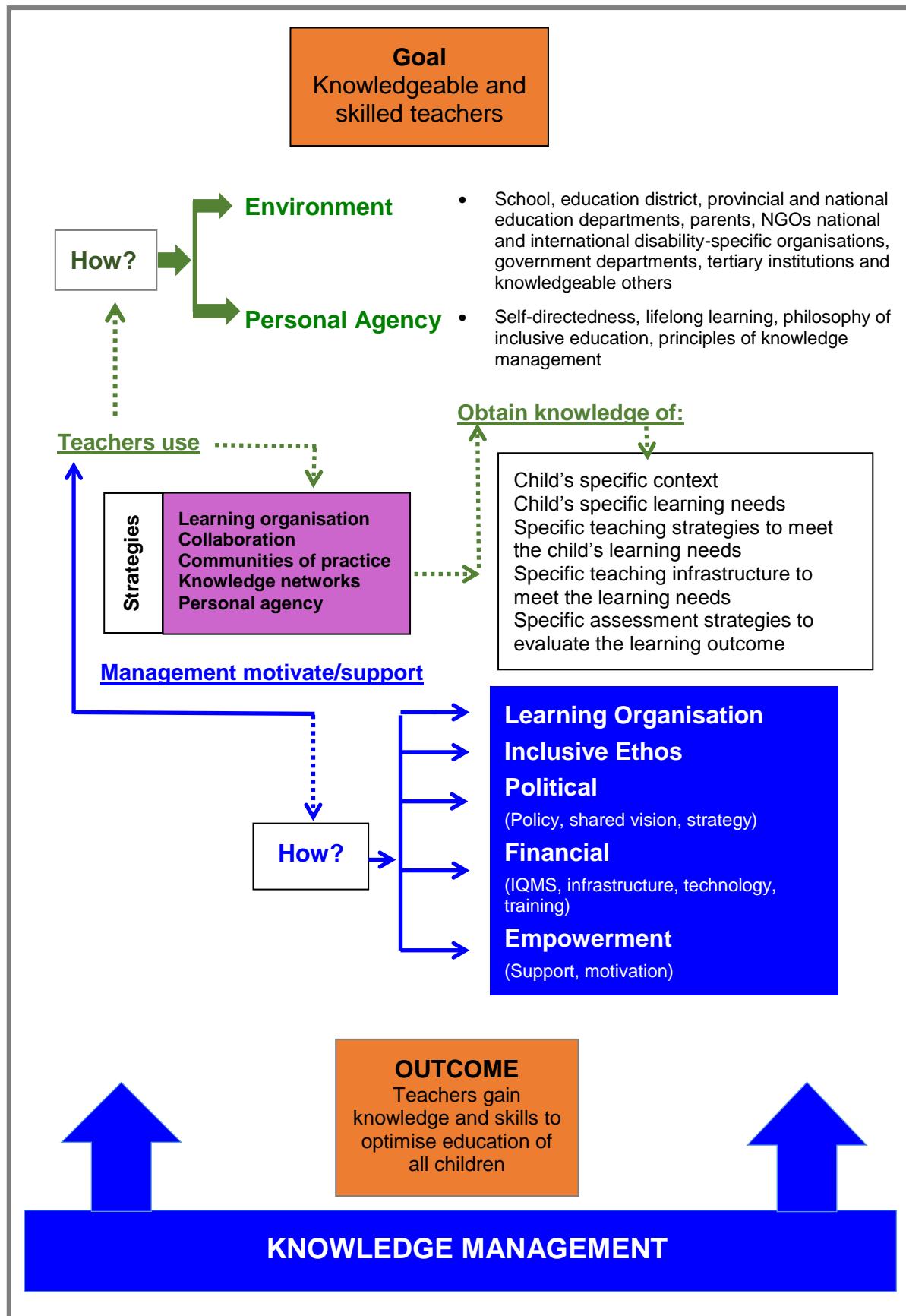


Figure 5.10 Personal continuous knowledge development model for teachers in an IE system

5.4.3 Empirical Investigation Process

The next step in the personal continuous knowledge development (PCKD) model development process was subject experts' empirical validation of it. In this study, the term subject experts refers to educationists who are acknowledged by their peers as being highly knowledgeable with regard to the field of inclusive education. Their expertise has been gained through:

- Academic studies;
- Exposure to and involvement with national and international developments in IE;
- Years of practical teaching experience in inclusive education;
- Involvement in and experience at different levels of management in inclusive education structures (in these structures they do not only have a vested interest in the execution of, but they are also in a position to influence its implementation); and
- Research (they have been widely published in journals and text books in the field of inclusive education).

The subject experts who participated in this study comprised:

- Officials of the Western Cape Education Department's Directorate: Specialised Education and Support Services,
- Members of the Education District Metro Central and learning support teachers of a circuit;
- Members of the Eastern Cape Education Department's Education District Grahamstown; and
- Principals and teachers of a full-service school and a special school serving as resource centres.

The investigation was done as indicated in Chapter 3 by means of a mixed-method approach where numerical data and verbal data were collected by utilising questionnaires and a focus group discussion session. The findings of the empirical

investigation will be discussed in the sections below. Firstly, the evaluation of the level of knowledge management maturity will be given. Secondly, the evaluation of the proposed model will be considered. Finally, the comments raised during the focus group discussion with regard to the proposed model will be highlighted.

5.4.3.1 Subject experts' evaluation of the level of Knowledge Management use in inclusive education

The evaluation was done by means of the Knowledge Management Maturity Assessment Questionnaire (KMMAQ), which was developed by Kruger and Snyman (2007). The aim of this Questionnaire is to determine to what extent knowledge management are being used in an organisation. In this study I used it to determine to what degree knowledge management is being utilised in the field of inclusive education.

The composition of the questionnaire can be summarised as follows: In the first section, the focus was on how information and communications technology (ICT) activities complied with certain criteria (a total score of 20 was possible). Section two, was concerned with information management in the organisation (a total score of 76 was possible). In section three, the focus was on knowledge management principles, policies and strategies (a total score of 88 was possible). Section four investigated the implementation of knowledge management (a total score of 94 was possible). In section five ubiquitous knowledge was evaluated (a total score of 76 was possible), and in section six the focus was on the growth of knowledge management (a total score of 4 was possible). The overall score that could be achieved was 358.

See Appendix A-1 for a copy of the questionnaire and Appendix A-2 for the point allocation to answers. In Appendix B-1, an overview of the scores of the individual participants is given and, in Appendix B-2, a summary of the average percentage scored in each question in all the sections.

A total of twenty-six (26) questionnaires were sent out but only 17 (65.4%) were received back. The seniority level of the participants validates the authenticity of their responses as a very accurate assessment of the knowledge maturity level in the education system. The response of each of the groupings (see section 5.4) is

summarised in Table 5.5 below with regard to the above six sections and the scores obtained in each.

Table 5.5 Combined scores of individual groupings of participants.

	Possible Scores							
	20	76	88	94	76	4	358	100
Section 1: Information and Communications Technology (ICT)	Section 2: Information management	Section 3: Formulation of KM principles; policy	Section 4: Implementation of KM	Section 5: Ubiquitous knowledge	Section 6: Assessment of KM growth	Total	% use of KM	
Grouping of Participants	Actual Score							
Directorate: Special Support Services	18	39	53	53	18	4	185	51.7
EDMC	15	44.6	47	31.6	16.4	2.4	157	43.9
ED Grahamstown	8	36.5	35	49.5	27.5	1	157	43.9
LST Circuit 6	7	10.8	18.4	20.8	25.4	1	83.4	23.3
Special school as resource centre	13	45.7	76	55.7	34.7	2.5	227.6	63.6
Average	12.2	35.3	45.8	42.1	24.4	2.2	162	45.3
%	61	46.4	52.1	44.8	32.1	54.5		
% KM implementation	45.3%							

The findings in this study e.g. 45.3% use of knowledge management in inclusive education correlates with the results of Kruger and Johnson (2010) who reported a 42.45% use of knowledge management in general education. The researcher deducts that despite the reported effective use of knowledge management in the world of business, it is not widely used in education or, in this study's case, in IE.

A further deduction is made as illustrated in the Figure below that the rating of 23.3% by Learning Support Teachers who function in various public ordinary schools is that knowledge management is to a very limited degree being utilised in public ordinary schools to support teachers in their search for knowledge in the field of inclusive education.

The reported average of 45.3% use of knowledge management in general in inclusive education and the 23.3% use in specifically public ordinary schools strengthens the researcher's argument that knowledge management strategies should seriously be considered as an approach to develop teachers' knowledge in the field of IE and more specifically in the teaching of children with disabilities.

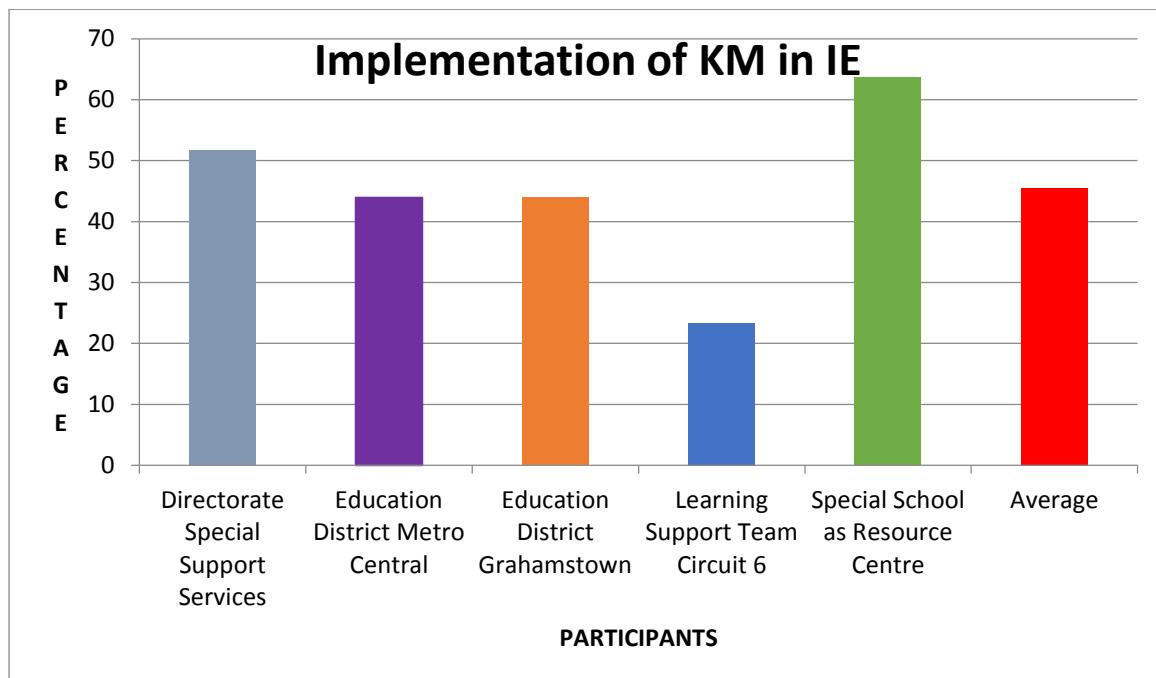


Figure 5.11 Comparison of the use of knowledge management as reported by participants

In the following section, the subject experts' evaluation of the proposed PCKD model will be discussed.

5.4.3.2 *Subject experts' evaluation of the proposed model*

The evaluation was done by means of a questionnaire ("A Knowledge Management Model for Capacitating Teacher Learning in an Inclusive Education Setting") developed by the researcher. See Appendix C for a copy of the questionnaire. The questionnaire was accompanied by a document giving full description and visual representation of the model. The reason for conducting this investigation was to determine to what extent subject experts would view the proposed model of value as a tool to assist teachers in gaining much needed knowledge and skills to teach in a classroom with a diverse child population.

A total of twenty-six (26) questionnaires were sent out and 21 (80.77%) were received back. In the following section, the comments of the participants will be summarised.

QUESTION 1: Clarity of the model

Sub-question A:

- All 21 participants evaluated the model to be clear and understandable.

Specific comments:

- *In theory it is. In practice, it would work in schools with a highly skilled management team.*
- *Yes – well defined.*

Sub-question B:

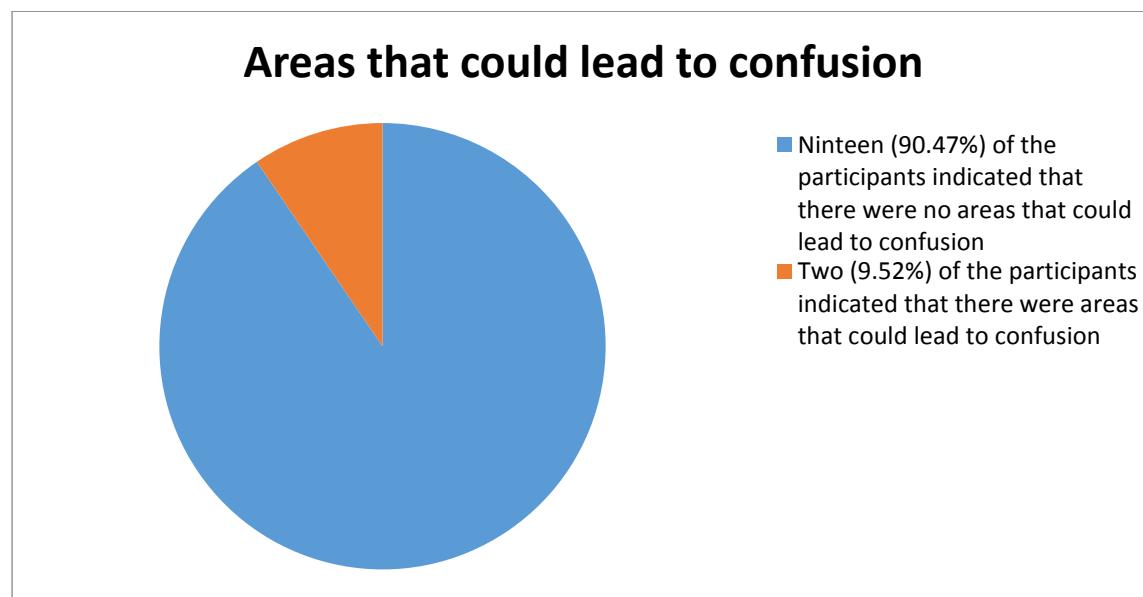


Figure 5.12 Areas that could lead to confusion

Specific comments:

- *[Some terms] might be worth defining to ensure everyone understands the same concept, e.g. networks.*

- *Dimensions of support – financial (IQMS). It is understandable if IQMS is referred to as an instrument for personal and professional achievement. If it is meant for financial reward, this is insufficient.*

Sub-question C:

- Thirteen (68.42%) of the participants indicated that there were no areas that could lead to different interpretations while six (31.58%) indicated that there were areas that could lead to variations in interpretations.

Specific comments:

- *Possibly – some terminology could have different interpretations or it could depend on context.*
- *Yes, but this is always a reality. There should not be vastly different interpretations.*
- *Yes, depending on their own personal context; however, the actual purpose and intention of the model should not be misinterpreted.*
- *Definitely. High needs and low needs school personnel would interpret the terminology differently.*
- *[Some terms] might be worth defining to ensure everyone understands the same concept, e.g. networks.*
- *No, the model is clear and therefore will be interpreted [in] the same [way] by different people.*

Sub-question D:

- Seventeen (85%) of the participants indicated that there were no ambiguous or unclear terminology while three (15%) indicated that there were ambiguous or unclear terminology.

Specific comments:

- *“Inclusive Education” – for the purpose of [the] study, this definition is imperative because many special [children/learners], e.g. children/learners born to “tik” mothers can be/are special needs [cases].*

- *I feel I understood the terminology but had to pause and think about some of them and what their implications might be.*
- *Political dimension – description point more to “Policy” + “Shared vision” – which explain [it] better. Financial dimension – how about “Resources” as a heading [?]*

Sub-question E: Overall evaluation of the clarity of the model:

- In the last sub-question the participants were asked to evaluate the overall clarity of the model by using a 7 point Likert scale ranging from 1= not clear to 7= fully understandable. The findings are illustrated below.

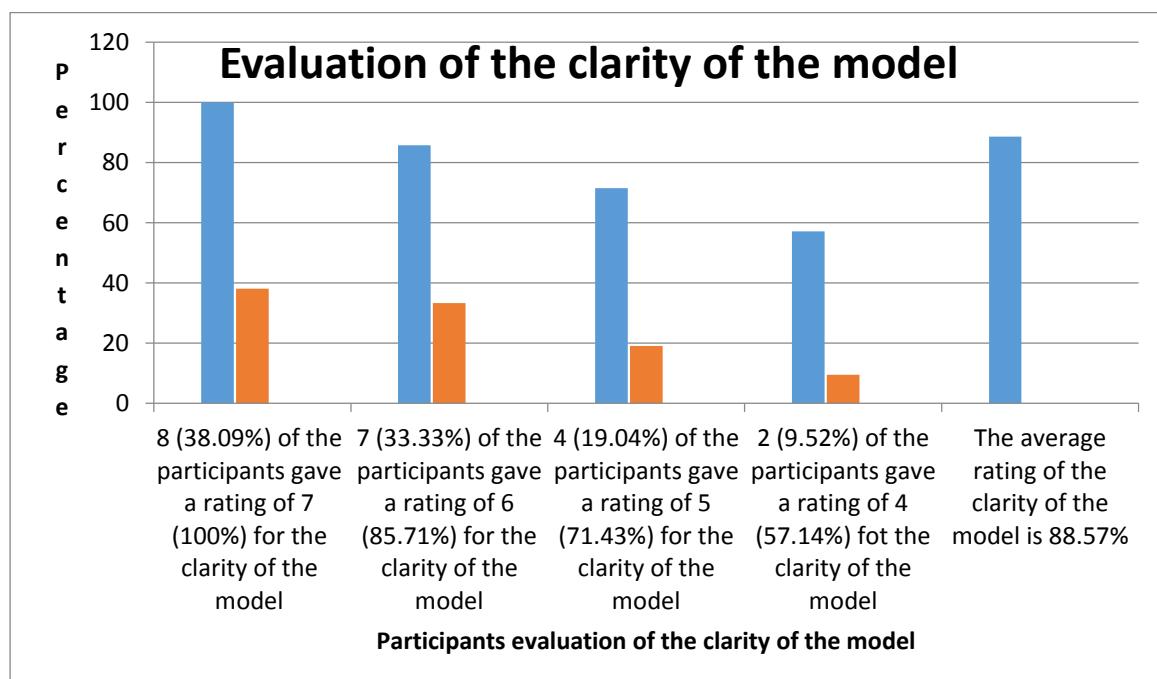


Figure 5.13 Evaluation of the clarity of the model

In the analysis of the scores in Figure 5.7, it was found that 38.09% (8) of the participants gave a rating of 100%, 33.33% (7) gave a rating of 85.7%, 19.04% (4) gave a rating of 71.4%, and 9.52% (2) gave a rating of 57.14% for the clarity and comprehensibility of the model. An average score of 6.20 (88.57%) was reported as the rating of the model's clarity. From this, the researcher made the deduction that the model will be clear to the majority of participants for whom the model is intended to be of value in their search for knowledge in inclusive education

The above evaluation and comments highlight the necessity to define clearly the key concepts related to knowledge management and IE in the model. This deduction is made because of the difference in ratings given in sub-question A (100%) for clarity of the model and the ratings given in Table 5.9 (88.57%), reflecting the overall rating of the clarity of the model. These variations clearly indicate that the comments and concerns reflected in sub-questions B to D must be rectified in the final consolidated model.

QUESTION 2: The degree of comprehensiveness of the model

Sub-question A:

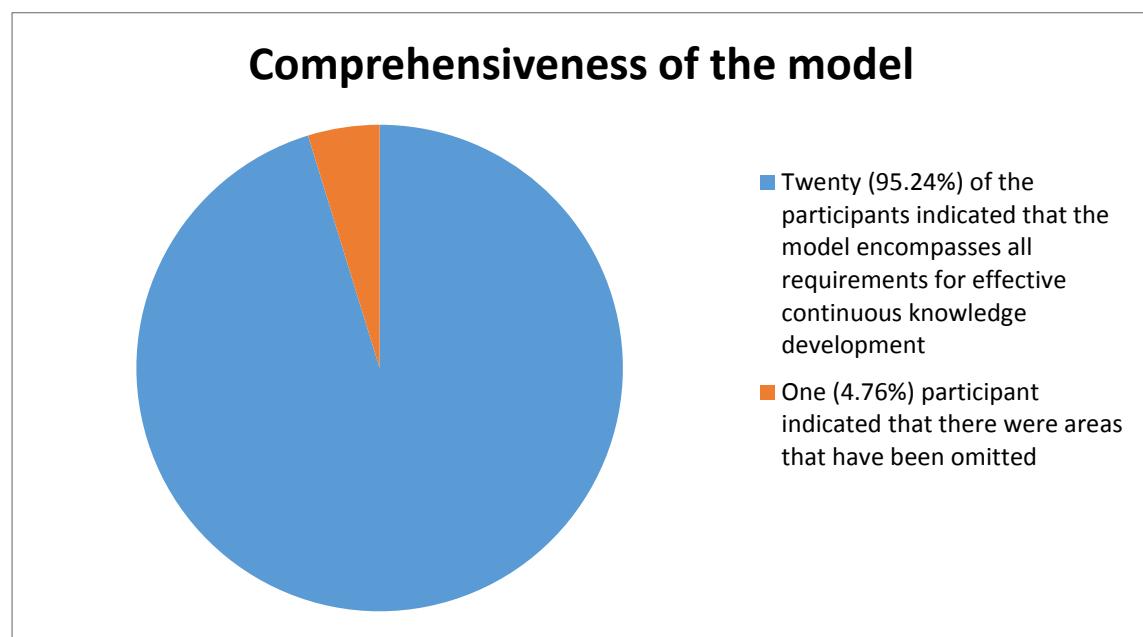


Figure 5.14 The degree of comprehensiveness of the model

Specific comments:

- *In addition to acquiring skills and knowledge in the field of disabilities, creating an inclusive ethos/climate in the class/school should receive attention.*
- *Yes, both management and teachers are covered in the model.*

Sub-question B:

- Twenty (95.24%) of the participants indicated that the model provided sufficient detail while one (4.76 %) indicated that there were more detail needed.

Specific comments:

- More detail could be provided, e.g. teachers' use [of] skills, knowledge, expertise of other members of the multi-disciplinary team, parents, etc.
- Acknowledgement of these other role-players [is] needed.
- Yes, very clear and detailed.

Sub-question C: Overall evaluation of the comprehensiveness of the model

(Key: 1= not comprehensive enough and 7= comprehensive enough)

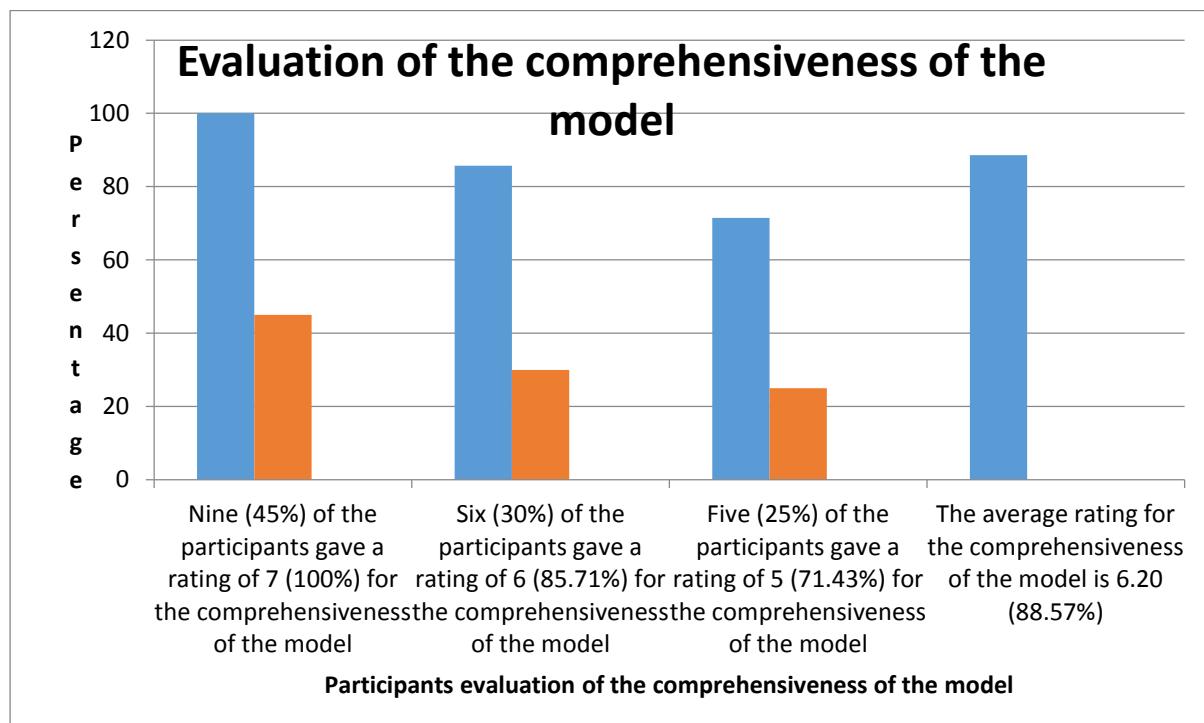


Figure 5.15 Comprehensiveness of the model

In the analysis of the scores in Table 5.9, it was found that 45% (9) of the participants gave a rating of 100%, 30% (6) gave a rating of 85.71%, and 25% (5) gave a rating of 71.43% for the overall comprehensiveness of the model. A score of 6.20 (88.57%) was reported as the average rating of the overall comprehensiveness of the model. From this, the researcher made the deduction that the model includes key aspects that will ensure that participants will succeed in their search for knowledge in IE by using the model.

The evaluation and comments raised with regard to the overall comprehensiveness of the model indicate that the subject experts judge it as comprehensive to a

satisfactory degree. The deduction is further made that the comments raised with regard to perceived omissions in sub-questions A and B should be incorporated in the final model.

QUESTION 3: The effectiveness of the model

Sub-question A: Enhancement of knowledge and skills

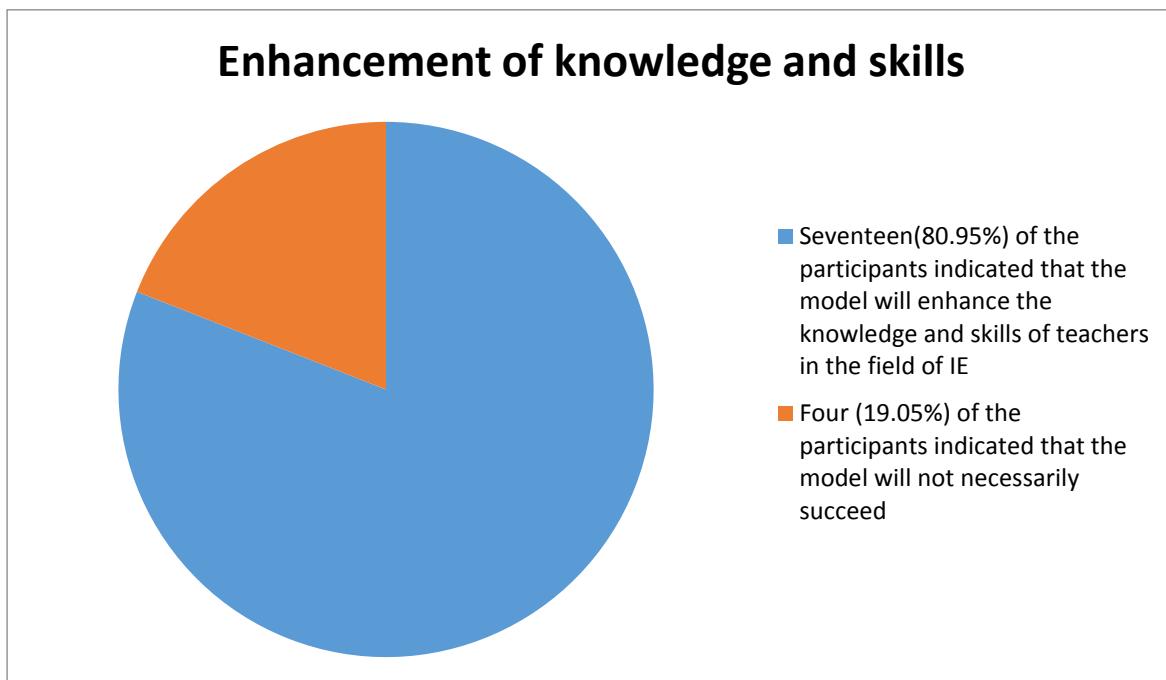


Figure 5.16 Rating of the model's ability to enhance knowledge and skills

Specific comments:

- Yes and no.
- Yes, but ideology doesn't always match reality – unfortunately [not].
- Not entirely.
- Assuming all components of the model [are] addressed.
- Yes, [the] [r]esearcher is addressing two key aspects – support and motivation of management to support teachers and to capacitate teachers in better service delivery.

Sub-question B: Appropriateness of strategies

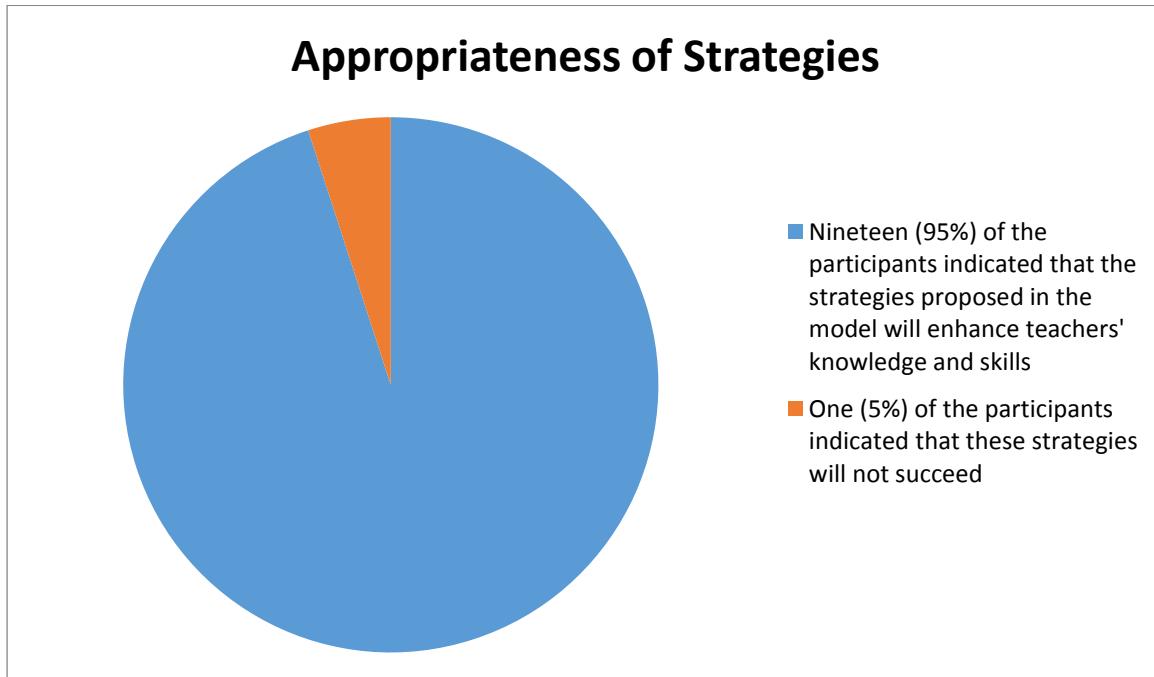


Figure 5.17 Appropriateness of strategies

Specific comments:

- *Not exactly, as there is no stance relating to policy, which would underpin the model.*
- *Yes, holistic to ensure continuous knowledge development.*

Sub-question C: Evaluation of the effectiveness of the model:

Table 5.10 Effectiveness of the model

(Key: 1= Low and 7= very high)

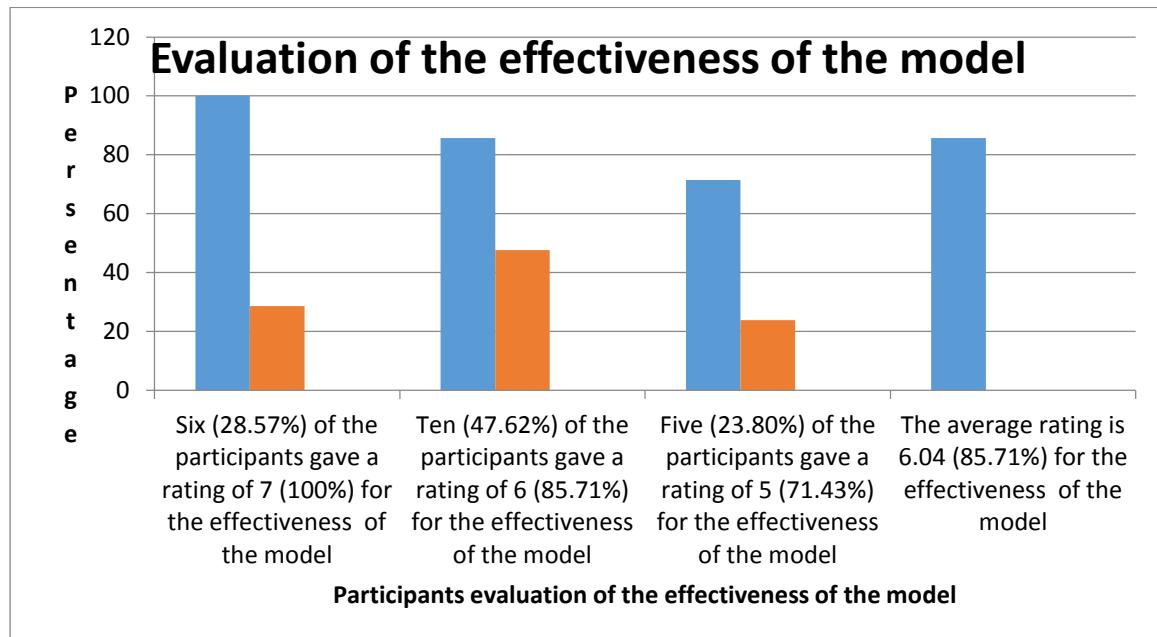


Figure 5.18 Evaluation of the effectiveness of the model

In the analysis of the scores, it was found that 28.57% (6) of the participants gave a rating of 100%, 47.62% (10) gave a rating of 85.71%, and 23.80% (5) gave a rating of 71.43% for the overall effectiveness of the model. A score of 6.04 (85.71%) was reported as the average rating of the overall effectiveness of the model. From this, the researcher made the deduction that the strategies employed in the model will ensure that participants will succeed in their search for knowledge in IE by using the model.

The evaluation and comments raised with regard to the overall effectiveness of the model indicate that the subject experts judge it as an effective means to enhance teachers' knowledge in the field of inclusive education to a satisfactory degree. The deduction is further made that the comments raised with regard to the necessity of having policies will underpin the implementation of the model and the importance of addressing all the components in order to ensure that the model fulfil its effectiveness as intended.

QUESTION 4: The implementability of the model

Sub-question A: User-friendly/understandable

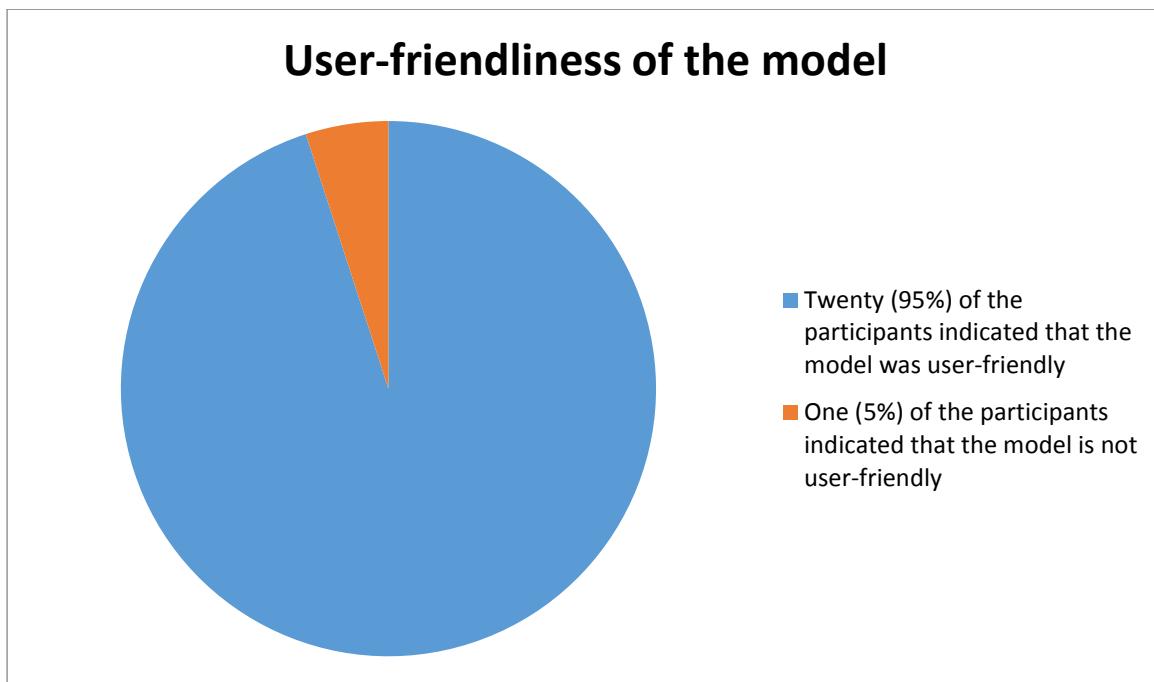


Figure 5.19 Evaluation of the user-friendliness of the model

Specific comments:

- *Could be improved on visually.*
- *Yes, although diagram [is] “too busy”.*
- *Yes, as stated clear[ly] and concise[ly].*

Sub-question B: Execution

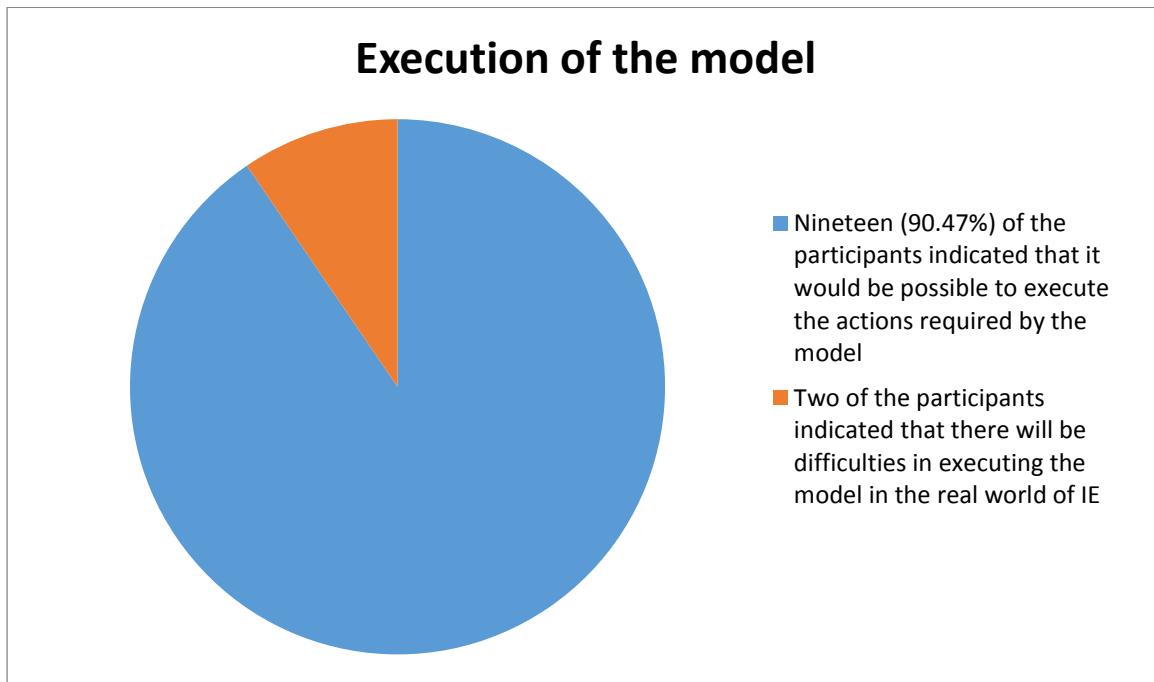


Figure 5.20 Execution of the model

Specific comments:

- Yes, definitely. The fact that the model relies strongly on self-directed behaviour can be both [a] strength and a weakness in terms of execution. The success of the model will not only lie in whether it is executable, but whether it is in fact executed – thus the importance of the correlating emphasis on managerial support and motivation.
- Yes, if there is a political will to contribute constructively.
- I believe many school management teams would not be able to support staff to the extent expected in the model.
- More [should] done with regard to the model on a macro level (national, provincial and district).
- Yes, [it] will enhance service delivery and give teachers tools to take ownership of knowledge to ensure lifelong learning.

Sub-question C: Evaluation of the implementability of the model

(Key: 1= Not implementable and 7= fully implementable)

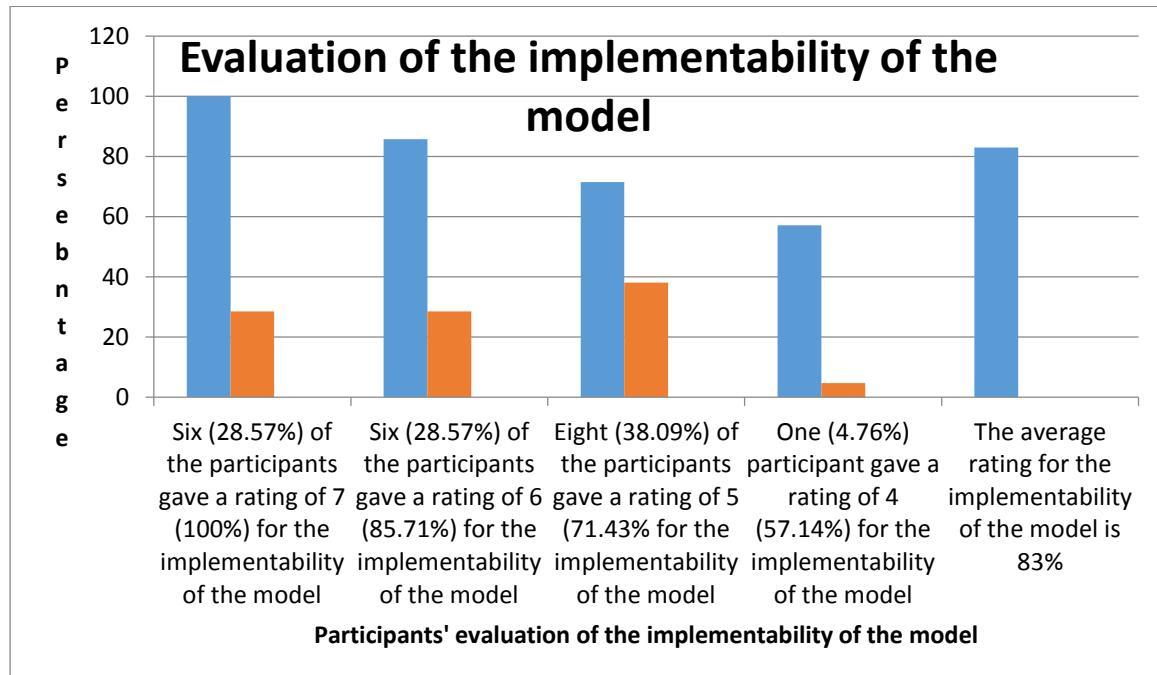


Figure 5.21 Implementability of the model

In the analysis of the scores, it was found that 28.57% (6) of the participants gave a rating of 100%, 28.57% (6) gave a rating of 85.71%, 38.09% (8) gave a rating of 71.43%, and 4.76% (1) gave a rating of 57.14% for the overall implementability of the model. A score of 5.81 (83%) was reported as the average rating of the overall implementability of the model. From this, the researcher made the deduction that the strategies employed in the model will ensure that it could be implemented in the real world of inclusive education

The evaluation and comments indicate that the model could be implemented. It was also highlighted that for the success of the model, management should endorse and support its use. However, there were also strong concerns raised that management is not capable of giving the required support.

QUESTION 5: Comments about the model

Sub-question A: Comments about the model

Specific comments:

- *Teachers rely on experts in the field to provide them with an enhanced knowledge base. Teachers striking off on their own (self-directedness) is not always desirable, especially when it comes to teaching children with special needs. One also has to know the definition of inclusive education in terms of the perspective offered in this thesis for the purpose of model clarity.*
- *Our school implements a number of the aspects of the model on a micro level already. There is already a large element of personal agency prevalent amongst the teachers. There is a constant drive to improve practices in order to continue improving the quality of curriculum delivery.*
- *Well-thought through and articulated.*
- *I'm not sure where in the model "policy" fits in – possibly under "share vision", although this is an internalisation. The model's implementation would depend on "buy in" from stakeholders; also, participants would need a high[ly] functional/sophisticated knowledge base.*
- *Similar [to/in line with] eco-systems thinking.*
- *The fact that the model relies strongly on self-directed behaviour can be both a strength and a weakness in terms of execution. The success of the model will not only lie in whether it is executable, but whether it is in fact executed – thus the importance of the correlating emphasis on managerial support and motivation.*
- *The model can fill the gaps within the system. Teachers will be encouraged, obtain and apply knowledge within their specific field.*
- *The model needs a high level of motivation from management level and a maturity level to not [be] threatened by a community of practice that could have more knowledge than management.*
- *If this model can be implemented at our current school, then all teachers will have a better understanding of their work, love working with their learners and*

have the necessary detailed information to work with the learners in their class.

- *Very excited about the model. It has given me hope for the future.*
- *Well-structured model to guide the teacher to obtain optimal output from the learners.*
- *Teachers are not recognised as professionals by the employer (DoBE). Teachers also generally have a poor professional self-image. These problems can be addressed strategically and proactively over time. Policies are also not enough. Specific guidelines are needed to help implement policy decisions. The voice of teachers should be heard at all levels of decision-making. Finally, I think that the success of the model depends on the continuous support that teachers are given by the employer.*
- *Very user-friendly. Can be clearly understood at all levels.*
- *Good model for enhancing knowledge and skills in the field of teaching children with disabilities, but [it] would need adaptation to serve as a model for enhancing the skills, knowledge, attitudes and values required for implementing inclusive education.*
- *Each aspect – global, macro, micro – is addressed with the relevant dimensions. The elements, i.e. collaboration etc., are indicators of success if [the model is] implemented as proposed and will ensure better education for all learners with a disability.*

Sub-question B: Evaluation of the subject experts' willingness to encourage the use of the model:

(Key: 1= No and 7= Yes)

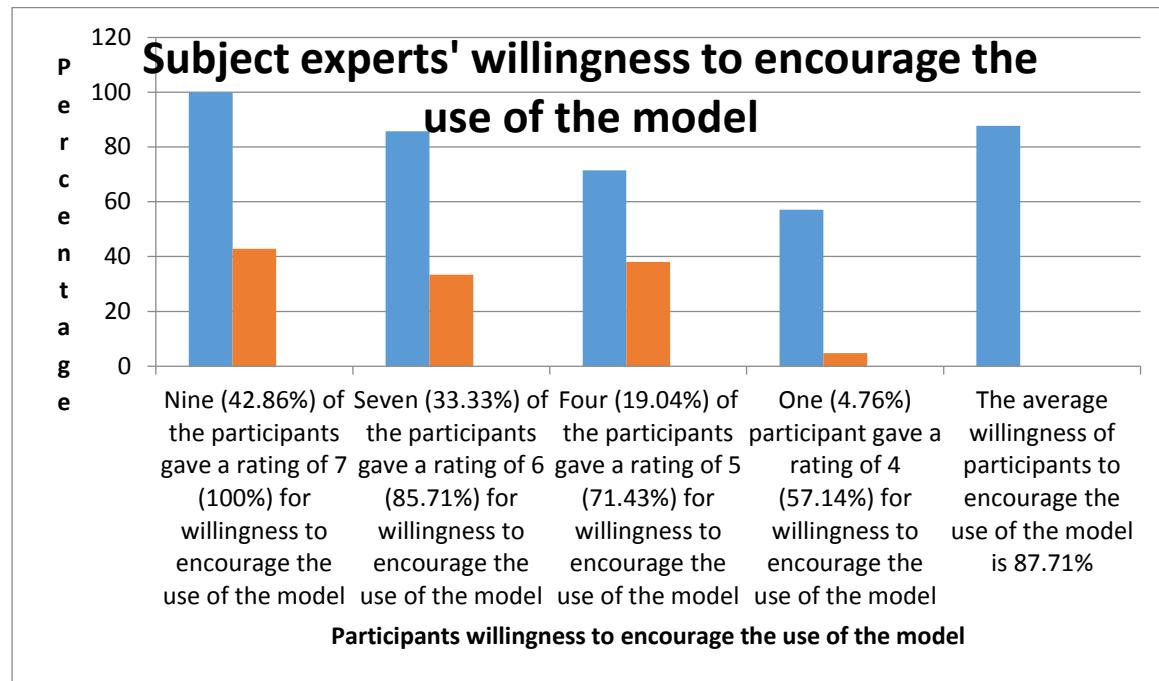


Figure 5.22 Subject experts' willingness to encourage the use of the model

In the analysis of the scores in Table 5.12, it was found that 42.86% (9) of the participants gave a rating of 100%, 33.33% (7) gave a rating of 85.71%, 19.04% (4) gave a rating of 71.43%, and 4.76% (1) gave a rating of 57.14% for their overall willingness to encourage the use of the model. A score of 6.14 (87.71%) was reported as the average rating of the overall willingness to encourage the use of the model. From this, the researcher made the deduction that all the participating subject experts were willing to encourage the use of the model in order to improve teachers' knowledge in the real world of inclusive education

The average rating by the subject experts of the degree to which they will encourage the use of the PCKD model was 87.14%. The deduction is therefore made that the implementation of the model will receive support from a wide range of subject experts. However, as reflected above in the KMMAQ, knowledge management is not a concept which is in general use in the education system. The top-down approach to current continuous professional development initiatives, as reflected in policies and documentation, is deeply imbedded in teachers' and management's psyches.

Therefore, giving teachers voice in their own development, as intended with the PCKD model, is a new phenomenon and will need the endorsement of education management at all levels.

In order to evaluate the claim as indicated above, namely that the model *will receive support from a wide range of subject experts*, the model was adapted to incorporate the above recommendations by the subject experts, as expressed during their evaluation of the proposed model. This updated version giving full description and visual representation of the model was sent to fifteen subject experts that had a stake in and influence with regard to the implementation of inclusive education in the Western Cape. Ten of the members were from the group that evaluated the original model and five were new members. All fifteen indicated a keen interest to participate in the planned focus group discussion about the model. In the section below, the findings of the focus group discussion will be outlined.

5.4.3.3 *Findings as reflected in the subject experts' comments of the PCKD model during the focus group discussion*

Out of the fifteen candidates, only ten participants arrived on the day of the discussion. The five who were absent sent their apologies. All had valid reasons, such as death in the family, illnesses and urgent work-related matters. The ten members that did partake had advanced academic backgrounds and were well informed, highly skilled and experienced in the field of inclusive education. This is reflected in the positions they hold, which ranged from chief director, director, senior positions at district level, principals of special needs schools serving as resource centres, a deputy principal of a special needs school, and learning support teachers (one from a full-service school and one from an ordinary public school).

As an opening question, the participants were asked to indicate on a scale of 1 to 7 their level of support for the implementation of the model. In Table 5.13, a summary of their level of support is given.

(Scale: 1 = Do not support; 2 = support with serious reservations; 3 = support with adjustments; 4 = support; 5 = strongly support; 6 = fully support; 7 = unconditional support).

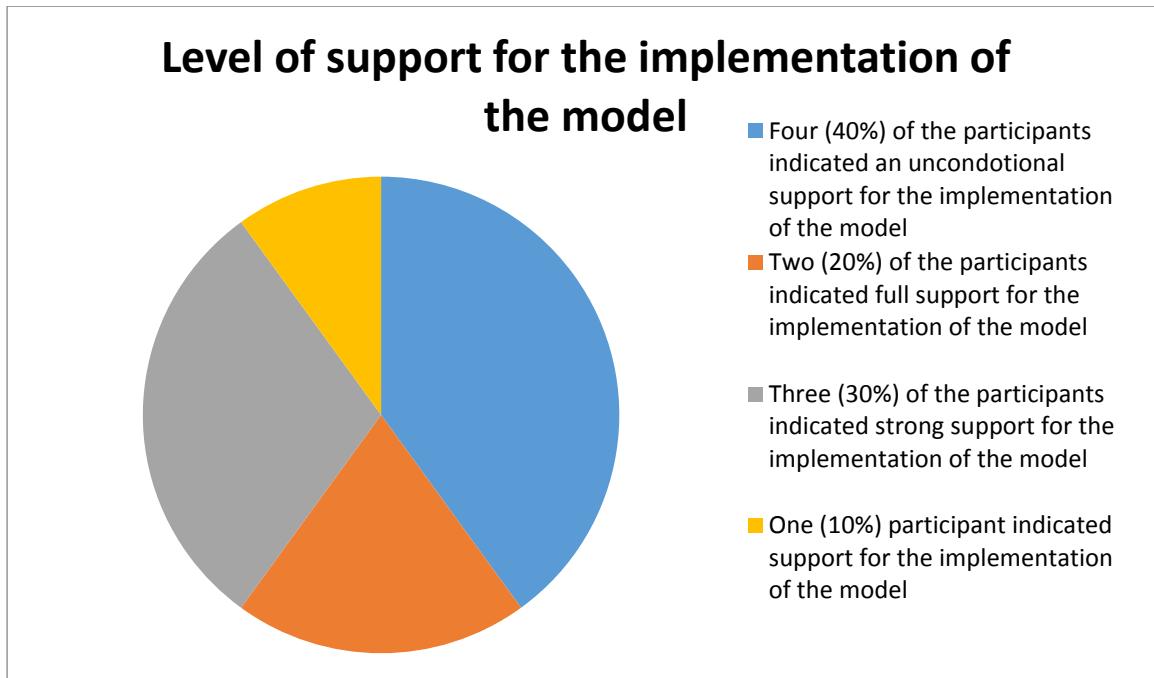


Figure 5.23 Level of support for the implementation of the model

In Figure 5.23 it is indicated that one (10%) member indicated support, three (30%) members strongly supported the model, two (20%) members fully supported the model, and four (40%) members indicated an unconditional support for the implementation of the model. All the participants supported the implementation of the model with the majority (90%) in the strongly, fully and unconditional categories and 10% in the support category.

When taking into account the seniority of the participants, it could be said with a great degree of certainty that the model will fulfil its purpose in contributing to teachers' knowledge and skills development in the real world of inclusive education

The important role that the PCKD model can play in the knowledge development of teachers was further highlighted by the comments made by the subject experts during the focus group discussions.

- *I think the basic question here is, "Do we agree with the model?" Without a doubt we agree with the model. I don't think there is doubt about it as staff/teachers need that knowledge, otherwise inclusive education is not going to work.*

- You obviously want to propose a way forward for inclusive education. You are trying to establish what the biggest gaps are. I think you are quite right. That's why I came here, because you offer some insight into inclusive education that many of us have thought about but that we have not taken seriously. I think your work can make a major contribution to the field.
- I think you have a genuine desire to create a solution.
- I was very pleased when I read your model to see the emphasis on good inclusive education as central to the education process, not only as an add-on.
- Your model is more on the knowledge strengthening, knowledge of staff in order to make inclusion a success. A lot of professional development takes place: "Where does that knowledge go? Where do you store it?" Your model asks these questions and in reality, that is where we slip up. "Where is the policy?" Specifically, I have never thought of that – a policy on knowledge management and the distribution of knowledge. So, I think that's quite important. I think it's in that organisation, organising of knowledge that your model [has] hit on some very important points.
- I like the model. My reason is that due to a lack of effective ITE, this model will be able to give those teachers that are already in the system the ability to up-skill themselves by acquiring knowledge.
- I like the fact that you not only talk about teacher knowledge, but also the role that managers should play. So, I like the importance that you put on the management, and the manager.

Further observations made by the researcher during the focus group discussion of the model:

It was observed that all the participants had a sincere desire to express their concerns as to what hampers the unfolding of inclusive education.

Firstly, the wish was expressed for a follow up discussion with a more comprehensive participatory base.

- It's a pity that so few people are here, maybe at some other stage you want to convene another session and we can have that discussion amongst many

more people about, how do we move forward, what are the challenges and what kind of ethos we create in terms of inclusive education.

The above sentiment was shared by all the participants.

Secondly, the participants used aspects of the model that correlated with their concerns in the current inclusive education domain to express their views for the way forward:

- *For me the problem is that if you want to try to stick to the system, that is where you get stuck and you don't get any further. But if you can work on relationships, it can override the system in that you have a positive banking account, relationally. Through collaboration within this pool of relationships, you will gain the knowledge and support needed to fulfil your tasks in the interest of the children you are accountable for.*
- *I observe daily how teachers, due to class sizes and the pressure to cover the content of the curriculum, tend not to accommodate the children that need the learning material to be broken down into understandable sections. They need knowledge in how to teach under these circumstances and how to adapt their teaching strategies to accommodate the child who needs a staggered approach to learning.*
- *It really made me think, "How are we going to capacitate teachers so that they get the angle to deal with the current diversity of learners and," in my thinking, "more diversity in time to come?", and realise there's no way that you can teach each of them everything. So, you're always going to be selective about what you put into in-service professional development programmes. And the dominant model for teacher education in this country is a very paternalistic model – we know and we're going to get you into a workshop and we're going to tell you what you need to do. And teachers buy into that – someone out there knows these things and will come and tell us. And in a way it is quite disempowering. So, when I started thinking about that, I thought the main thing is to unlock teachers' agencies. That teachers can believe that there's some way that they can find this information, and they can do it in a way that doesn't make them feel inadequate. If people do that and we also couple that*

with some critical knowledge that teachers need, and at the same time make them feel that there are people you can go to, so exposing the various resource people, then it doesn't matter what they are faced with. You know, they'll have the confidence to go out there and find out, and/but they also will know the basics. So, then the question is, "What are the very basics that they need to know?" And I think it's around this whole thing about diversity.

- *Get teachers excited about their own learning, make them feel that [they're] not inadequate because [they] don't know. This is where communities of practice comes in where people can share what their actual challenges are. They also share good practice, and in that way they're all reaching out to one another, and if they feel that it's up to them actually, to find the answers to this challenging child or situation in your class. So, I think it's about how do you get that spirit going.*
- *Most teachers currently in the system have come through teacher professional development that prepared them how to teach a ready, structured syllabus and not really taught how to be knowledge managers.*
- *Education systems are not necessarily written in policy papers. Education systems are daily realities. They exist.*
- *How do you get people in this day and age, where there is so much individualism, and where there's so much self-interest, to work as a collective, in the best interest of children? That's really the challenge.*

Thirdly, specific aspects of the model were questioned:

- *There's mention of skills and knowledge, but I didn't see [or I was] not sure about attitudes and values. That part of the education process should also be emphasised, because if you just give people the knowledge, but they haven't got the attitude [it is not good enough].*
- *I'm a bit cautious when one thinks that the more knowledge one has, the better one is able to accommodate diversity – attitude and correct attitude [are] needed.*

- *The preparedness or unpreparedness of teachers is a huge issue, because it's sometimes difficult to monitor because aside from knowledge, it's underpinned by attitude.*
- *In your model, how do we capture the knowledge that's being gained today, that was gained on Friday in the classroom? For me that is the important thing.*
- *If there can be, with this model, some way that an onus [can be] on either the district or the school or a group to manage that model.*
- *The knowledge teachers' gain should be validated. People don't want to hear that you're some maverick doing something amazing.*
- *But the question that I am asking myself now is, "Whose knowledge are we now going to be talking about? Whose knowledge are we going to be using when we talk about knowledge management?" There's a lot of quackery out there. Who's going to be the gatekeeper of it? And that's creating a big challenge.*
- *How will this one model then work in each of the systems?*
- *This model is not going to work if your management does not meet the standards and actions required of them.*
- *I mean, if management does not push for continuous professional development this model unfortunately won't work. You put a strong emphasis on this aspect, otherwise it is not going to work even if you stand on your head. So, I think it feeds one another constantly – management who are on board and teachers that want to gain knowledge.*

Although strong support was expressed for the value of the model as an approach to improve teachers' knowledge and skills in the real world of inclusive education, concerns were raised. The main concerns were the role of management, the provisioning of access to authentic knowledge, and the attitudes and motivation of teachers. In order to address all these concerns raised during the evaluation of the model (section 5.4.2) and in the focus group discussion (section 5.4.3), the model had to be consolidated, as discussed in the following section.

5.5 MODEL CONSOLIDATION

In this final step in the development process of the personal continuous knowledge development (PCKD) model I consolidated the information gathered during the literature study on knowledge management and inclusive education as well as the outcomes of the subject experts' evaluation of the prototype of the model.

As indicated in Chapter 1 the development of the model was inspired by my view that if teachers do not become informed practitioners in teaching in diverse classroom children with disabilities will be at risk of receiving a substandard education. It was motivated in Chapter 1 why my focus was on the educational needs of children with disabilities.

The context in which the model is intended to support teachers with continuous knowledge development is schools in South Africa. In the literature study, as indicated in Chapters 1 and 4, it was highlighted that teachers lack knowledge in how to address the educational needs of children with barriers to learning (including children with disabilities). The school context does not only reflect diversity in classrooms but also different schooling options for children depending on the level of support they need. Furthermore, the school landscape in South Africa is marked by many factors that complicate teaching and learning. Many schools are plagued by violence, gangsterism, teenage pregnancy, etc. Schools are also on a continuum that varies from well-resourced to under-resourced. The geographical distribution of schools varies from inner city schools in affluent areas, to schools in areas that are poverty stricken, rural areas and deep rural areas.

For me, a key requirement in conceptualising the model was that it must be applicable in any school irrespective of its context. The literature study on knowledge management (Chapter 3) and inclusive education (Chapter 4) guided my decisions as they gave clear indications of what the main points should be to incorporate in the model to meet the pre-set requirement. In both knowledge management and inclusive education literature, the emphasis was on the same three aspects, i.e. personal agency; strategies such as collaboration, knowledge networks, communities of practice; and the role of leadership. These three aspects determined the dimensions I identified that should inform the functioning of the model e.g. political, financial, environment and personal dimensions (see tables 5.3 to 5.5). In the same

sense the strategies as indicated above determined the context the model advocates in which knowledge should be sources (see Figure 5.8).

With this in mind the prototype of the personal continuous knowledge development (PCKD) model was developed and presented to subject experts for evaluation. Their evaluation is discussed in section 5.4.3. The respondents' key concerns were about the interpretation of terminology and the layout of the visual presentation of aspects of the model. In order to address the terminology issue, the researcher gave detailed descriptions of terms and concepts throughout sections 5.1 to 5.3. These descriptions should also be read in conjunction with Chapters 3 and 4.

With regard to the comments that the model's visual presentation of the components was confusing due to the use of too many lines, the researcher simplified the diagram as illustrated in Figure 5.7. The respondents also commented along the same lines on the model's visual representation. The improved version is illustrated in Figure 5.10.

The insights I gained through the literature study that affected the consolidation of the model is that although researchers highlight the value of collaboration, knowledge networks, and communities of practice in the development of teachers' knowledge, these approaches have not been formally endorsed and supported by school management (see Table 5.6) - as is the case of organisations that embrace knowledge management. To gain the same value as organisations that motivate and support the use of these strategies to improve the knowledge of their employees I made knowledge management the foundation of the personal continuous knowledge development (PCKD) model. In Figure 5.10, a visual presentation is given of the consolidated model. The presentation should be read in conjunction with the text in sections 5.1 to 5.4.

The intention with the model is to close the gap that exists within the current approaches to continuous professional development of teachers as it is reported that these initiatives do not manage to equip teachers effectively with the necessary knowledge to deal with the diversity in their classrooms. Teachers have a daily and timely need for knowledge how to manage situations they do not feel adequately equipped for. In Figure 5.24 below it is illustrated how the personal continuous

knowledge development (PCKD) model could, if implemented, have the support of management and teachers use the strategies support teachers daily and timely.

Based on the support those subject experts who participated in the study are willing to give, the implementation of the personal continuous knowledge development (PCKD) model will largely contribute to teachers becoming informed practitioners. I therefore argue that with the implementation of the model both the goal of the model, e.g. *knowledgeable and skilled teachers*, and the outcome of the model, e.g. optimising the education of all children, but most specifically children with disabilities will be realised.

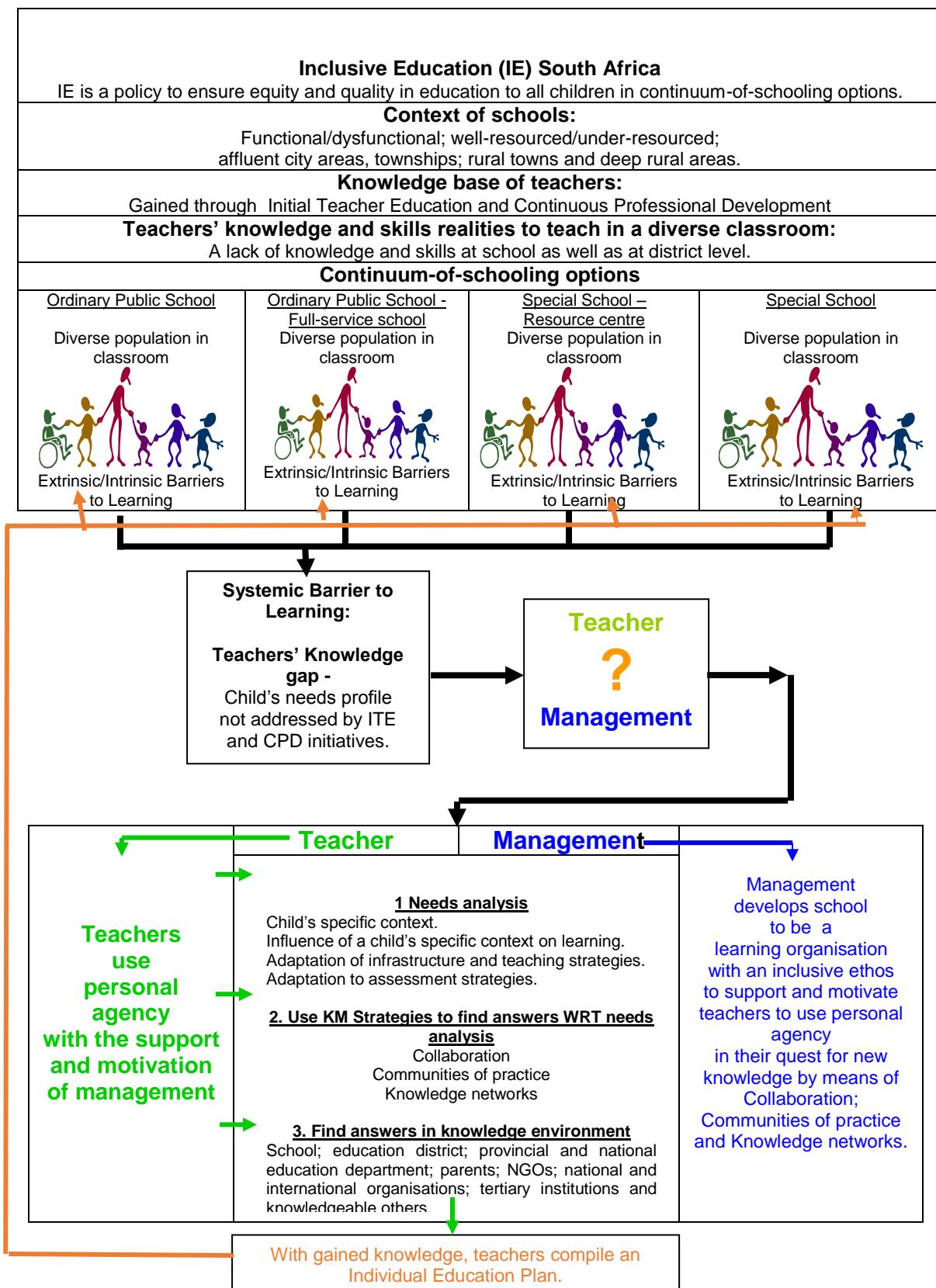


Figure 5.24 Personal continuous knowledge development (PCKD) model in practice

5.6 SUMMARY

In this Chapter, an overview was given of the steps followed in the development of the personal continuous knowledge development (PCKD) model. These steps included the conceptual phase in which the need for developing the model, the intention with it, and the assumptions on which it was based. The model construction phase highlighted the components of the model. In the empirical evaluation phase, subject experts were requested to comment on the applicability and implementability of the model in the real world of inclusive education. These recommendations were evaluated and incorporated into the final consolidated version of the model. In the following Chapter, the conclusions the researcher reached during all phases of the study will be highlighted and recommendations will be made to ensure the personal continuous knowledge development (PCKD) model's implementation in

CHAPTER 6

SUMMARY, LIMITATIONS, CONCLUSIONS AND RECOMMENDATIONS OF THE STUDY

6.1 INTRODUCTION

This study's main concern has been the predicament of teacher knowledge of inclusive education in the South African context. Thirteen years since the advent of *White Paper 6* (DoE, 2001), the publication of numerous policies, the reorganisation of schooling structures to accommodate children according to the level of their needs (see section 4.4), professional development and support of teachers, and the general attitude of discontent and lack of knowledge that is presently reflected amongst the majority of teachers (see section 1.1) should undoubtedly signal current teacher-professional development initiatives' shortcomings. The latter inspired me to conceptualise a solution to teachers' sense of isolation with regard to their access to appropriate knowledge support systems. The argument was put forth that the longer the *lack of knowledge problem* goes unsolved, the more children (who is meant to benefit from inclusive education) will increasingly be disadvantaged with regard to their educational growth.

To accelerate the process of knowledge acquisition for teachers, I developed a PCKD model (see Chapter 5) that, to the opinion of subject experts (see Chapter 5), could enhance serving teachers' knowledge base in a cost- and time-effective way. The development of the model necessitated a literature study on knowledge management (see Chapter 3) and inclusive education (see Chapter 4) and the empirical evaluation by subject experts to determine its applicability (see Chapter 5).

After the analysis of the content in the literature study and the results obtained from the empirical evaluation, I reached the following five categories of understanding:

- 1) Inclusive education is about equity, quality and diversity;
- 2) Teachers lack knowledge and poor quality education disadvantages children;
- 3) ITE and continuous professional development initiatives do not meet teachers' knowledge needs;

- 4) Knowledge management enhances knowledge, but it is not utilised in the inclusive education system, and management plays an important role; and
- 5) There is strong support from subject experts for a personal continuous knowledge development (PCKD) approach.

In the following section, the above conclusions will be discussed. From these conclusions, the researcher deducted recommendations (see section 6.3) to contribute to the debate on effective initial teacher education and continuous professional development in.

6.2 CONCLUSIONS

As indicated above, the in-depth analysis of, knowledge management as presented in Chapter 3, inclusive education as presented in Chapter 4, and the empirical investigation of the personal continuous knowledge development (PCKD) model presented in Chapter 5, the researcher reached the following ten conclusions.

Conclusion 1: Inclusive education is about equity and quality in education.

In sections 4.1 and 4.3, the view is highlighted that inclusive education is no longer seen as efforts in favour of specific groups or targeted categories but rather as a means to provide quality lifelong learning opportunities for all children. In this view, equity and quality go hand in hand and emphasise that inclusion is seen by many as the most equitable and encompassing method for educating all children. This implies that the right to education is not limited to equitable access to education but is also about equitable access to quality learning outcomes. This right to education is therefore not just the right to be in a school but also the right to learn.

Conclusion 2: A trademark of inclusive education is that of diversity in the classroom.

In section 4.4, an overview is given of diversity in the inclusive education classroom. How this materialises in practice can be illustrated with reference to enrolment in schools (see tables 4.8, 4.9). From this, the deduction is made that teachers must deal with much diversity in their classrooms.

In Table 4.10, a summary is given of the concepts that constitute diversity in classrooms as reflected in the *Salamanca Statements* and *Framework for Action on Special Needs Education* (see Table 4.5), *The Jomtien Declarations* (see Table 4.3) and *White Paper 6* (DoE, 2001).

A concept that occurs in all these documents is that of disability. This concept further adds to the diversity profile in classrooms as children with disabilities are not a homogeneous group but rather diverse and heterogeneous. This is evident in that they have diverse personal factors with differences in gender, age, socioeconomic status, sexuality, ethnicity or cultural heritage, and severity of impairment.

Furthermore, as indicated in Table 4.10, inclusive education is not only about children with disabilities but includes children with a wide range of educational needs. Therefore, contrary to popular belief, inclusive education is about all children, including gifted children (see Table 4.5). Giftedness can be defined as children who function at or above the 98th percentile. Without significant support in the form of trained teachers and an appropriate curriculum, their potential may never be realised. The latter is true of all children.

Conclusion 3: Poor quality education disadvantages children with disabilities.

Section 1.1 refers to the report *Youth with disabilities*, which was tabled at the seventh session of the CRPD held in June 2014 in New York (UN, 2014). In this report, it is stated that the educational needs of children with disabilities are noticeably similar to those of their peers without disabilities, but their needs continue to go largely unmet. In paragraph 16 of this report, the following is said:

Lack of education is a key concern for most youth with disabilities. Despite clear calls for universal education in the Millennium Goals and the Convention on the Rights of the Child, and for education for children and youth with disabilities in the Salamanca Statements and Framework for Action on Special Needs Education, adopted at the World Conference on Special Needs Education: Access and Quality, youth with disabilities continue to attend schools at a rate far lower than their non-disabled peers, they are more likely to drop out of school and even those who complete their courses often learn far

less than their classmates because of a lack of resources, teachers who are untrained in how best to educate children with disabilities and as a result of low expectations.

In section 4.2, it is reported that even in so-called “well-schooled” countries not all children are in schools and, even when they are, not all have positive experiences, nor do they have much to show for their time in school. Inclusive education requires that children are not only present in schools but that they all have opportunities to participate in meaningful learning and to demonstrate mastery of the educational outcomes.

Conclusion 4: Teachers lack knowledge of how to teach in a diverse classroom

It is indicated in section 1.1 that to teach effectively in a diverse classroom, teachers are required to be informed practitioners. This is, however, not the norm.

Teachers’ lack of knowledge is evident at three levels in the South African education system:

- 1) Teachers at ordinary public schools lack essential knowledge on how to identify and address barriers to learning in their subject and day-to-day classroom practices;
- 2) Teachers at special needs schools lack specialised knowledge in most of the key areas of disability but most critically in the field of visual impairment, deafness and hard of hearing challenges, autism, intellectual disability, cerebral palsy, and communication disorders; and
- 3) District officials lack skills and knowledge to support schools and teachers with skills to manage and effectively implement inclusion in schools.

The above correlates with earlier research in South Africa, and in other countries, which indicated that although teachers play an influential role in the successful implementation of inclusive education, they are hesitant to teach children with disabilities in their regular classes. Reasons given are:

- 1) A perceived lack of knowledge, experience, and professional development and insufficient theoretical orientation to inclusive education;

- 2) A lack of sufficient support; and
- 3) Historical and situational constraints.

From the above observations, the researcher made the deduction that children with educational needs, but more specifically children with disabilities, are at risk of receiving a substandard education. In section 4.1, it is stated that the current approaches to teacher professional development can be divided into two categories, namely pre-service (initial teacher education) and in-service professional development (continuous professional development).

Conclusion 5: Initial teacher education does not prepare teachers adequately and effectively.

In section 1.1, it is reported that new graduates continue to suggest that they are inadequately prepared for real-world schools and classrooms. Teachers' initial teacher education to work in regular schools does not prepare them adequately to teach all the children that they will meet in their classrooms. As mentioned in section 4.6, it stands to reason that while student teachers are in initial teacher education, it is impossible to anticipate every type of difficulty that they may encounter in their future classrooms. In section 4.7, it is highlighted that many current serving teachers do not have the necessary skills to teach children with disabilities.

It is therefore critically important that serving teachers are provided with access to relevant and evidence-based professional learning opportunities.

Conclusion 6: Current continuous professional development initiatives do not meet the needs of teachers.

With regard to continuous professional development, it is equally true what was said above of ITE that teachers' needs are not met. In section 4.7, the following is reported with regard to teachers' continuous professional development:

- It is found that most professional development sessions for regular teachers are conducted in the form of one-shot workshops. Research showed that teachers viewed workshops as a time-consuming activity. Therefore, besides

the cost of the workshops and the transport, they also sacrificed time and energy.

- Further criticism of this is that teachers experience professional development as episodic, superficial and disconnected from their own teaching interests or recurring problems of practice.
- Many of the in-service development programmes that were intended to promote inclusive education have proved both inadequate and inappropriate, resulting in negative feelings towards the implementation of inclusive education Furthermore, teachers indicated that the in-service professional development they received in preparation for inclusive education was too brief as it is normally conducted in the afternoons after a long school day.
- It is also reported that teachers viewed pre-service and in-service professional development as inadequate to prepare them for inclusive education. It therefore seems that traditional approaches that focus on short-term direct transmission professional development programmes are increasingly regarded as relatively ineffective.
- Despite these limitations, the utilisation of in-service teacher professional development is regarded as a worldwide movement towards inclusive education. The continuous professional development of teachers is a priority in many countries. The reason for this is that it is seen as the most effective approach to improve serving teachers' teaching practices.
- In reaction to the limitations, the argument is made that the adults who work in schools should improve their ability to share their professional knowledge and skills with one another.
- This implies that a fundamental shift in the underpinning assumptions and purpose of teacher development is required for professional development to be taken seriously by teachers and to begin to influence the quality of teaching and learning in schools.
- One approach that could support teachers in taking their professional development seriously is that of knowledge management, as discussed in Chapter 3.

Conclusion 7: Knowledge management does enhance the knowledge level of employees.

In Chapter 3 section 3.2.2, the following is said with regard to knowledge management: knowledge management is the performing of activities involved in discovering, capturing, sharing, and applying knowledge. By doing this, it enhances, in a cost-effective fashion, the impact of knowledge on the unit's goal achievements. *Knowledge management is a set of systematic and disciplined actions that an organisation can take to obtain the greatest value from the knowledge available to it. These systematic and disciplined actions will include a conscious integration of people, processes and technology brought together for the purpose of collecting, sharing and using information, with the goal of building organisational capacity for continuous improvement.*

Knowledge management is thus a systematic and organisationally specific process for acquiring, organising, and communicating both tacit and explicit knowledge of employees so that other employees may make use of it to be more effective and productive in their work. Through this process of organising and distributing an organisation's collective wisdom, it ensures that the right information gets to the right people at the right time. Knowledge management therefore provides a framework that builds on experiences and creates new mechanisms for exchanging and creating knowledge. It is also argued that by creating a nurturing and "learning-by-doing" environment, an organisation can sustain its competitive advantage.

Conclusion 8: Knowledge management is not utilised in the education system to enhance inclusive education knowledge.

Despite the strong evidence with regard to the value of knowledge management in improving the employees' knowledge base in the world of business, it is not widely practiced in education. It is thus ironic that in the field of education with its core business being knowledge that the knowledge available within the system is not managed to the advantage of the system as a whole.

This statement is supported by the data collected during the survey in which The Knowledge Management Maturity Questionnaire was used (see tables 5.7 and 5.8). From the data, it was found that the respondents rated the use of knowledge

management at 45.3%, which correlates with an earlier study of Kruger and Johnson (2010) who found a 42.45% compliance. What makes the current findings significant is that the respondents represented a wide range of educational structures (see Table 5.6). Furthermore, these participants are well informed and experienced in the field of education with specialisation in inclusive education. In addition, because of the positions they hold within the education system they are in an advantaged position to report authentically on the use of knowledge management.

Conclusion 9: Management has a very important role to play in knowledge management.

The role of management has been discussed in Chapter 3, section 3.2.3.2, and the following was stated:

The managerial task should be to remove obstacles to performance and channel efforts to areas that will contribute to the accomplishment of organisations' objectives. Therefore, in the modern knowledge-driven enterprise, modern managers should balance management with leadership and coaching.

Leadership is a cardinal thread that runs through the whole range of knowledge management initiatives in an organisation. As such, the leaders must be designers, teachers and stewards (Senge, 2006). In the role of *designer*, a leader must be willing to allow others to continue to evolve the infrastructure to suit their own situations and not to feel the need to control the process (Senge, 2006). A great *teacher* is someone around whom others learn. The spirit of the leader should be that of a grower of people (Senge, 2006). *Stewardship* is doing what is right for the whole (Senge, 2006). This commitment brings with it a shift in that the leader becomes a steward of the vision of the organisation.

As it is true that leaders in every organisation set the example for others, it is assumed that they have direct impact on how the organisation should approach and deal with knowledge management processes and practices. It is argued that if knowledge management does not permeate all levels in the organisation, beginning at the top, it is unlikely that knowledge management programmes will ever be effective. While leaders across all levels of organisations have unique and important roles to play in knowledge management, it is particularly important for the CEO to be

involved in knowledge-sharing processes. It is argued that if the senior leaders take knowledge seriously, the rest of the members in the organisation will follow automatically.

This important role of leadership is further emphasised in that in companies with promising cultures and highly effective incentive programmes will not succeed without having dedicated and responsible managers. It is therefore important that the manager thinker in the areas of knowledge management should give importance to leaders and especially to their leadership styles in making things happen in knowledge management initiatives in an organisation. The following serves as conditions that managers can use to enhance knowledge management in their organisations: collaboration, community of practice, knowledge networks, and learning organisation.

Conclusion 10: There is strong support for a personal continuous knowledge development (PCKD) approach.

The above constructs, namely collaboration, community of practice, knowledge networks, and learning organisation are all key building blocks in the personal continuous knowledge development (PCKD) model (see figures 5.4 and 5.7). It is therefore not surprising that the data collected during the empirical evaluation of the personal continuous knowledge development (PCKD) model reflects strong support from subject experts for the model (see sections 5.4.2, 5.4.3, and tables 5.24 and 5.25).

The significance of this finding is that the respondents are well informed and experienced in the field of education with specialisation in inclusive education. Furthermore, they represented a wide range of educational role players (see Table 5.6) and, due to their positions, they have a vested interest and influence with regard to the implementation of inclusive education.

As indicated above, the conclusions covered six areas, namely characteristics of inclusive education; problems with regard to teaching methods and implementation of inclusive education pedagogical knowledge by teachers; problems with the professional development of teachers; the value of knowledge management to enhance employees' knowledge level; the important role of management in

knowledge management and support from subject experts for a PCKD approach. These conclusions shaped the recommendations with which the researcher wishes to contribute to the current debate on effective continuous professional development of teachers in inclusive education.

The recommendations will be discussed in the following section.

6.3 RECOMMENDATIONS

The recommendations that will be discussed in this section cover seven areas:

- Create an ethos of diversity teaching;
- Train and encourage teachers to utilise the basic knowledge processes;
- Manage the knowledge required;
- Train teachers and managers in knowledge management strategies and processes;
- Incorporate the PCKD model into the current continuous professional development policies; and
- Identify aspects for further study, e.g.:
 - The reason for the low key approach to knowledge management in the education system;
 - How education can be rid of all terminology that gives an add-on ethos to education;
 - The synchronising of teacher professional development at tertiary institutions with regard to content; and
 - The terminology used to describe various qualifications.

Recommendation 1: Create an ethos of diversity teaching in the South African education system.

It is recommended that the South African education authorities and policymakers adopt a new approach for the realisation of equitable and quality education for all children in schools. This can be done by changing all references to inclusive education to that of diversity education. In this way, the stigma, resistance and negative attitudes towards the add-on approach of IE could be minimised. The focus should be to up-skill teachers to teach in diverse classrooms. Tertiary teacher-

professional development institutions should focus their professional development on the pedagogical requirements to teach in diverse classrooms.

Recommendation 2: Train and encourage teachers to utilise the basic knowledge processes of discovery, capturing, sharing, and application of knowledge required for diversity teaching.

It is a known fact that much knowledge is available in the education system, tertiary institutions, disability-specific organisations, non-governmental organisations (NGOs), government departments, hospitals, private medical and para-medical practitioners, and at an international level. This immediately brings the researcher to the argument that there is no need for a teacher to say that they do not have the knowledge of how to teach in a diverse classroom or to address the specific needs of a specific individual child. The main problem is rather that the education system and teacher-professional development institutions do not train teachers or encourage them how to access and these basic knowledge processes.

Recommendation 3: Manage the knowledge required for diversity teaching.

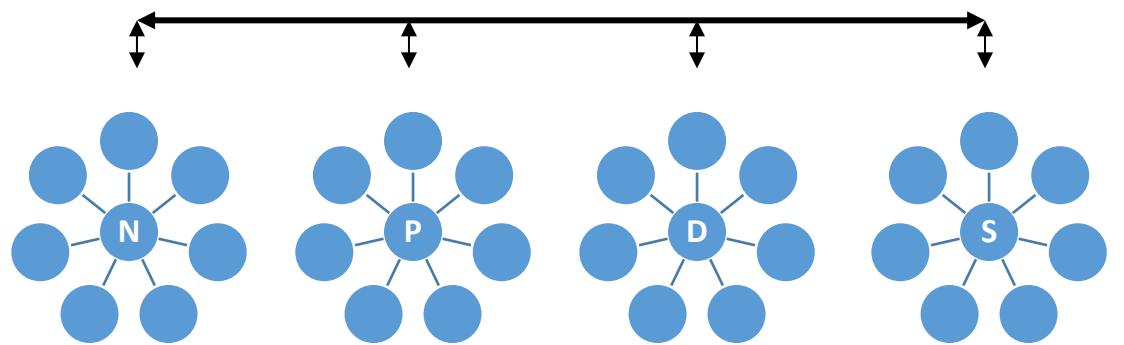
In order to manage the knowledge required for diversity teaching, it is necessary to have an inventory of what constitutes the entities that require management. These entities include:

- The type of knowledge required;
- Sources of the knowledge;
- Authenticity of the knowledge;
- Technology required; and
- Managers' role at the different levels of the education system.

In my view, the most important role of management at all levels is the quality control function to ensure that only authentic evidence-based knowledge that is recognised as such by experts in the field should be available to teachers. As was highlighted by one of the participants in the focus group discussion (see section 5.4): "But the question that I am asking myself now is, 'Whose knowledge are we now going to be talking about?' and 'Whose knowledge are we going to be using when we talk about

knowledge management?' There's a lot of quackery out there. Who's going to be the gatekeeper of it? And that's creating a big challenge."

For the purpose of quality control, it is recommended, as illustrated in Figure 6.1, that the Department of Basic Education create a portal that focuses solely on providing authentic knowledge for diversity education. This will entail links to various sources (e.g. institutions, individuals, documents, publications, research, and search engines) that could be utilised to gain the specific knowledge a teacher may require. This portal should be duplicated and strengthened with teachers' own sources, by Provincial Education Departments, Education Districts, and at school level.



<u>Portal at Department of Basic Education</u> with links to authentic sources and the other levels in the system.	<u>Portal at Provincial Department of Education</u> with links to other sources and the other levels in the system.	<u>Portal at Education District</u> with links to authentic sources and the other levels in the system.	<u>Portal at School</u> with links to authentic sources and the other levels in the system.
--	--	--	--

Figure 6.1 Manage the sources of authentic knowledge for diversity teaching

It is recommended that these portals should make provision for the following types of knowledge at all levels:

Table 6.1 Types of knowledge

Subject Knowledge	Teaching Strategies	Assessment Strategies	Policies	Forms	Procedures
-------------------	---------------------	-----------------------	----------	-------	------------

Subject knowledge must also include knowledge about the various disabilities, conditions and circumstances, referred to in section 4.2 and Table 5.1, that cause a hindrance to children's effective learning.

The above implies that managers at different levels should be actively involved in the knowledge management processes of discovery, capturing, sharing, and application. A further important aspect of managing the knowledge for diversity education relates to the strategies that should be utilised. In Chapter 3, the following strategies were highlighted:

Table 6.2 Strategies to promote knowledge

Collaboration	Communities of Practice	Networking	Learning Organisation
---------------	-------------------------	------------	-----------------------

It is recommended that the education system as a whole should make a conscious choice to become a learning organisation (see section 3.4). This should be made visible at all levels by implementing and demonstrating the true principles and actions of a learning organisation. Management should be held accountable for the upholding of the learning organisation's ethos as a matter of national priority and pride. Their compliance with this responsibility can be monitored by means of assessment criteria in the IQMS (school level) and district, provincial and national levels.

Although the execution of the strategies collaboration, communities of practice, and networking (see section 3.4) lies at the level of teachers, management has an equally important role to play by encouraging and supporting teachers to utilise these strategies in their search for knowledge. Their compliance with this responsibility can, as indicated above, be monitored by means of assessment criteria in the IQMS (school level) and district, provincial and national levels.

Recommendation 4: Train teachers in knowledge management strategies and processes.

As indicated in section 4.3, the current ITE and continuous professional development initiatives do not meet teachers' needs to teach in diverse classrooms. In section 3.4, it is emphasised that knowledge management enhances employees' knowledge level. One of the participants in the focus group discussion (see section 5.4.3) made the following comment:

It really made me think, "How are we going to capacitate teachers so that they get the angle to deal with the current diversity of learners and," in my thinking, "more diversity in time to come?", and realise there's no way that you can teach each of them everything. So, you're always going to be selective about what you put into in-service professional development programmes. And the dominant model for teacher education in this country is a very paternalistic model – we know and we're going to get you into a workshop and we're going to tell you what you need to do. And teachers buy into that – someone out there knows these things and will come and tell us. And in a way

it is quite disempowering. So, when I started thinking about that, I thought the main thing is to unlock teacher's agencies. That teachers can believe that there's some way that they can find this information, and they can do it in a way that doesn't make them feel inadequate. If people do that and we also couple that with some critical knowledge that teachers need, and at the same time make them feel that there are people you can go to, so exposing the various resource people, then it doesn't matter what they are faced with. You know, they'll have the confidence to go out there and find out, and/but they also will know the basics. So, then the question is, "What are the very basics that they need to know?" And I think it's around this whole thing about diversity.

Get teachers excited about their own learning, make them feel that [they're] not inadequate because [they] don't know. This is where communities of practice comes in where people can share what their challenges are. They also share good practice, and in that way they're all reaching out to one another, and if they feel that it's up to them actually, to find the answers to this challenging child or situation in your class. So, I think it's about how do you get that spirit going.

In light of the evidence-based ability of knowledge management to improve knowledge, it is recommended that all teacher-professional development institutions should, as a matter of urgency, incorporate compulsory modules to introduce teacher students to the field of knowledge management and more specifically knowledge management processes and strategies (see section 3.4).

It should not only be a matter of urgency that new graduates enter the field of teaching with a sound background of knowledge management instead, it should equally be a matter of priority that serving teachers be trained in knowledge management.

Recommendation 5: Train managers in knowledge management

The primary function of managers at all levels of the education system is to ensure that quality education is delivered in schools. It is reported widely by many renowned

scholars that current ITE and continuous professional development initiatives do not prepare teachers adequately for teaching in diverse classrooms. In the South African context, it is reported by scholars and frequently by the media that education in this country is not on the expected standard due to a lack of effective teaching. In research, teachers have revealed that they lack knowledge.

The researcher therefore argues that if initial teacher education and continuous professional development do not prepare teachers adequately but it is reported that knowledge management does improve the knowledge of employees, then serious consideration should be given to this approach in education. It is therefore recommended that managers at all levels should be trained in knowledge management and in implementing it throughout the education system. It is also recommended that, although managers will have to be trained in the broader context of knowledge management, a focus of this professional development should be on knowledge management to improve teachers' knowledge base to teach effectively in diverse classrooms.

Recommendation 6: Incorporate the personal continuous knowledge development (PCKD) model into the current continuous professional development policies

As argued in section 5.4 it is recommended that the proposed personal continuous knowledge development (PCKD) model should be incorporated in the *National Policy Framework for Teacher Education and Development* (DoE, 2006), which focuses on initial professional education of teachers (IPET) and continuing professional teacher development (CPTD).

6.4 CONTRIBUTION OF THE STUDY

In this study, it is revealed that in the 14 years since the promulgation of inclusive education in White Paper 6 (DOE, 2001), the publication of various policy documents, the restructuring of schools to accommodate all children according to the level of support they need, a multitude of workshops and in-service professional development, teachers still acknowledge that they lack knowledge about how to teach effectively in a diverse classroom. However, the reality is that inclusive education, and thus diverse classrooms, is an integral part of the education system in

South Africa. This study raises the following issues of potential significance to the knowledge development of teachers to teach in diverse classrooms:

Significance to participants:

- The participants (subject experts including educators and teachers at provincial, district and school levels) were instrumental in contributing to the personal and professional development of their colleagues in diverse classrooms through the wealth of knowledge and experience shared during the data collection period.
- The study afforded subject experts the opportunity to be heard and for their challenges to be acknowledged. This further allowed them the opportunity to conceptualise their personal and professional experience in knowledge development to teach in diverse classrooms.

Significance to educational practice of teaching in diverse classrooms:

- The study facilitated a better understanding of school-based actions to improve the knowledge of teachers in the field of inclusive education by teachers and educators in general through personal agency and management support.
- The study provided a personal continuous knowledge development framework that can act as a blueprint for teachers and educators' personal and professional knowledge development in the field of inclusive education
- The study clarified and addressed shortcomings in current continuous professional development activities, thus informing policy makers about the need to empower and support teachers to use personal agency in their knowledge development.
- Adoption of the personal continuous knowledge development (PCKD) model would modify the current and future professional development of teachers in inclusive education.

Significant contribution to scientific knowledge:

- The study fills the gap in the literature on teacher professional development in that Knowledge Management is brought into the equation. A number of studies do refer to strategies similar to knowledge management strategies but did not incorporate the utilisation thereof in a knowledge management framework.
- The development of the PCKD model for the personal and professional development of teachers in inclusive education was an essential contribution, as no such model exists before.

6.5 LIMITATIONS OF THE STUDY

The study focused on the Western Cape Province with limited input from an education district in the Eastern Cape. Furthermore, the participants in the Western Cape were centralised in an inner-city education district. Due to time and financial constraints, more rural education districts could not be consulted. The same limitations handicapped me not to include more Provinces in the study.

Another limitation was the reluctance of the Department of Basic Education's members who were approached to participate in the study. This created an information gap between the views of teachers and educators at school, district and provincial level and those of the Department of Basic Education's members.

Due to practical and experiential realities, the researcher is aware of the fact that other aspects of the phenomenon could have been considered, which might have yielded additional or different results. In addition, the mixed-methods approach, though useful, is not foolproof, but was applied to my best ability and knowledge.

Finally, although participation was voluntary and the survey anonymous, the fact that I am a colleague of all the participants could have compromised the credibility of the study results in terms of their feedback. This could have happened in one of two divergent ways. They could have been overcritical and could have given low scores or they could have felt obliged to give responses they thought were correct and acceptable, i.e. what they thought I wanted to hear.

6.6 ASPECTS FOR FURTHER STUDY

The researcher recommends the following areas for further study:

The first recommendation is that, in the light of the evidence-based reports on the value of knowledge management in the world of business, that the reason for the low-key approach to knowledge management in the education system should be investigated, i.e. whether knowledge management will have the same impact on improving teacher knowledge as it has on the knowledge of employees in the world of business.

The second recommendation is that it should be investigated how education can be rid of all terminology that gives it an add-on ethos. It is suggested that only one neutral term should be used, namely “education”. Reference to “education” in this sense should reflect a mature outlook that implies the all-encompassing provision of what is required to achieve equity and quality in education for all children.

The third recommendation is for a study that could inform policies and legislation in the synchronising of teacher professional development at tertiary institutions with regard to the content and the terminology used to describe various qualifications.

The important role of management at all levels to *ensure the authenticity of available knowledge* cannot be stressed strongly enough. Their roles will entail the *supervision* that the knowledge is constantly updated, that teachers are made *aware of and encouraged* to use these portals, the *monitoring of the outcomes* of the use of this knowledge, and that the technology is freely available to access the knowledge where and when required. In the Western Cape, the e-learning initiative is an example of how the latter can be achieved.

6.7 SUMMARY

In this chapter, an overview was given of three aspects: firstly, the conclusions the researcher came to from analysing the various aspects of the study; secondly, the recommendations with which the researcher wishes to contribute to the current debate on the effective continuous professional development of teachers; and thirdly, those areas the researcher believes should be investigated further. The researcher advocates that in combination, these three aspects should form the cornerstones for

efforts to expand teachers' knowledge base in order to optimise the learning of all children but in particular those children with disabilities, as they are the most vulnerable to poor quality education.

BIBLIOGRAPHY

- Adler, P.S. & Heckscher, C. (2006). *The firm as a collaborative community: Reconstructing trust in the knowledge economy*. New York: Oxford University Press.
- African Child Policy Forum (ACPF). (2011). *The lives of children with disabilities in Africa: A glimpse into a hidden world*. Addis Ababa: The African Child Policy Forum.
- Ainscow, M. (1997). Towards inclusive schooling. *British Journal of Special Education*, 24(1):3-6.
- Ainscow, M. (2009). Local situations for local context: the development of more inclusive education systems. (Den inkluderende skole I et ledelsesperspektiv). *Leadership Perspective on Inclusive School*, 76-98.
- Ainscow, M. & César, M. (2006). Inclusive education ten years after Salamanca: Setting the agenda. *European Journal of Psychology and Education*, 21(3):231-238.
- Ainscow, M., Booth, T. & Dyson, A. (2006). *Improving schools, developing inclusion*. London: Routledge.
- Alavi, M. & Leidner, D. (1999). Knowledge management systems: Issues, challenges and benefits. *Communications of the Association for Information Systems*, 1(7):2-41.
- Alavi, M. & Leidner, D. (2001). Review: Knowledge management and knowledge management systems: Conceptual foundation and research issues. *MS Quarterly*, 25(1):107-136.
- Allee, V. (1997). Principles of knowledge management. *Training and Development*, 51(11):71-75.
- Alter, A. (2005). Knowledge Workers Needs Better Management. <http://www.cioinsight.com/c/a/Expert-Voices/Knowledge-Workers-Need-Better-Management>

- Anderson, J. (2001). The content and design of in-service teacher education and development. Paper presented at the National Teachers Education Policy Conference, Midrand, 20-21 October.
- Argyris, C. (1994). Good communication that blocks learning. *Harvard Business Review*, 72(4):77.
- Artiles, A.J. & Dyson, A. (2005). Inclusive education in the globalization age. The promise of comparative cultural-historical analysis. In D. Mitchell (ed.). *Contextualizing inclusive education. Evaluating old and new international perspectives*. Oxfordshire: Routledge.
- Artiles, A.J. & Kozleski, E.B. (2007). Beyond conviction: Interrogating culture, history, and power in inclusive education. *Language Arts*, 84(4):357-364.
- Augier, M. & Thanning Vendelø, M. (1999). Networks, cognition and management of tacit knowledge. *Journal of Knowledge Management*, 3(4):252-261.
- Avalos, B. (2011). Teacher professional development in teaching and teacher education over ten years. *Teaching and Teacher Education*, 27(1):10-20. <http://dx.doi.org/10.1016/j.tate>. 2010.08.007.
- Avidic, A. & Westin, O. (2002). A local information systems perspective on knowledge management. The 10th European Conference on Information Systems, June.
- Avissar, G. (2012). A mosaic of models teacher education for inclusion in Israel. In C. Forlin (ed.). *Future directions for inclusive teacher education an international perspective*. London: Routledge.
- Avramidis, E. & Norwick, B. (2002). Teachers' attitudes towards integration/inclusion: A review of the literature. *European Journal of Special Needs Education*, 17(2):129-147.
- Babbie, E. & Mouton, J. (2003). *The practice of social research*. Cape Town: Oxford University Press.
- Bacerra-Fernandez, I., Gonzalez, A. & Sabherwal, R. (2004). *Knowledge management. Challenges, solutions and technologies*. Upper Saddle River, New Jersey: Pearson Education Inc.

- Banda, B. (2014). *Continuing professional development through sustainable in-service teacher training system in Kenya, Malawi and Zambia*. Berlin: Universitätsverslag.
- Bandura, A. (1989). Human agency in social cognitive theory. *American Psychologist*, 44(9):1175-1184.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: W.H. Freeman.
- Barber, M. (2008). *How the world's best-performing school systems come out on top* (No. 41, PREAL Documents). New York: McKinsey and Company.
- Barth, R. (1990). *Improving schools from within: Teachers, parents, and principals can make a difference*. San Francisco: Jossey-Bass.
- Bashir, M., Afzal, M.T. & Azeem, M. (2008). Reliability and validity of qualitative and operational research paradigm. *Pakistan Journal of Statistics and Operation Research*, 4(1):35-45.
- Bellinger, G., Castro, D. & Mills, A. (2004). Data, information, knowledge, and wisdom. Retrieved from <http://www.systems-thinking.org/dikw/dikw.htm> on 01 June 2011.
- Benjamin, S., Nind, M., Hall, K., Collins, J. & Sheehy, K. (2003). Moments of inclusion and exclusion: Pupils negotiating classroom contexts. *British Journal of Sociology of Education*, 24(5):547-558.
- Bernard, H.R. (2000). *Social research methods qualitative and quantitative approaches*. London: Sage Publications.
- Berry, R.A.W. (2006). Inclusion, power and community: Teacher and students interpretation of community in an inclusive classroom. *American Educational Research Journal*, 43(3):489-529.
- Berry, R.A.W. (2011). Voices of experience: General education teachers on teaching students with disabilities. *International Journal of Inclusive Education*, 15(6):627-648.
- Bhatt, G.D. (2001). Knowledge management in organisations: Examining the interaction between technologies, techniques, and people. *Journal of Knowledge Management*, 5(1):68-75.

- Blaikie, N.W.H. (2000). *Designing social research: The logic of anticipation*. Cambridge: Polity Press.
- Bless, C., Higson-Smith, C. & Kagee, A. (2006). *Fundamentals of social research methods an African perspective* (4th edition). Cape Town: Juta.
- Bolam, R. (1993). Recent developments and emerging issues. In GTC, *The continuing professional development of teachers*. Papers presented by M. Williams & R. Bolam for the General Teaching Council, London, Department for Education and Skills, pp. 17-41.
- Booth, T. (1999). Viewing inclusion from a distance: Gaining perspective from comparative study. *Support for Learning*, 14(4):164-168.
- Booth, T., Nes, K. & Strømstad, M. (2003). Developing inclusive teacher and education? In T. Booth, K. Nes & M. Strømstad (eds.). *Developing inclusive teacher education* (pp. 1-14). London: Routledge.
- Botha, D. (2005). Knowledge management within the multinational organisation: The impact of the African concept of *UBUNTU* on knowledge processes. *South African Journal of Information Studies*, 23(1):82-96.
- Bothma, M., Gravett, S. & Swart, E. (2000). The attitudes of primary school teachers towards inclusive education. *South African Journal of Education*, 20(3):200-204.
- Boyle, C., Topping, K., Jindal-Snape, D. & Norwich, B. (2012). The importance of peer-support for teaching staff when including children with special education needs. *School Psychology International*, 33(2):167-184.
- Brantlinger, E. 2006. The big glossies: Hoe textbooks structure (special) education. In E. Brantlinger (ed.). *Who benefits from special education? Remediating (fixing) other people's children* (pp. 45-76). Mahwah: Lawrence Erlbaum Associates Inc.
- Brock, S.J., Michalak, N. & Brownlee, S. (2011). Collaboration and consultation: The first steps. In C.G. Simpson & J.P. Bakken (eds.). *Collaboration: A multidisciplinary approach to educating students with disabilities* (pp. 3-15). Waco, TX: Prufrock.
- Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by design and nature*. Cambridge, MA: Harvard University Press.

- Bronfenbrenner, U. (1992). Ecological systems theory. In R. Vasta (ed.). *Six theories of child development: Revised formulations and new trends* (pp. 187-249). London: Jessica Kingsley.
- Bronfenbrenner, U. (ed.) (2005). *Making human beings human. Bioecological perspective on human development*. London: Sage.
- Bronfenbrenner, U. & Ceci, S.J. (1994). Nature-nurture reconceptualized in developmental perspective: A biological model. *Psychological Review*, 101(4):568-589.
- Bronfenbrenner, U. & Evans, G.W. (2000). Developmental science in the 21st century. Emerging questions, theoretical models, research designs and empirical findings. *Social Development*, 9(1):115-125.
- Bronfenbrenner, U. & Morris, P.A. (1998). The ecology of developmental processes. In R.M. Lerner (ed.). *Handbook of child psychology. Volume 1: Theoretical models of human development* (pp. 993-1027). New York: John Wiley & Sons.
- Brown, B.L. (1999). Knowledge Workers. Trends and Issues Alert no. 4. Centre on Education and Training for Employment. College of Education. The Ohio State University.
- Brownell, M.T., Adams, A., Sindelar, P., Waldron, N. & Vanhofer, S. (2006). Learning from collaboration: The role of teacher qualities. *Exceptional Children*, 72(2):169-186.
- Bryman, A. (2008). *Social research methods* (3rd edition). Oxford: Oxford University Press.
- Büchel, B. & Raub, S. (2002). Building knowledge-creating value networks. *European Management Journal*, 20(6):587-596.
- Burstein, N., Sears, S., Wilcoxon, A., Cabello, B. & Spanga, M. (2004). Moving towards inclusive practices. *Remedial and Special Education*, 25(2):104-116.
- Cagné, F. (2003). Transforming gifts into talents: The DMGT as a developmental theory. In N. Colangelo & G.A. Davis (eds.). *Handbook of gifted education* (3rd edition) (pp. 60-74). Boston, MA: Allyn & Bacon.

- Canzano, D. & Grimaldi, M. (2004). *Knowledge management and collaborations: Knowledge strategy and processes in the knowledge networks* (pp. 175-183). Graz, Austria: I-KNOW.
- Carrington, S. & Brownlee, L. (2001). Preparing teachers to support inclusion: The benefits of interaction between a group of pre-service teachers and a teaching assistant who is disabled. *Teaching Education*, 12(3):347-357.
- Cevher-Kalburan, N. (2014). Early childhood pre-service teachers' concerns and solutions to overcome them (the case of Pamukkale University). *South African Journal of Education*, 34(1):1-18.
- Chamberlain, C. (2001). Mentoring of graduate students at the School of Information and Library Science at the University of North Caroline at Chapel Hill. Unpublished Masters paper submitted to the Faculty of the School of Information and Library Science. University of North Carolina.
- Choo, C.W. (1998). *The knowing organization: How organizations use information to construct meaning, create knowledge, and make decisions* (pp. 155-205). New York: Oxford University Press.
- Christensen, S. & Sheridan, S.M. (eds.). (2001). *School and families: Creating essential communities for learning*. New York: Guilford Press.
- Class Act Educational Services (CASE). 2007. Reviewing the implementation of IQMS. Johannesburg: CASE.
- Clement, J. & Jacques, E. (1991). *Executive leadership*. Arlington: Cason Hall & Company.
- Clough, P. & Nutbrown, C. (2012). *A student's guide to methodology*. London: Sage.
- Coetzer, I.A. (2001). A survey and appraisal of outcome-based education (OBE) in South Africa with reference to progressive education in America. *Educare*, 30:73-93.
- Cohen, L., Manion, L. & Morrison, K. (2007). *Research methods in education* (6th edition). London: Routledge.
- Cohen, W.N. & Levinthal, D.A. (1990). Absorptive capability: A new perspective on learning and innovation. *Administrative Science Quarterly*, 35(1):128-152.

- Cole, C.M., Waldron, N. & Majd, M. (2004). Academic progress of students across inclusive and traditional settings. *Mental Retardation*, 42(2):136-44.
- Collins, K.M.T., Onwuegbuzie, A.J. & Sutton, I.L. (2006). A model incorporating the rationale and purpose for conducting mixed methods research in special education and beyond. *Learning Disabilities: A Contemporary Journal*, 4(1):67-100.
- Creswell, J.W. (1998). *Qualitative inquiry and research design: Choosing among the five traditions*. Thousand Oaks, CA: Sage.
- Creswell, J.W. (2002). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research*. Upper Saddle River, NJ: Merrill.
- Creswell, J.W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd edition). Thousand Oaks, Ca.: SAGE Publications.
- Creswell, J.W. & Clark, V.L.P. (2007). *Designing and conducting mixed methods research*. Thousand Oaks, CA: Sage Publications.
- Curley, K.F. & Kivowitz, B. (2001). *The manager's pocket guide to knowledge management*. Boston: HRD Press.
- Darling-Hammond, L. & Baratz-Snowden, J. (2007). A good teacher in every classroom: Preparing the highly qualified teacher our children deserve. *Education Horizon*, 87(2):111-132.
- Davenport, T.H. & Prusak, L. (2000). *Working knowledge: How organisations manage what they know*. Boston, MA: Harvard Business School Press.
- Davidoff, S. & Lazarus, S. (2009). *The learning school, an organisational development approach* (2nd edition). Cape Town: Juta.
- Day, C. & Sachs, J. (2004). Professionalism, performativity and empowering: Discourses in the politics, policies and purpose of continuous professional development. In B. Day & J. Sachs (eds.). *International handbook on continuous professional development of teachers*. Berkshire: McGraw-Hill Education.

- De Tienne, K.B., Dyer, G., Hoopes, C. & Harris, S. (2004). Towards a model of effective knowledge management and directions for future research: Culture, leadership and CKOs. *Journal of Leadership and Organisational Studies*, 10(4):26-43.
- DECD (2012). *Gifted and talented children and students policy* (updated 2012). Government of South Australia. Online Available at <http://www.decd.sa.gov.au/docs/documents/1/Giftedchildrenandsudents> (accessed 17 April 2014).
- deCharms, R. (1984). Motivation enhancement in educational settings. In R.E. Ames & C. Ames (eds.). *Research on motivation in education: Student motivation*. Orlando, FL: Academic Press.
- Denscombe, M. (2010). *Ground rules for social research. Guidelines for good practice* (2nd edition). New York: Open University Press-McGraw-Hill.
- Denzin, N.K. & Lincoln, Y.S. (2005). The discipline and practice of qualitative research. In N.K. Denzin & Y.S. Lincoln (eds.). *Handbook of qualitative research* (3rd edition) (pp. 1-32). Thousand Oaks, CA: Sage.
- Department Basic Education (2015). *Report on the implementation of Education White Paper 6 on inclusive education. An overview for the period: 2013 – 2015*. Pretoria: Government Printers.
- Department of Basic and Higher Education and Training (2011). *Integrated strategic planning framework for teacher education and development in South Africa, 2011-2025*. Pretoria: Government Printers.
- Department of Basic Education (DoBE). (2011). *Guidelines for responding to learner diversity in the classroom through curriculum and assessment policy statements*. Pretoria: Government Printers.
- Department of Basic Education (DoBE) and Department of Higher Education and Training (DHET). (2011). *Integrated strategic planning framework for teacher education and development in South Africa, 2011 – 2015*. Pretoria: Government Printers.

- Department of Basic Education (DoBE). (2010). *Action steps: National model care and support for teaching and learning (CSTL) conceptual framework*. Pretoria: Government Printers.
- Department of Basic Education (DoBE). (2010). *Guidelines for full-service/inclusive schools*. Pretoria: Government Printers.
- Department of Basic Education (DoBE). (2015). *Report on the implementation of Education White Paper 6 on inclusive education. An overview for the period: 2013 – 2015*. Pretoria: Department of Basic Education.
- Department of Basic Education DoBE). (2010). *Report on the implementation of the Convention on the Rights of Persons with Disabilities (CRPD) in Education*. Pretoria: Government Printers.
- Department of Education (DoE). (2007). *Guidelines to ensure quality education and support in special schools and special schools resource centres*. Pretoria: Department of Education.
- Department of Education (DoE). (2009). *Guidelines for full-service/inclusive schools*. Pretoria: Department of Education.
- Department of Education (1997). Quality education for all, overcoming barriers to learning and development. Report of the National Commission on Special Needs in Education and Training (NCSNET) and National Committee on Education Support Services (NCESS), Department of Education, 28 November, Pretoria.
- Department of Education (2001). *Education White Paper 6 on Special Needs Education: Building an Inclusive Education and Training System (2001)*. Pretoria: Department of Education.
- Department of Education (2005). *Curriculum adaptation guidelines of the revised national curriculum statements*. Pretoria: Department of Education.
- Department of Education (2005). *Developing district-based support teams: Guidelines for practice*. Pretoria: Department of Education.
- Department of Education (2006). *The National Policy framework for teacher education and development in South Africa*. Pretoria: Department of Education.

- Department of Education (2014). *National strategy on screening, identification, assessment and support*. Pretoria: Department of Education.
- Department of Higher Education and Training (DHET). (2015). *Revised policy on the minimum requirements for teacher education qualifications*. Pretoria: Government Printers.
- Department of Higher Education and Training (2011). *The minimum requirements for teacher education qualification*. Pretoria: Government Printers.
- Diale, B.M. (2010). Educational-psychological practice framework for the personal and professional development of life-orientation teachers in the Gauteng province: A mixed method study.
- Dichaba, M.M. (2013). Adult basic education teachers' experiences about the cascade model of training: An appreciative inquiry. *Int J Edu Sci*, 5(1):29-38.
- Dilworth, M.E. & Imig, D.G. (1995). Professional teacher development and reform agenda. Available at: <http://askeric.orgplweb-cgi/obtain.pl>
- Ding, Q., Akoorie, M.E.M. & Pavlovich, K. (2009). A critical review of three theoretical approaches on knowledge transfer in cooperative alliances. *International Journal of Business and Management*, 4(1):47-55.
- DoBE (Department of Basic Education). (2013). *Education for All (EFA) 2013 country progress report: South Africa*. Pretoria: Government Printers.
- DoE (2007). *Guidelines to ensure quality education and support in special schools and special schools resource centres*. Pretoria: Government Printers.
- Donald, D., Lazarus, S. & Lolwana, P. (2010). *Educational psychology in social context*. Oxford: Oxford University Press.
- Donald, D., Lazarus, S. & Moolla, N. (2014). *Educational psychology in social context. Ecosystemic application in Southern Africa*. Cape Town: Oxford University Press.
- Donohue, D. & Bornman, J. (2014). The challenges of realising inclusive education in South Africa. *South African Journal of Education*, 34(2):1-14.

- Donohue, D.K. & Bornman, J. (2015). South African teachers' attitudes towards the inclusion of learners with different abilities in mainstream classrooms. *International Journal of Disability, Development and Education*, 62(1):42-59.
- Dretske, F. (1981). The pragmatic dimension of knowledge. *Philosophical Studies*, 40(3):363-378.
- Dreyer, L.M. (2008). An evaluation of a learning support model in Primary schools in the West Coast/Winelands Area. Dissertation presented for the degree Doctor of Philosophy (Special Education). Stellenbosch: Stellenbosch University.
- Drucker, P.F. (1993). *Post-capitalist society*. Oxford: Butterworth/Heinemann.
- Dyson, B. 2001. Comparative learning in elementary physical education program. *Journal of Teaching in Physical Education*, 21:356-364.
- Earl, M. (2001). Knowledge management strategies: Towards a taxonomy. *Journal of Management Information Systems*, 18(1):215-233.
- Elliot, J. (2005). *Using narrative in social research: Qualitative and quantitative approaches*. London: SAGE.
- Eloff, I. & Kgwete, L.K. (2007). South African teachers voice on support in inclusive education. *Childhood Education*, 83(6):351-355.
- Emanuelsson, I., Haug, P. & Persson, B. (2005). Inclusive education in some Western European countries. In D. Mitchell (ed.). *Contextualizing inclusive education: Evaluating old and new international perspectives*. Abingdon, Oxfordshire: Routledge.
- Engelbrecht, P. (2006). The implementation of inclusive education in South Africa after ten years of democracy. *European Journal of Psychology of Education*, 21(3):253-264.
- Engelbrecht, P. (2007). Creating collaborative partnerships in inclusive schools. In P. Engelbrecht & L. Green (eds.). *Responding to the challenges of inclusive education in Southern Africa* (pp. 175-185). Pretoria: Van Schaik.
- Engelbrecht, P. (2013). Teacher education for inclusion, international perspectives. *European Journal of Special Needs Education*, 28(2):115-118.

- Engelbrecht, P., Forlin, C., Elof, I. & Swart, E. (2001). Developing a support programme for teachers involved with inclusion in South Africa. *International Journal of Special Education*, 16(1):80-89.
- Engelbrecht, P., Green, L., Naicker, S. & Engelbrecht, L. (1999). *Inclusive education in action in South Africa*. Pretoria: Van Schaik.
- Engelbrecht, P., Nel, M. & Tlale, D. (2015). Enacting understanding of inclusion in complex contexts: classroom practices of South African teachers. *South African Journal of Education*, 35(3):1-10.
- European Agency for Development in Special Needs Education (2012). *Profile of Inclusive Teachers*, Odense, Denmark: European Agency for Development in Special Needs Education.
- Everett, R. (1995). *Diffusion of innovations*. New York: Free Press.
- Farrell, P. (2001). Special education in the last twenty years: Have things really got better? *British Journal of Special Education*, 28(1):3-9.
- Feilzer, M.Y. (2010). Doing mixed methods research pragmatically: Implications for the rediscovery of pragmatism as a research paradigm. *Journal of Mixed Methods Research*, 4(1):6-16.
- Firestone, J.M. (2001). Key issues in knowledge management. Knowledge and Innovation. *Journal of the Knowledge Management Consortium International*, 1(3):8-38.
- Flemming, I. & Taylor, A.J.D. (2003). *Coaching pocketbook*. Alresford, UK: Management Pocketbooks.
- Fletcher, T. & Artiles, A.J. (2005). Inclusive education and equity in Latin America. In D. Mitchell (ed.). *Contextualizing inclusive education* (pp. 202–229). London: Routledge Farmer.
- Florian, L. (1998). Inclusive practice: What, why and how? In C. Tilstone, L. Florian & R. Rose (eds.). *Promoting inclusive practice* (pp. 13-26). London: Routledge.
- Florian, L. (2007). Reimagining special education. In L. Florian (ed.). *The SAGE Handbook of Special Education* (pp. 7-29). London: Sage.

- Florian, L. (2010). The concept of inclusive pedagogy. In G. Hallett & F. Hallet (eds.). *Transforming the role of the SENCO* (pp. 61-72). Buckingham: Open University Press.
- Florian, L. (2012). Preparing teachers to work in diverse classrooms: Key lessons for the professional development of teacher educators from Scotland's inclusive practice project. *Journal of Teacher Education*, 63(4):275-285.
- Florian, L. (2012). Teacher education for inclusion. A research agenda for the future. In C. Forlin (ed.). *Future directions for inclusive teacher education an international perspective* (pp.212-220). London: Routledge.
- Florian, L. (2014). What counts as evidence of inclusive education? *European Journal of Special Needs Education*, 29(3):286-294.
- Florian, L. & Rouse, M. (2009). The inclusive practice project in Scotland: Teacher education for inclusive education. *Teaching and Teacher Education*, 25(4):594-601.
- Florian, L. & Spratt, J. (2013). Enacting inclusion: A framework for interrogating inclusive practice. *European Journal of Special Needs Education*, 28(2):199-135.
- Flynn, A.E. (2004). Knowledge Management Process: The Care and Feeding of Knowledge Workers. 89th Annual International Supply Management Conference, April.
- Ford, A. (2009). *Modeling the environment* (2nd edition). Washington: Island Press.
- Forlin, C. (2001). Inclusion: Identifying potential stressors for regular class teachers. *Educational Research*, 43(3):235-45.
- Forlin, C. (2003). Preservice teacher education: Involvement of students with intellectual disabilities. *International Journal of Learning*, 10:317-326.
- Forlin, C. (2012). What is needed now for effective inclusive teacher education? In C. Forlin (ed.). *Future directions for inclusive teacher education an international perspective* (pp.173-182). London: Routledge.
- Forlin, C. (ed.). (2010). *Teacher education for inclusion: Changing paradigms and innovative approaches*. London: Routledge.

- Forlin, C., Tait, K., Carroll, A. & Jobling, A. (1999). Teacher education for diversity. *Queensland Journal of Education Research*, 15(2):207-225.
- Fox, S., Farrell, P. & Davis, P. (2004). Factors associated with the effective inclusion of primary-aged pupils with Down's syndrome. *British Journal of Special Education*, 31(41):184-190.
- Frankel, E.B., Gold, S. & Ajodhia-Andrews, M.A. (2010). International preschool inclusion: Bridging the gap between vision and practice. *Young Exceptional Children*, 13(5):2-16.
- Fraser, C., Kennedy, A., Reid, L. & McKinney, S. (2007). Teacher continuing professional development: Contested concepts, understanding and models. *Professional Development in Education*, 33(2):153-169.
- Frederickson, N. & Cline, T. (2002). *Special educational needs, inclusion and diversity*. Buckingham: Open University Press.
- Fulcher, G. (1989). *Disabling policies?: A comparative approach to education, policy, and disability*. Lewes, UK: Falmer Press.
- Fullan, M. & Hargreaves, A. (1992). *What's worth fighting for in your school?* Ontario: Open University Press in association with the Ontario Public School Teachers' Federation.
- Gebert, H., Geib, M., Kolbe, L. & Brenner, W. (2003). Knowledge-enabled customer relationship management: Integrating customer relationship management and knowledge management concepts. *Journal of Knowledge Management*, 7(5):107-123.
- Gerber, M.M. (2012). Emerging issues in teacher education for inclusion in the United States. In C. Forlin (ed.). *Future directions for inclusive teacher education: An international perspective* (pp. 71-79). London: Routledge.
- Giles, J.W. & Heyman, G.D. (2005). Young children's beliefs about the relationship between gender and aggressive behaviour. *Child Development*, 76:107-121.
- Gloet, M. & Berrell, M. (2003). The dual paradigm nature of knowledge management: Implication for achieving quality outcomes in human resource management. *Journal of Knowledge Management*, 7(1):78-89.

- Gold, A.H. & Arvind Malhotra, A.H.S. (2001). Knowledge management: An organizational capabilities perspective. *Journal of Management Information Systems*, 18(1):185-214.
- Green, L. & Engelbrecht, P. (2007). An introduction to inclusive education. In P. Engelbrecht & L. Green (eds.). *Responding to the challenges of inclusive education in Southern Africa*. Pretoria: Van Schaik.
- Greyling, A.J. (2009). Reaching for the dream: Quality education for all. *Education Studies*, 35(4):425-435.
- Grossman, P., McDonald, M., Hammerness, K. & Ronfeldt, M. (2008). Dismantling dichotomies in teacher education. In M. Cochran-Smith, S. Feiman Nemser, D.J. McIntyre (eds.). *Handbook of research on teacher education: Enduring questions in changing contexts* (3rd edition). New York, NY: Routledge.
- Guskey, T.R. (2000). What makes professional development effective? *Phi Delta Kappan*, 80:748-750.
- Guskey, T.R. (2008). Forward. In R. Bourke, A. Lawrence, A. McGee, J. O'Neill & J. Curzon (eds.). *Talk about learning: Working alongside teachers* (pp. xiii-xv). North Shore: Pearson Education New Zealand.
- Haefele, B. (2011). The affect of prenatal methamphetamine (tik) abuse on children's early childhood behaviour: An explorative study in Mitchell's Plain. *Childhood Abuse Research in South Africa*, 12(2):36-44.
- Hakkarainen, K., Palonen, T., Paavola, S. & Lehtinen, E. (2004). *Communities of networked expertise. Professional and educational perspectives*. Amsterdam: Elsevier.
- Halinen, I. & Savolainen, H. (2009). *E-forum discussion paper on inclusive education and inclusive curriculum*. Geneva: UNESCO-IBE.
- Hallahan, D. (2002). We need more intensive instructions. In M. Byrnes (ed.). *Taking sides: Clashing views on controversial issues in special education* (pp. 204-106). Guildford, Connecticut: McGraw Hill/Dushkin.
- Haniz, I. (1998). Inclusive education in Malaysia: Teachers' attitudes to change. Unpublished dissertation. Faculty of Education, Exeter University.

- Hanson, W.E., Creswell, J.W., Plano Clark, V.L., Petska, S. & Creswell, J.D. (2005). Mixed methods research designs in counseling psychology. *Journal of Counseling Psychology*, 52(2):224-235.
- Harpell, J.V. & Andrews, J.J.W. (2010). Administrative leadership in the age of inclusion: Promoting best practices and teacher empowerment. *The Journal Educational Thought*, 44(2):189-210.
- Hart, J.M. (2010). Contextualized Motivation Theory (CTM): Intellectual passion, mathematical needs, social responsibility, and personal agency in learning mathematics. Unpublished thesis. Brigham Young University.
- Hart, S., Dixon, A., Drummond, M.J. & McIntyre, D. (2004). *Learning without limits*. Maidenhead: Open University Press.
- Haslinda, A. & Sarinah, A. (2009). A review of knowledge management models. *The Journal of International Social Research*, 2(9):187-198.
- Hay, J. & Beyers, C. (2011). An analysis of the South African model of inclusive education with regard to social justice. *Africa Education Review*, 8(2):234-246.
- Hay, J.F. (2003). Implementation of the inclusive education paradigm shift in South African education support services. *South African Journal of Education*, 23(2):135.
- Hay, J.F., Smit, J. & Paulse, M. (2001). Teacher preparedness for inclusive education. *South African Journal of Education*, 21(4), p-213.
- Heisig, P. (2009). Harmonisation of knowledge management-comparing 160 km frameworks around the globe. *Journal of Knowledge Management*, 13(4):4-31.
- Henning, E. (2013). The fallacy of the ‘national’ teacher. *Education as Change*, 17(1):1-3.
- Herder, P.M., Veeneman, W.W., Buitenhuis, M.D.J. & Schaller, A. (2003). Follow the rainbow: A knowledge management framework for new product introduction. *Journal of Knowledge Management*, 7(3):105 -115.
- Hilgendorff, C. (2007). *General education teacher readiness for adapting and modifying curriculum for special learners in their classroom*. Ann Arbor, MI: ProQuest Information and Learning Company.

- Hjelle, L.A. & Ziegler, D.J. (1976). *Personality theories: Basic assumptions, research, and application*. New York: McGraw-Hill Book Company.
- Ho, F-C. (2012). Professional development for teachers of students with autism spectrum disorders in Hong Kong. In C. Forlin (ed.). *Future directions for inclusive teacher education an international perspective* (pp. 151-159). London: Routledge.
- Hodkinson, A. & Devarakonda, C. (2011). Conceptions of inclusion and inclusive education: A critical examination of the perspectives and practices of teachers in England. *Educational Futures*, 3(1) 52-65.
- Hodkinson, A.J. (2005). Conceptions and misconceptions of inclusive education: A critical examination of final year teacher trainees; knowledge and understanding of inclusion. *International Journal of Research in Education*, 73:15-29.
- Holsapple, C.W. & Joshi, K.D. (2000). An investigation of factors that influences the management of knowledge in organisations. *The Journal of Strategic Information Systems*, 9(2):235-261.
- Human Rights Watch Report. (2015). "Complicit in Exclusion" South Africa's Failure to Guarantee an Inclusive Education for Children with disabilities. United States of America.
- Hunt, J.M. & Weintraub, J.R. (2002). *The coaching manager. Developing talent in business*. Thousand Oaks: Sage Publication Inc.
- Hyder, A.S. & Abraha, D. (2003). *Strategic alliances in eastern and central Europe*. Amsterdam: Pergamon.
- Ibrahim, H. (2012). Including children with disabilities in regular classes. Current climate and future direction in Malaysia. In C. Forlin (ed.). *Future Directions for inclusive teacher education an international perspective* (pp.13-22). London: Routledge.
- International Classification of Functioning, Disability and Health. (2001). Geneva: World Health Organisation.

- Jackson, L.B., Ryndak, D.L. & Wehmeyer, M.L. (2009). The dynamic relationship between context, curriculum, and student learning: A case for inclusive education as a research-based practice. *Research and Practice for Persons with Severe Disabilities (RPSD)*, 33(4):175-195.
- Jacoby, B. & Associates (2003). Fundamentals of service-learning partnerships. In B. Jacoby & Associates (eds.). *Building partnerships for service-learning* (pp. 1-19). San Francisco: Jossey-Bass.
- Jafari, M., Akhavan, P. & Mortezaei, A. (2009). A review on knowledge management discipline. *Journal of Knowledge Management Practice*, 10(1), 1-23.
- James, R. (2010). Monitoring and evaluating learning networks. www.intrac.org Monitoring and Evaluating Learning Networks(c) INTRAC 2010.
- Jeannerod, M. (2003). The mechanics of self-recognition in human. *Behavioral Brain Research*, 142:1-15.
- Jita, L.C. & Mokhele, M.L. (2014). When teacher clusters work: Selected experiences of South African teachers with the cluster approach to professional development. *South African Journal of Education*, 34(2), 1-15.
- Johnson, B. & Green, L. (2007). *Thinking differently about education support*. In P. Engelbrecht & L. Green (eds.). *Responding to the challenges of inclusive education in southern Africa*. Pretoria: Van Schaik Publishers.
- Johnson, R.B. & Onwuegbuzie, A.J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational Researcher*, 33(7):14-26.
- Johnson, R.B., Onwuegbuzie, A.J. & Turner, L.A. (2007). Toward a definition of mixed methods research. *Journal of Mixed Methods Research*, 1(2):112-133.
- Joppe, M. (2000). *The research process*. Retrieved July 2010, from <http://www.ryerson.ca/~mjoppe/rp.htm>
- Jordan, A., Schwartz, E. & McGhie-Richmond, D. (2009). Preparing teachers for inclusive classrooms. *Teaching and Teacher Education*, 25(4):535-542.
- Kaagan, S.S. (2004). *30 reflective staff development exercises for educators*. Thousand Oaks, CA: SAGE.

- Kakabadse, N.K., Kakabadse, A. & Kouzmin, A (2003). Reviewing the knowledge management literature: Towards a taxonomy. *Journal of Knowledge Management*, 7(4):75-91.
- Kantavong, P. (2012). A training model for enhancing the learning capacity of students with special needs in inclusive classrooms in Thailand. In C. Forlin (ed.). *Future directions for inclusive teacher education an international perspective* (pp.23 – 32). London: Routledge.
- Kariazopoulou, M. & Weber, H. (eds.). (2009). *Development of a set of indicators – for inclusive education in Europe*. Denmark: European Agency for Development in Special Needs Education.
- Kauffman, J.M., Landrum, T.J., Mock, D., Sayeski, B. & Sayeski, K.S. (2005). Diverse knowledge and skills require a diversity of instructional groups: A position statement. *Remedial and Special Education*, 26(1):2-6.
- Kershner, R. (2009). Learning in inclusive classrooms. In P. Hick, R. Kershner & P. Farrell (eds.). *Psychology for inclusive education: New directions in theory and practice* (pp. 52-65). London: Routledge Falmer.
- Khairiltitov, M.Z. (2007). A constructivist perspective of knowledge management theory: A knowledge management solution to online teachers' professional development. In *ICT: Providing choices for learners and learning. Proceedings Ascilite Singapore*.
<http://www.ascilite.org.au/conferences/singapore7/procs/khairiltitov-poster.pdf>
- Kim, G. & Lindeberg, J. (2012). Inclusion for innovation. The potential for diversity in teacher education. In C. Forlin (ed.). *Future directions for inclusive teacher education an international perspective* (pp. 93 – 101). London: Routledge.
- Kinsella, W. & Senior, J. (2008). Developing inclusive schools: A systemic approach. *International Journal of Inclusive Education*, 12(5-6):651-665.
- Kluge, J., Stein, W. & Licht, T. (2001). *The McKinsey and Company global survey on knowledge management: Knowledge unplugged*. New York: Palgrave.
- Kochhar, C., West, L.L. & Taymans, J.M. (2000). *Successful inclusion: Practical strategies for a shared responsibility*. Upper Saddle River, NJ: Merrill Prentice-Hall.

- Kooy, M. & van Veen, K. (eds.). (2012). *Teacher learning that matters: International perspectives*. New York: Routledge.
- Koster, M., Nakken, H., Pijl, S. & van Houten, E. (2009). Being part of the peer group: A literature study focusing on the social dimension of inclusive education. *International Journal of Inclusive Education*, 13(2):117-140.
- Koteinikov, V. (2011). Managing knowledge workers. Meeting specific requirements of knowledge workers and unlocking their true potential. Retrieved 8 February 2011
http://www.1000ventures.com/business_guide/mgmt_knowledge_workers.html.
- Kruger, C.J.N. & Johnson, R.D. (2010). Information management as an enabler of knowledge management maturity: A South African perspective. *International Journal of Information Management*, 30(1):57-67.
- Kruger, C.J.N. & Snyman, M.M.M. (2007). Guidelines for assessing the knowledge management maturity of organisations. *South African Journal of Information Management*, 9(3), 1-11
- Kugelmass, J.W. (2001). Collaboration and compromise in creating and sustaining an inclusive school. *International Journal of Inclusive Education*, 5(1):47-65.
- Kyriazopoulou, M. & Weber, H. (eds.). (2009). *Development of a set of indicators – for inclusive education in Europe*. Denmark: European Agency for Development in Special Needs Education.
- Laudon, K.C. & Laudon, J.P. (2003). *Management information systems: Managing the digital firm* (8th edition). Upper Saddle River, NJ: Pearson Prentice-Hall.
- Lave, C.A. & March, J.G. (1993). *An introduction to models in the social science*. New York: University Press of America.
- Lave, J. & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. New York: Cambridge University Press.
- LeRoy, B. & Simpson, C. (1996). Improving students' outcomes through inclusive education. *British Journal of Learning Support*, 11(1):32-36.
- Lesser, E. & Prusak, L. (1999). Communities of practice, social capital and organizational knowledge. *Information Systems Review*, 1(1):3-10.

- Lessing, A. & De Witt, M. (2007). The value of continuous professional development: teachers' perceptions. *South African Journal of Education*, 27(1):53-67.
- Liew, A. (2007). Understanding data, information, knowledge and their inter-relationship. *Journal of Knowledge Management Practice*, 8(2), 1-16
- Lincoln, Y.S. & Cuba, E.G. (1985). *Naturalistic inquiry*. Beverly Hills: Sage.
- Lipsky, D. & Gartner, A. (1998). Taking inclusion into the future. *Educational Leadership*, 56(2):78-81.
- Little, C. & Evans, D. (2012). Conceptualizing social inclusion within teacher education. In C. Forlin (ed.). *Future directions for inclusive teacher education an international perspective* (pp.141 – 150).. London: Routledge.
- Little, J.W. (2012). Professional community and professional development in the learning-centered school. In M. Kooy & K. van Veen (eds.). *Teacher learning that matters: International perspectives* (pp. 22-43). New York, NY: Routledge.
- Lo, Leslie Nai-Kwai. (2007). The sustainable development of inclusive education. *Chinese Education and Society*, 40(4):44-62.
- Lopez, K., Hartz, C., Sammis, S., Hofer-Alfeis, J., Raybourn, C. & Neumann Wilson, J. (2001). Measurement for Knowledge Management. American Productivity and Quality Centre.
- Loreman, T., Deppler, J. & Harvey, D. (2010). *Inclusive education supporting diversity in the classroom* (2nd edition). London: Routledge.
- Loughran, J. (2012). Professional learning creating conditions for developing knowledge of teaching. In M. Kooy & K. van Veen (eds.). *Teacher learning that matters. International perspective* (pp. 47 – 63). Abingdon: Routledge.
- Mackenzie, N. & Knipe, S. (2006). Research dilemmas: Paradigms, methods and methodology. *Issues in Educational Research*, 6(2):193-205.
- Mackhulp, F. & Mansfield, U. (1983). Semantic quarks in studies of Information. In F. Mackhulp & U. Mansfield (eds.). *The study of information interdisciplinary messages* (pp. 641-71). New York: Wiley.

- Madalane, N.A. (2005). Support services and implementation of inclusive education the Umtata district. Unpublished MEd dissertation. Port Elizabeth: Nelson Mandela Metropolitan University.
- Magalhaes, R. (2004). *Organizational knowledge and technology: An action-oriented perspective on organization and information systems*. London: Edward Elgar Publishing.
- Magee, B. (2001). *The story of philosophy*. London: Dorling Kindersley Limited.
- Makhalemele, T. & Nel, M. (2015). Challenges experienced by district-base support teams in the execution of their functions in a specific South African province. *International Journal of Inclusive Education*, DOI:10.1080/13603116.2015.1079270(p.1-17).
- Malinen, O.-P. & Savolainen, H. (2012). The directions of Finnish teacher education in the era of the revised Act on Basic Education. In C. Forlin (ed.). *Future directions for inclusive teacher education an international perspective* (pp.52-60). London: Routledge.
- Manisha, M.A., Ramlee, M. & Zalizan, M.J. (2006). An empirical study on teacher perception towards inclusive education in Malaysia. *International Journal of Special Education*, 21(3):36-44.
- Manning, T. (2001). *Making sense of strategy*. Cape Town: Zebra.
- Marcel, M.L. (2003). The sense of agency: Awareness and ownership of action. In J. Roessler & N. Eiland (eds.). *Agency and self-awareness*. (pp.48-93). New York: Oxford University Press.
- March, J. & Simons, H.A. (1959). *Organization*. New York: John Wiley.
- Maslow, A. (1970). *Motivation and personality* (2nd edition). New York: Harper & Row.
- Maxwell, J.A. (1992). Understanding and validity in qualitative research. *Harvard Educational Review*, 62(3):279-299.
- Mayhew, J. & Welch, M. (2001). A call to service: Service-learning as a pedagogy in special education programs. *Teacher Education and Special Education*, 24(2):208-219.

- McNabb, D. (2013). *Research methods in public administration and non-profit Management: Quantitative and qualitative approaches*. Armonk, NY: M.E Sharp.
- Meier, D. (1992). Reinventing teaching. *Teachers College Record*, 93(4):594-609.
- Merriam, S.B. (1998). *Qualitative research and case study applications in education*. Revised and expanded from *Case study research in education*. San Francisco, CA: Jossey-Bass Publishers.
- Mertens, D.M. (2005). *Research and evaluation in education and psychology: Integrating diversity with quantitative, qualitative, and mixed methods* (2nd edition). Thousand Oaks, CA: Sage.
- Meyer, M. & Fourie, L. (2004). *Mentoring and coaching. Tools and techniques for implementation*. Randburg: Knowers Publishing.
- Misch, A. & Tobin, P.K. (2006). Knowledge management and cognitive theory: An African case study. *Acta Commercii*, 6:133-146.
- Mitchell, D. (2005). Introduction: Sixteen propositions on the contexts of inclusive education. In D. Mitchell (ed.). *Contextualizing inclusive education: Evaluating old and new international perspectives* (pp. 1-21). London: Routledge.
- Mitchell, D. (2014). *What really works in special and inclusive education. Using evidence-based teaching strategies* (2nd edition). London: Routledge.
- Mncube, V. & Madikizela-Madiya, N. (2014). Gangsterism as a cause of violence in South African schools: The case of six provinces. *Journal of Sociology and Social Anthropology*, 5(1):43-50.
- Moffett, S., McAdam, R. & Parkinson, S. (2003). An empirical analysis of knowledge management applications. *Journal of Knowledge Management*, 7(3):6-26.
- Moteleb, A.A. & Woodman, M. (2007). Notions of knowledge management systems: A gap analysis. *The Electronic Journal of Knowledge Management*, 5(1):55-62. Available online at www.ejkm.com.
- Mouton, J. (2001). *How to succeed in your master's and doctoral studies: A South African guide and resource book*. Pretoria: Van Schaik.

- Mukhopadhyay, S., Molosiwa, S.M. & Moswela, E. (2009). Teacher training level of preparedness for inclusive education in Botswana schools: Need for change. *International Journal of Scientific Research in Education*, 2(3):51-58.
- Murphy, D.M. (1996). Implication of inclusion for general and special education. *Elementary School Journal*, 96(5):469-493.
- Murray, P. (2000). Designing business benefits from knowledge management. In C. Despres & D. Chauvel (eds.). *The present and the promise of knowledge management* (pp. 171-194). Boston, MA: Butterworth-Heinemann.
- Muthukrishna, N. (2001). Changing roles for schools and communities. In P. Engelbrecht, L. Green, S. Naicker & L. Engelbrecht (eds.). *Promoting and working with barriers to learning* (pp. 45-58). Pretoria: Van Schaik.
- Nahapiet, J. & Ghoshal, S. (1998). Social capital, intellectual capital, and the organizational advantage. *Academy of Management Review*, 23(2):242-266.
- Naicker, S.M. (2005). *Inclusive education in South Africa. Contextualising Inclusive Education*. Abingdon: Routledge.
- Naicker, S.M. (2006). From policy to practice: A South-African perspective on implementing inclusive education policy. *International Journal of Whole Schooling*, 3(1):1-6.
- Nardi, B., Whittaker, S. & Schwarz, H. (2000). It's not what you know, it's who you know: Work in the information age. *First Monday [On-line]*, 5, 5. Available: http://firstmonday.org/ issues/ issues5_5/nardi/index.html.
- Nel, M., Engelbrecht, P., Nel, N. & Tale, D. (2014). South African teachers' views of collaboration within an inclusive education system. *International Journal of Inclusive Education*, 18(9):903-917.
- Nel, N. (2011). Second language difficulties in a South Africa context. In E. Landsberg, D. Krüger & E. Swart (eds.). *Addressing barriers to learning. A South African perspective* (2nd edition) (pp. 167- 185). Pretoria: Van Schaik.
- Nel, N. & Nel, M. (2012). Learning. In N. Nel, M. Nel & A. Hugo (eds.). *Learner support in a diverse classroom. A guide for foundation, intermediate and senior phase teachers of language and mathematics* (pp. 25 – 46). Pretoria: Van Schaik.

- Nel, N., Nel, M. & Hugo, A. (2012). Inclusive education: The necessity of providing support to all learners. In N. Nel, M. Nel & A. Hugo (eds.). *Learner support in a diverse classroom. A guide for foundation, intermediate and senior phase teachers of language and mathematics* (pp.3 - 24). Pretoria: Van Schaik.
- Newman, I. & Benz, C.R. (1998). *Qualitative-quantitative research methodology: Exploring the interactive continuum*. Carbondale: Southern Illinois University Press.
- Newman, I., Ridenour, C., Newman, C. & De Marco, G.M.P. (2003). A typology of research purposes and its relationship to mixed methods. In A. Tashakkori & C. Teddlie (eds.). *Handbook of mixed methods in social and behavioural research* (pp. 167-188). Thousand Oaks, CA: Sage.
- Nicolaides, C. (2002). Focus on soft skills: A leadership wake-up call. Online at <http://www.Progressiveleadership.com>. [accessed on February 22, 2011].
- Nilsson, P. (2012). From concept to school practice professional learning for sustainable change in the primary science classroom. In M. Kooy & K. van Veen (eds.). *Teacher learning that matters. International perspective* (pp. 235 – 252). Abingdon: Routledge.
- Nonaka, I. (1994). A dynamic theory of organizational knowledge creation. *Organization Science*, 5(1):14-37.
- Nonaka, I. & Takeuchi, H. (1995). *The knowledge-creating company*. Oxford: Oxford University Press.
- Novak, J., Murray, M., Scheuermann, A. & Curran, E. (2009). Enhancing the preparation of special educators through service Learning: Evidence from two preservice courses. *International Journal of Special Education*, 24(1):32-44.
- O'Dell, C. & Jackson, C. (1998). *If only we know what we know: The transfer of internal knowledge and best practice*. New York: Free Press.
- O'Keefe, D.O. (2009). Learning at the chalkface. *Education Review*, (February):10-11.
- Oliver, M. (1990). *The politics of disablement*. Basingstroke: Macmillan and St Martin's Press.

- Olsen, S.T. & Hagen, A. (2015). How can exposure to practice in a foreign context enhance the professional development of teacher students? Case study from South Africa. *Journal of the European Teacher Education Network*, 10:154-164.
- Onions, P.E.W. (2010). Umbrellas, alphabet soup and knowledge management theory. 11th European Conference on Knowledge Management, ECKM 2010, Famalicão, Portugal, 2-3 September.
- Onwuegbuzie, A.J. (2003). Expanding the framework of internal and external validity in quantitative research. *Research in the Schools*, 10(1):71-90.
- Onwuegbuzie, A.J. & Johnson, R.B. (2006). The validity issue in mixed research. *Research in the Schools*, 13(1):48-63.
- Onwuegbuzie, A.J. & Leech, N.L. (2006). Linking research questions to mixed methods data analysis procedures. *The Qualitative Report*, 11(3):474-498.
- Onwuegbuzie, A.J. & Teddlie, C. (2003). A framework for analysing data in mixed methods research. In A. Tashakkori & C. Teddlie (eds.). *Handbook of mixed methods in social and behavioral research* (pp. 351-383). Thousand Oaks, CA: Sage.
- Onwuegbuzie, A.J., Slate, J.R., Leech, N.L. & Collins, K.M.T. (2007). Conducting mixed analyses: A general typology. *International Journal of Multiple Research Approaches*, 1(1):4-17.
- Opertti, R., Brady, J. & Duncombe, L. (2012). International discussions around inclusive curriculum and teachers in light of the 48th International Conference on Education. In C. Forlin (ed.). *Future directions for inclusive teacher education an international perspective*. (P.183).London: Routledge.
- Organisation for Economic Co-operation and Development. (2005). *OECD factbook: Economic, environmental and social statistics*. OECD.
- Ostendorf, L. (2002). Rewards and recognition in knowledge management. Available: http://www.providersedge.com/docs/km_articles/Rewards_and_Recognition_in_KM.pdf
- Oswald, M. (2007). Training teachers to becoming inclusive professionals. In P. Engelbrecht & L. Green (eds.). *Responding to the challenges of inclusive education in Southern Africa*. Pretoria: Van Schaik Publishers.

- Oswald, M. & Swart, E. (2011). Addressing South African pre-service teachers' sentiments, attitudes and concerns regarding inclusive education. *International Journal of Disability, Development and Education*, 58(4):389-403.
- Owen-Smith, J. & Powell, W.W. (2004). Knowledge networks as channels and conduits: The effects of spillovers in the Boston biotechnology community. *Organization Science*, 15(1):5-21.
- Oyker, C. (2011). Teacher preparation for inclusive and critical (special) education. *Teacher Education and Special Education*, 34:201-218.
- Pai, F-Y. & Chang, H-F. (2013). The effects of knowledge sharing and absorption on organisational innovation performance – A dynamic capabilities perspective. *Interdisciplinary Journal of Information, Knowledge, and Management*, 8:83-97. Retrieved from <http://www.ijikm.org/Volume8/IJIKMv8p083-097Pai0734.pdf>
- Patton, M.Q. (1990). Qualitative evaluation and research methods (2nd edition). Newbury Park, CA: Sage.
- Patton, M.Q. (2002). Two decades of developments in qualitative inquiry a personal, experiential perspective. *Qualitative Social Work*, 1(3):261-283.
- Pavlovich, K. & Akoorie, M. (eds.). (2003). *Strategic alliances and collaborative partnerships: A case book*. Palmerston North: Dunmore Press.
- Pendlebury, S. & Enslin, P. (2004). Social justice and inclusion in education and politics: The South African case. *Journal of Education*, 34:31-49.
- Petrides, L. (2006). *Education Week*. [O]. Available:
www.edweek.org/chat/2006/05/10/chat_transcript_05_10_2006.html
Accessed 23 November 2015
- Piaget, J. (1953). *The origin of intelligence in the child*. London: Routledge.
- Pijl, S.J., Meijer, C.J. & Hegarty, S. (1997). *Inclusive education: A global agenda*. Cambridge: Harvard University Press.
- Plowright, D. (2012). *Using mixed methods: Frameworks for an integrated methodology*. Thousand Oaks, CA: Sage.

- Poggenpoel, M. & Myburgh, C. (2003). The researcher as research instrument in educational research: A possible threat to trustworthiness? *Education*, 124(2):418-421.
- Poh, P. & Wee, Y.G. (2004). Improving supply chain performance through strategic knowledge management. *Business Briefing: Global Purchasing & Supply Chain Strategies*.
- Popper, K.R. (1978). Three worlds. The Tanner lecture on human values. Delivered at The University of Michigan, April 7.
- Prusak, L. (2001). Where did knowledge management come from? *IBM Systems Journal*, 40(4):1002-1007.
- Ratner, S. (1997). *Emerging issues in learning communities* (pp. 1-34). St Albans, Vermont, Yellow Wood Associates.
- Reddy, V., Zuze, T.L., Visser, M., Winnaar, L., Juan, A., Prinsloo, C.H., Arends, F. & Rogers, S. (eds.). (2015). *Beyond benchmarks. What twenty years of TIMMS data tell us about South African education*. Cape Town: HSRC Press.
- Republic of South Africa (RSA). (1996). National Education Policy Act 27 of 1996.
- Republic of South Africa (RSA). (1996). South African Schools Act 84 of 1996.
- Republic of South Africa (RSA). (2013). *National Development Plan 2030. Our future make it work*. Cape Town: Sherino Printers.
- Republic of South Africa. (1996). Constitution of the Republic of South Africa, Act 108 of 1996. *Government Gazette*, 378.
- Riddell, S. (2009). Social justice, equality and inclusion in Scottish education. *Discourse*, 30(3):283-297.
- Robbins, S.P. (2003). *Organisational behaviour* (10th edition). Upper Saddle River, NJ: Prentice-Hall.
- Roberts, B. (2000). Pick employees' brains. *HR Magazine*, 45(2):115-120.
- Rogoski, R.R. (1999). Knowledge workers top company assets. *Triangle Business Journal*, 14(19):21.
- Rouse, M. (2008). Developing inclusive practices: A role for teacher education? *Education in the North*, 16:6-13.

- Rouse, M. (2012). Foreword. In C. Forlin (ed.). *Future directions for inclusive teacher education an international perspective*. London: Routledge.
- Rubenstein-Montano, B., Liebowitz, J., Buchwalter, J., McCaw, D., Newman, B., Rebeck, K. & Team, T.K.M.M. (2001). A systems thinking framework for knowledge management. *Decision Support Systems*, 31(1):5-16.
- Rumizen, M.C. (2001). *The complete idiot's guide to knowledge management*. Madison: Penguin.
- Saade, R., Nebebe, F. & Mak, T. (2011). Knowledge management systems development: Theory and practice. *Interdisciplinary Journal of Information, Knowledge and Management*, 6:35-72.
- Salend, S.J. (2011). *Creating inclusive classrooms: Effective and reflective practices* (7th edition). Columbus, OH: Merrill/Pearson Education.
- Sandelowski, M. (2001). Real qualitative research don't count: The use of numbers in qualitative research. *Research in Nursing and Health*, 24:230-240.
- Sands, D.J., Kozleski, E.B. & French, N.K. (2001). *Inclusive education for the 21st century*. Belmont, USA: Wordsworth/Thomson Learning.
- Savolainen, H., Engelbrecht, P., Nel, M. & Malinen, O.-P. (2010). Understanding teachers' attitudes and self-efficacy in inclusive education: Implications for pre-service and in-service teacher education. Documents presented at the 2nd Asian International Conference of Teacher Education Research, The Hong Kong Institute of Education, December.
- Sayed, Y., Soudien, C. & Carrim, N. (2003). Discourses of exclusion and inclusion in the South: Limits and possibilities. *Journal of Educational Change*, 4:231-248.
- Schoeman, M. (2012). Developing on inclusive education system: Changing teachers' attitudes and practice through critical professional development. Paper presented at the National Teachers Development Conference at the University of Pretoria 17 -19 September.
- Schoeman, S. & Mabunda, P.L. (2012). Teaching practice and the personal and socio-professional development of prospective teachers. *South African Journal of Education*, 32(3):240-254.

- Schon, D.A. (1983). *The reflective practitioner: How professionals think in action.* New York: Basic Books.
- Schwandt, T.A. (2001). *Dictionary of qualitative inquiry* (2nd edition). Thousand Oaks, CA: Sage.
- Sebba, J. & Ainscow, M. (1996). International developments in inclusive schooling: Mapping the issues. *Cambridge Journal of Education*, 26(1):5-19.
- Senge, P. (1990). *The fifth discipline*. New York: Doubleday.
- Senge, P. (2006). *The fifth discipline. The art and practice of the learning organisation*. London: Random House.
- Senge, P.M. (1994). *The fifth discipline fieldbook: Strategies and tools for building a learning organisation*. London: Brealey.
- Serrat, O. (2008). Managing knowledge workers. Available: <http://digitalcommons.ilr.cornell.edu/cgi/viewcontent.cgi?article=1173&context=intl>
- Serrat, O. (2009). Dimensions of the learning organisation. Available: <http://digitalcommons.ilr.cornell.edu/cgi/viewcontent.cgi?article=1139&context=intl>
- Shakespeare, T. (2006). *Disability rights and wrongs*. London: Routledge.
- Shalem, Y. (2003). Do we have a theory of change? Calling change models to account. *Perspectives in Education: Assessment of Change in Education: Special Issue*, 1(21):29.
- Sharma, U., Forlin, C., Loreman, T. & Earle, C. (2006). Pre-Service teacher's attitudes, concerns and sentiments about inclusive education: An International comparison of the novice pre-service teacher. *International Journal of Special Education*, 21(2):80-93.
- Slee, R. (2001). Inclusion in practice: Does practice make perfect? *Educational Review*, 53(2):113-23.
- Slee, R. (2001). Social justice and changing directions in educational research: The case of inclusive education. *International Journal of Inclusive Education*, 5(2-3):167-177.

- Spalding, E., Klecka, C.L., Lin, E., Wang, J. & Odell, S.J. (2011). Learning to teach: It's complicated. But it's not magic. *Journal of Teacher Education*, 62:3-7.
- Stanovich, P.J. & Jordan, A. (2000). Preparing general educators to teach in inclusive classrooms: Some food for thought. *Teacher Educator*, 37(3):137-186.
- Stayton, V.D. & McCollum, J. (2002). Unifying general and special education: What does the research tell us? *Teacher Education and Special Education*, 25(3):211-218.
- Stenmark, D. (2001). The relationship between information and knowledge. *Proceedings of IRIS 24*, Ulvik, Norway, August 11-14.
- Stewart, T.A. (1997). *Intellectual capital: The new wealth of organisations*. New York: Doubleday/Currency.
- Steyn, G.M. (2011). Continuing professional development in South African schools: Staff perceptions and the role of principals. *Journal of Social Science*, 28(1):43-53.
- Stofile, S.Y. & Green, L. (2007). Inclusive education in South Africa. In P. Engelbrecht & L. Green (eds.). *Responding to the challenges of inclusive education in Southern Africa* (pp. 52-64). Pretoria: Van Schaik.
- Stutchbury, K. & Fox, A. (2009). Ethics in educational research: Introducing a methodological tool for effective ethical analysis. *Cambridge Journal of Education*, 39(4):489-504.
- Swan, J. & Newell, S. (2000). Linking knowledge management and innovation. In H. R. Hansen, M. Bichler & H. Mahrer (eds.). *Proceedings of the 8th European Conference on Information Systems* (vol. 1, pp. 591-598). Vienna, Austria: Wirtschaftsuniversität.
- Swart, E. & Bredekamp, J. (2009). Non-physical bullying: Exploring the perspective of Grade 5 girls. *South African Journal of Education*, 29:405-425.
- Swart, E. & Oswald, M. (2008). How teachers navigate their learning in developing inclusive learning communities. *Education as Change*, 12(2):91-108.
- Swart, E. & Pettipher, R. (2000). Barriers teachers' experiences in implementing inclusive education. *International Journal of Special Education*, 15(2):75-80.

- Swart, E. & Pettipher, R. (2007). Understanding and working with change. In P. Engelbrecht & L. Green (eds.). *Responding to the challenges of inclusive education in Southern Africa* (pp. 101-120). Pretoria: Van Schaik.
- Swart, E. & Pettipher, R. (2011). A framework for understanding inclusion. In E. Landsberg, D. Krüger & E. Swart (eds.). *Addressing barriers to learning. A South African perspective* (2nd edition). Pretoria: Van Schaik.
- Swart, E. & Phasha, T. (2016). Family and community partnerships. In E. Landsberg (ed.). *Addressing barriers to learning: A South African perspective* (3rd edition) (pp. 265-287). Pretoria: Van Schaik.
- Tait, K. & Mundia, L. (2012). Preparing teachers to meet the challenges of inclusive education in Negara Brunei Darussalam. In C. Forlin (ed.). *Future directions for inclusive teacher education an international perspective* (pp. 61-70). London: Routledge.
- Tashakkori, A. & Creswell, J.W. (2007). Exploring the nature of research questions in mixed methods research. *Journal of Mixed Methods Research*, 1(3):207- 211.
- Tashakkori, A. & Teddlie, C. (1998). *Mixed methodology: Combining qualitative and quantitative approaches. Applied Social Research Methods Series* (Vol. 46). Thousand Oaks, CA: SAGE.
- Teddlie, C. & Tashakkori, A. (2003). Major issues and controversies in the use of mixed methods in social and behavioral science. In A. Tashakkori & C. Teddlie (eds.). *Handbook of mixed methods in social and behavioural research*. Thousand Oaks, CA: Sage.
- Teddlie, C. & Tashakkori, A. (2009). *Foundation of mixed methods research. Integrating quantitative and qualitative approaches in the social and behavioural science*. London: SAGE.
- Teddlie, C. & Tashakkori, A. (2011). Mixed methods research. Contemporary issues in an emerging field. In N.K. Denzil & Y.S. Lincoln (eds.). *The SAGE handbook of qualitative research*. London: SAGE.
- Teece, D.J., Pisano, G. & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7):509-533.

The Salamanca Statements and Framework for Action (Article 3),
<http://www.unesco.org/education/educprog/sne/salamanc/covere.html>

Thomas C. (1999). *Female forms: Experiencing and understanding disability*. Buckingham: Open University Press.

Thomas, G. & Loxley, A. (2001). *Deconstructing special education and constructing inclusion*. Buckingham: Open University Press.

Thomas, G. & Vaughan, M. (2004). *Inclusive education: Readings and reflections*. Maidenhead: Open University Press.

Trafford, V. & Leshem, S. (2008). *Stepping stones to achieving your doctorate: By focusing on your viva from the start: Focusing on your viva from the start*. UK: McGraw-Hill Education.

Trent, S.C., Artiles, A.J. & Englert, C.S. (1998). From deficit thinking to social constructivism: A review of theory, research and practice in special education. *Review of Research in Education*, 23:277-307.

Tuomainen, J., Palonen, T. & Hakkarainen, K. (2010). A special education teacher's networks: A Finnish case. *International Journal of Special Education*, 25(1):46-58.

Tuomi, I. (1999). Hierarchy for knowledge management and organisation management. *Journal of Management Information Systems*, 16:103-417.

UNESCO-IBE (United Nations Educational, Scientific and Cultural Organisation, International Bureau of Education). (2009). *Training tools for curriculum development: A worldwide resource pack*. Geneva: UNESCO-IBE.

UNESCO-IBE (United Nations Educational, Scientific and Cultural Organisation, International Bureau of Education). (2008). *Conclusions and recommendations of the 48th Session of the International Conference on Education (ED/BIE/CONFINTED 48/5)*. Geneva: UNESCO-IBE.

UNESCO. (1994). *The Salamanca Statements and framework on special needs education*. Paris: UNESCO.

UNESCO. (2002). Retrieved from http://portal.unesco.org/education/en//ev.php-URL_ID=7501&URL_DO=DO_TOPIC 2011/05/23.

- UNESCO. (2009). *Policy guidelines in inclusion in education*. Paris: UNESCO.
- UNESCO. (2010). *Education for all: Global Monitoring Report 2010: Reaching the marginalized*. Paris: UNESCO.
- UNESCO. (2011). *Education for all: Global Monitoring Report*. Paris: UNESCO.
- UNESCO. (2011). *Inclusive education*. Online. Available at: <http://www.unesco.org/en/inclusive-education/> (accessed 07 April 2014).
- United Nations Convention on the Rights of Persons with Disabilities, Conference of States Parties to the Convention on the Rights of Persons with Disabilities, Seventh session. (2014). Youth with disabilities.
- Van Beveren, J. (2002). A model of knowledge acquisition that refocuses knowledge. *Journal of Knowledge Management*, 6(1):18-23.
- Van der Berg, S. (2007). Apartheid's enduring legacy: Inequalities in education. *Journal of African Economies*, 16(5):849-880.
- Van der Molen, K. (2009). Developing a coaching model as an approach to improve service delivery in the public sector. Unpublished thesis for Master of Arts. Stellenbosch: Stellenbosch University.
- Van Veen, K., Zwart, R. & Meirink, J. (2012). What makes teacher professional development effective. In M. Kooy & K. van Veen (eds.). *Teacher learning that matters. International perspective* (pp. 3- 21). Abingdon: Routledge.
- Venzin, M., Von Krogh, G. & Roos, J. (1998). Future research into knowledge management. In G. von Krogh, J. Roos, & D. Kleine (eds.). *Knowing in firms: Understanding, managing and measuring knowledge* (pp. 26-67). London: SAGE Publications.
- Vestal, W. (2002). Measuring knowledge management. American Productivity and Quality Centre (APQL) (pp. 1-6).
- Voltz, D.L., Brazil, N. & Ford, A. (2001). What matters most in inclusive education. *Intervention in School and Clinic*, 37(1):23-30.
- Vygotsky, L. (1978). Interaction between learning and development. *Readings on the Development of Children*, 23(3):34-41.

- Wah, L.L. (2010). Different strategies for embracing inclusive education: A snapshot of individual cases from three countries. *International Journal of Special Education*, 25(3):30-31.
- Waitoller, F.R. & Artiles, A.J. (2013). A decade of professional development research for inclusive education: A critical review and notes for a research program. *Review of Educational Research*, 83(3):319-356.
- Waitoller, F.R. & Kozleski, E.B. (2013). Working in boundary practice: Identity development and learning in partnership for inclusive education. *Teaching Teacher Education*, 31:35-45.
- Walters, J. & Gerson, H. (2007). Teachers' personal agency: Making sense of slope through additive structures. *Educational Studies in Mathematics*, 65(2):203-233.
- Walton, E. (2010). Getting inclusion right in South Africa. *Intervention in School and Clinic*, 46(4):240-245.
- Walton, E. (2012). Learning support through differentiated teaching and learning. In N. Nel, M. Nel & A. Hugo (eds.). *Learner support in a diverse classroom. A guide for foundation, intermediate and senior phase teachers of language and mathematics* (pp. 117-140). Pretoria: Van Schaik.
- Walton, E. & Nel, N. (2012). What counts as inclusion? *African Education Review*, 9(1):1-26.
- Walton, E. & Rusznyak, L. (2014). Affordances and limitations of a special school practicum as a means to prepare pre-service teachers for inclusive education. *International Journal of Inclusive Education*, 18(9):957-974.
- Walton, E., Nel, N.M., Muller, H. & Lebeloane, O. (2014). 'You can train us until we are blue in our faces, we are still going to struggle': Teacher professional learning in a full-service school, *Education as Change*, 18(2):319-333.
- Watkins, A. & Donnelly, V. (2012). Teacher education for inclusion in Europe. *Future Directions for Inclusive Teacher Education: An International Perspective*, 192.
- Weber, M. (1903-1917/1949). *The Methodology of the Social Sciences*. (E. Shils, H. Finch, Eds., E. Shils, & H. Finch, Trans.) New York: Free Press. P

- Wenger, E. (1998). *Communities of practice: Learning, meaning, and identity.* Cambridge: Cambridge University Press.
- Western Education Department. The Directorate Special Education Needs Information Brochure.
- Wheatley, M.J. (1999). *Leadership and the new science.* Berkley, CA: Publishers Group West.
- Widen-Wulff, G. & Suomi, R. (2007). Utilization of information resources for business success: The knowledge sharing model. *Information Resources Management Journal*, 20(1):46-67.
- Wiig, K.M. (1997). Knowledge management: Where did it come from and where will it go? *Expert Systems with Applications*, 13(1):1-14.
- Wilczenski. F.L. (1993). Changes in attitudes towards mainstreaming among undergraduate education pre-service teachers. *Education Research Quarterly*, 17(1):5-17.
- Wong, J. (2005). Special education in Brunei Darussalam. *Brunei Darussalam Journal of Special Education*, 2:1-15.
- Woolfson, L.M. & Brady, K. (2009). An investigation of factors impacting on mainstream teachers' beliefs about teaching students with disabilities. *Educational Psychology*, 29(20):221-38.
- World Health Organisation. (2011). *World report on disability 2011.* Geneva: WHO Press.
- Wu, J. (2008). On the management based on characteristics of knowledge workers. *Modern Applied Science*, 2(2):51-53.
- York-Barr, J., Ghere, G. & Sommerness, J. (2003). Special educators as teacher leaders in inclusive schools. In V. Gaylord, T. Vandercook & J. York-Barr (eds.). *Impact: Feature issue on revisiting inclusive K-12 education*, 16 (1). Minneapolis: University of Minnesota, Institute on Community Integration.

York-Barr, J., Sommerness, J., Duke, K. & Ghere, G. (2005). Special educators in inclusive education programmes: Reframing their work as teacher leadership. *International Journal of Inclusive Education*, 9(2):193-215.

Zack, M.H. (1999). Developing a knowledge strategy. *California Management Review*, 41(3):125 -145.

APPENDIX A

Ethical Clearance



UNIVERSITEIT•STELLENBOSCH•UNIVERSITY
jou kennisvennoot • your knowledge partner

06 May 2013

Tel.: 021 - 808-9003
Enquiries: Mr. WVA Beukes
Email: wabeukes@sun.ac.za

Reference No. 31/2012

Mr P Dorfling
Dept of Educational Psychology

LETTER OF ETHICS CLEARANCE

With regard to your application with reference number, 31/2012 I would like to inform you that the project, "A knowledge Network Model for supporting learners with disabilities in an Inclusive Education System", was approved on the following proviso's:

The researcher will remain within the procedures and protocols indicated in the proposal, particularly in terms of any undertakings made in terms of the confidentiality of the information gathered.

1. The research will again be submitted for ethical clearance if there is any substantial departure from the existing proposal.
2. The researcher will remain within the parameters of any applicable national legislation, institutional guidelines and scientific standards relevant to the specific field of research.
3. The researcher will consider and implement the foregoing suggestions to lower the ethical risk associated with the research.
4. This ethics clearance is valid for one year from 22 May 2012 – 21 May 2013

We wish you success with your research activities.

Best regards


MR. WA Beukes

REC Coordinator: Research Ethics Committee: Human Research (Humaniora)
Registered with the National Health Research Ethics Council (NHREC): REC-050411-032

APPENDIX A-1

Information Letter

10 June 2013

Dear Mr

PARTICIPATION: EVALUATING A MODEL FOR CONTINUOUS KNOWLEDGE DEVELOPMENT OF TEACHERS IN INCLUSIVE EDUCATION.

I am currently writing a PhD dissertation entitled “A Knowledge Networking Model for Supporting Learners with Disabilities in an Inclusive Education System”. The focus of the study is the development of a model aimed at continuous knowledge development of teachers in inclusive education.

As part of the process, the model must be evaluated by subject experts. I value your knowledge and expertise and would like to request your assistance in this regard. A copy of the model is attached and it would be appreciate if you would peruse the document and then prepare a brief report (format included).

All comments, as well as your participation in this process will be acknowledged in the dissertation. Should you require any further information or explanations please contact me at XXXX or XXXX or at XXXX.

Your assistance is appreciated and your comments and advice is awaited, if possible before 28 June 2013.

Kind regards

PS Dorfling

Researcher

APPENDIX A-2

Informed Consent



UNIVERSITEIT•STELLENBOSCH•UNIVERSITY
jou kennisvennoot • your knowledge partner

STELLENBOSCH UNIVERSITY CONSENT TO PARTICIPATE IN RESEARCH

Knowledge Management in Inclusive Education

You are asked to participate in a research study conducted by P S Dorfling (M Ed), from the Department of Educational Psychology at Stellenbosch University. The results will contribute to a PhD dissertation. You were selected as a possible participant in this study because of your expertise and role in implementing inclusive education in schools.

1. PURPOSE OF THE STUDY

The study has as purpose the development of a model for the self-directed continuous knowledge development of educators in the field of inclusive education in order to optimize the education of learners with disabilities.

2. PROCEDURES

If you volunteer to participate in this study, we would ask you to do the following things:

Survey Questionnaire

You will be asked to complete a knowledge management maturity questionnaire consisting of 22 questions. The completion of the structured questionnaire should take no longer than 15 minutes of your time.

Evaluation of the Model

You will be asked to read the description of the model and then to give your views of the model. The format in which your comments must be recorded will be provided. It is estimated that this process should take approximately 30 minutes to complete.

Focus group interview

You may also be asked to participate in a group interview. During this interview you will be required to share your views on the feasibility, shortcomings and value of the proposed model. The interview should not take longer than 60 minutes.

3. POTENTIAL RISKS AND DISCOMFORTS

There are no risks or discomforts attached to participation other than the time you will spend completing the questionnaire and participating in the interview.

4. POTENTIAL BENEFITS TO PARTICIPANTS AND/OR TO SOCIETY

Your participation in the project could give you an alternative perspective that could enhance and support your efforts to implement inclusive education. The research findings could also enhance educators' knowledge of inclusive education in a time and cost effective manner and then contribute to optimizing education of learners with disabilities.

5. PAYMENT FOR PARTICIPATION

The researcher will not be in the position to afford you any payment for your participation.

6. CONFIDENTIALITY

Any information that is obtained in connection with this study and that can identify you will remain confidential and will be disclosed only with your permission or as required by law. Confidentiality will be maintained by means of – reference to any participant will be done pseudonymously and any markers of identity will be removed. All questionnaires are completed anonymously and are processed together resulting that individual opinions will not be identifiable. Date of the interviews will be analysed to determine themes. Any direct quotations will be selected with care to eliminate the possibility of identifying the person who made the comment. Only I and the supervisors Prof E Swart and Prof E Schwella will have access to the raw data. This will be stored in a lockable cupboard to which only I will have access. All other information will be stored on my personal computer which is password protected and only I have access to.

7. PARTICIPATION AND WITHDRAWAL

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you don't want to answer and still remain in the study. The investigator may withdraw you from this research if circumstances arise which warrant doing so.

8. IDENTIFICATION OF INVESTIGATORS

If you have any questions or concerns about the research, please feel free to contact:

Principal Investigator - P S Dorfling (XXX)

Supervisors- Prof E Swart, University of Stellenbosch, Department Educational Psychology (XXX)

Prof E Schwella, University of Stellenbosch, School of Public Leadership
(XXX)

9. RIGHTS OF RESEARCH PARTICIPANTS

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a research subject, contact Ms Maléne Fouché [mfouche@sun.ac.za; 021 808 4622] at the Division for Research Development.

SIGNATURE OF RESEARCH SUBJECT OR LEGAL REPRESENTATIVE

The information above was described to me by Mr. Piet Dorfling in English and I am in command of this language or it was satisfactorily translated to me. I was given the opportunity to ask questions and these questions were answered to my satisfaction.

I hereby consent voluntarily to participate in this study.

I have been given a copy of this form.

Name of Participant

Signature of Participant

Date

SIGNATURE OF INVESTIGATOR

I declare that I explained the information given in this document to She was encouraged and given ample time to ask me any questions. This conversation was conducted in English and no translator was used.

Signature of Investigator

APPENDIX B-1

Knowledge Management Maturity Assessment Questionnaire (KMMAQ)



UNIVERSITEIT•STELLENBOSCH•UNIVERSITY
jou kennisvennoot • your knowledge partner

Research Questionnaire

Knowledge Management Maturity In Inclusive Education

Researcher - PS Dorfling

June 2013

Knowledge Management Maturity in Inclusive Education Assessment Questionnaire

Questionnaire number (official use)

V1 1

GENERAL INSTRUCTIONS

Please answer all questions from an Inclusive Education perspective.

Please answer the questions by drawing a circle around an appropriate number in a shaded box or by writing your answer in the shaded space provided.

Unless specifically instructed otherwise, please answer ALL questions, one answer per item.

1. What is the **name** of the organization on whose behalf you are answering this Questionnaire?

--	--	--

V2 4

2. What is the **type** of organization being assessed?

Education: Head Office (DoE)	1
Education: Head Office (WCED)	2
Education: Education District (WCED)	3
Education: Education District (Eastern Cape Education Department)	4
Education: School (WCED)	5

V3 6

3. Please specify the **level** of management being assessed?

Operational level (School)	1
Middle management (Education District)	2
Senior management (Head Office)	3

V4 8

SECTION 1 ICT Management in Inclusive Education

Please use the following codes:

1	=	Yes definitely	Y
2	=	Yes, but not significantly	S
3	=	No, but probably within the next 5 years	P
4	=	No	N

- 1.1** To what extent does the organization's Information and Communications Technology (**ICT**) activities comply with the following statements?

		Y	S	P	N	
1	The organization is capable of evaluating an ICT system	1	2	3	4	V5 <input type="text"/> 9
2	The organization is capable of designing an ICT system	1	2	3	4	V6 <input type="text"/> 10
3	The organization is capable of planning an ICT system	1	2	3	4	V7 <input type="text"/> 11
4	The organization has an effective ICT infrastructure	1	2	3	4	V8 <input type="text"/> 12

- 1.2** The organization regards **ICT** and the management thereof as ... (Please mark only **one** answer)

an enabler of knowledge management	1	V9 <input type="text"/> 13
knowledge management	2	

SECTION 2 Information Management in inclusive Education**Please use the code:**

1	=	<i>Yes definitely</i>	Y
2	=	<i>Yes, but not significantly</i>	S
3	=	<i>No, but probably within the next 5 years</i>	P
4	=	<i>No</i>	N

2.1 To what extent does the organization **comply** with the following statements?

		Y	S	P	N	
1	The organization has a clearly defined information management (IM) policy	1	2	3	4	V10 <input type="text"/> 14
2	The organization has a clearly defined information management (IM) strategy	1	2	3	4	V11 <input type="text"/> 15
3	The organization understands which information resources are crucial to inclusive education	1	2	3	4	V12 <input type="text"/> 16
4	It is clear which managers are accountable for information resources	1	2	3	4	V13 <input type="text"/> 17
5	Key information is easily available	1	2	3	4	V14 <input type="text"/> 18
6	All employees are trained to access sources of information relevant to their job	1	2	3	4	V15 <input type="text"/> 19

2.2 Is the organization **proficient** in the following Information Management activities?

		Y	S	P	N	
1	Identification of information needs	1	2	3	4	V16 <input type="text"/> 20
2	Acquisition of information	1	2	3	4	V17 <input type="text"/> 21
3	Information storage	1	2	3	4	V18 <input type="text"/> 22
4	Information distribution	1	2	3	4	V19 <input type="text"/> 23
5	Information retrieval	1	2	3	4	V20 <input type="text"/> 24
6	Information disposal	1	2	3	4	V21 <input type="text"/> 25
7	Protection of information	1	2	3	4	V22 <input type="text"/> 26
8	Determination of the value and cost of information	1	2	3	4	V23 <input type="text"/> 27

2.3 In the organization, the following Information management **tools and services** have been institutionalized:

		Y	S	P	N	
1	Inventory of information entities	1	2	3	4	V24 <input type="text"/> 28
2	Information management systems	1	2	3	4	V25 <input type="text"/> 29
3	Databases	1	2	3	4	V26 <input type="text"/> 30
4	Information service / Library	1	2	3	4	V27 <input type="text"/> 31

- 2.4** The organization regards Information Management (**IM**) as ...
 (Please mark only **one** answer)

a prerequisite for knowledge management	1
knowledge management	2

V28 32

SECTION 3 Formulation of Knowledge management principles, policy and strategy in Inclusive Education

Please use the code:

1	=	Yes definitely	Y
2	=	Yes, but not significantly	S
3	=	No, but probably within the next 5 years	P
4	=	No	N

- 3.1** How would you **rate** the following statements?

			Y	S	P	N	V29 <input type="checkbox"/> 33
			1	2	3	4	
1	The organization is aware of the power vested in knowledge, i.e. knowledge is seen as a strategic resource						
2	Good knowledge management is one of the top five (5) internal priorities of the organization						V30 <input type="checkbox"/> 34
3	The management of knowledge is supplying a direct input to the strategic management process i.e. the Chief Knowledge Officer is an active participant in the formulation of inclusive education strategy						V31 <input type="checkbox"/> 35

- 3.2** Are the following goals important in **motivating** the establishment of knowledge management **practices** in the organization?

			Y	S	P	N	V32 <input type="checkbox"/> 36
			1	2	3	4	
1	Improving work efficiency and/or productivity by producing and sharing knowledge more rapidly within the organization						
2	Decentralization of authority						V33 <input type="checkbox"/> 37
3	Releasing information more rapidly and making it more widely available to staff						V34 <input type="checkbox"/> 38
4	Promoting life-long learning						V35 <input type="checkbox"/> 39
5	Improving transparency						V36 <input type="checkbox"/> 40
6	Improving working relations and trust within the organization						V37 <input type="checkbox"/> 41
7	Making up for loss of knowledge (due to staff turnover, retirements, etc.)						V38 <input type="checkbox"/> 42

Please use the code:

1	=	Yes definitely	Y
2	=	Yes, but not significantly	S
3	=	No, but probably within the next 5 years	P
4	=	No	N

- 3.3** In the organization, the following **initiatives** have been taken to manage knowledge

		Y	S	P	N	
1	There is a conscious decision to invest in knowledge management	1	2	3	4	V39 <input type="text"/> 43
2	It is agreed upon that there is a need for hybrid knowledge management environments, i.e. technology and people	1	2	3	4	V40 <input type="text"/> 44
3	High-ranking knowledge champions are identified	1	2	3	4	V41 <input type="text"/> 45
4	There is a commitment from top management to the establishment of a formal knowledge management function	1	2	3	4	V42 <input type="text"/> 46
5	A decision was taken by top management to judge people according to their ability to share knowledge	1	2	3	4	V43 <input type="text"/> 47
6	A decision was taken by top management to constantly improve knowledge work processes	1	2	3	4	V44 <input type="text"/> 48
7	There is a conscious drive to get all employees involved in knowledge sharing exercises	1	2	3	4	V45 <input type="text"/> 49

- 3.4** To what extent does the organization **comply** with the following statements?

		Y	S	P	N	
1	The organization has a clearly defined knowledge management (KM) policy	1	2	3	4	V46 <input type="text"/> 50
2	The organization has a clearly defined Knowledge Management (KM) strategy	1	2	3	4	V47 <input type="text"/> 51
3	The KM strategy has been communicated widely to staff	1	2	3	4	V48 <input type="text"/> 52

- 3.5** If the organization already has knowledge management (KM) strategy/strategies, which key element does it include? (If the organization **does not have** a KM strategy, please continue with **Question 4** below)

		Yes	No	
1	Information management	1	2	V49 <input type="text"/> 53
2	Information technology aspects	1	2	V50 <input type="text"/> 54
3	Human resources management aspects (incentives, recruitment, training, mentoring, etc.)	1	2	V51 <input type="text"/> 55
4	Organizational aspects (communities of practice, decentralizing authority, networks, etc.)	1	2	V52 <input type="text"/> 56

Section 4 Implementation of Knowledge Management in Inclusive Education

Please use the code:

1	=	Yes definitely	Y
2	=	Yes, but not significantly	S
3	=	No, but probably within the next 5 years	P
4	=	No	N

- 4.1** In the organization, the following **initiatives** have been taken and organizational **arrangements** made.

		Y	S	P	N		
1	Opening up bureaucratic divisions	1	2	3	4	V53	57
2	The creation of a central co-ordinating unit for Knowledge Management	1	2	3	4	V54	58
3	The appointment of a Chief Knowledge Officer (CKO) with executive status	1	2	3	4	V55	59
4	Reorganization of offices (e.g. open plan offices)	1	2	3	4	V56	60
5	Establishment of informal networks (e.g. Communities of practice - groups of practitioners working on the same topic but not on the same project, and regularly sharing knowledge)	1	2	3	4	V57	61
6	Institutionalization of training and mentoring programmes	1	2	3	4	V58	62
7	Communication with stakeholders	1	2	3	4	V59	63
8	Establishment of incentive schemes for knowledge sharing	1	2	3	4	V60	64
9	Communication with support structures	1	2	3	4	V61	65

- 4.2** Which of the following groups has the **overall** responsibility for knowledge management in the organization? (Please mark only **one** answer)

Human resources management team	1	V62	66
Information technology team	2		
Special knowledge management unit	3		
Top managers	4		
Other (Please specify)	5		

- 4.3** In the organization, **staff** members spend an increasing amount of time on the following **activities**:

		Y	S	P	N		
1	Informational meetings	1	2	3	4	V63	67
2	Peer reviewing/quality reviews	1	2	3	4	V64	68
3	Presentations of projects and activities	1	2	3	4	V65	69
4	Information sharing by electronic device (e-mail, etc.)	1	2	3	4	V66	70
5	Building databases	1	2	3	4	V67	71

4.4 In the organization, good work practices have been outlined and updated on a regular basis, in **documents** such as:

		Yes	No	
1	Training manuals	1	2	V68 <input type="checkbox"/> 72
2	Best practices	1	2	V69 <input type="checkbox"/> 73
3	Guidelines	1	2	V70 <input type="checkbox"/> 74

4.5 Which follow-ups are conducted to assess the progress made in **implementing** knowledge management practices in the organization?

		Yes	No	
1	The use of indicators to assess the implementation of knowledge management practices	1	2	V71 <input type="checkbox"/> 75
2	Use of scorecards	1	2	V72 <input type="checkbox"/> 76
3	Written/oral feedback from staff on achievements in knowledge management	1	2	V73 <input type="checkbox"/> 77
4	Comparisons are made between the four levels of the education system (National, Provincial , District and School level)	1	2	V74 <input type="checkbox"/> 78

4.6 Do you consider that the **culture** of the organization has changed, in the following ways:

		Yes	No	
1	Staff now consider that sharing knowledge will be good for their career in the organization	1	2	V75 <input type="checkbox"/> 79
2	Staff spontaneously organize knowledge events such as meeting with staff from other divisions/departments	1	2	V76 <input type="checkbox"/> 80
3	Staff make documents available to others more spontaneously	1	2	V77 <input type="checkbox"/> 81

4.7 Has the organization experienced **difficulties in implementing** knowledge management practices, because of the following factors?

		Yes	No	
1	The organization has put a strong focus on information and communication technology, rather than on people or organizational matters	1	2	V78 <input type="checkbox"/> 82
2	Lack of time or resources to concretely share knowledge on a day-to-day basis	1	2	V79 <input type="checkbox"/> 83
3	Resistance of certain groups of staff	1	2	V80 <input type="checkbox"/> 84
4	Staff do not make documents available to others spontaneously	1	2	V81 <input type="checkbox"/> 85
5	Difficulty in capturing employees' undocumented knowledge (know-how)	1	2	V82 <input type="checkbox"/> 86
6	Concern that other organizations/general public would be able to access sensitive/confidential information	1	2	V83 <input type="checkbox"/> 87
7	Knowledge and information management is not a top priority in the modernization programme of the organization	1	2	V84 <input type="checkbox"/> 88

Section 5: Ubiquitous knowledge in Inclusive Education

Please use the code:

1	=	Yes definitely	Y
2	=	Yes, but not significantly	S
3	=	No, but probably within the next 5 years	P
4	=	No	N

- 5.1** Does the organization increasingly rely on **outside knowledge** coming from the following entities/organizations to carry out its activities?

		Y	S	P	N	
1	Between departments in the organization	1	2	3	4	V85 89
2	Governments Departments	1	2	3	4	V86 90
3	Other Education Departments	1	2	3	4	V87 91
4	Universities/Research centres	1	2	3	4	V88 92
5	NGOs	1	2	3	4	V89 93
6	Parent Organisations	1	2	3	4	V90 94
7	Disability Specific Organisations	1	2	3	4	V91 95
8	Special Schools	1	2	3	4	V92 96
9	Other (please specify)	1	2	3	4	V93 97

- 5.2** Staff is encouraged to take up positions in:

		Y	S	P	N	
1	Other departments in the organization	1	2	3	4	V94 98
2	Governments Departments	1	2	3	4	V95 99
3	Other Education Departments	1	2	3	4	V96 100
4	Universities/Research centres	1	2	3	4	V97 101
5	NGOs	1	2	3	4	V98 102
6	Parent Organisations	1	2	3	4	V99 103
7	Disability Specific Organisations	1	2	3	4	V100 104
8	Special Schools	1	2	3	4	V101 105
9	Others (please specify)	1	2	3	4	V102 106
10	Secondees* from other organizations are frequently accepted (*Secondees: staff who are lent by one organization to another one - remain paid by their parent organization - for a limited amount of time)	1	2	3	4	V103 107

SECTION 6 Assessment of Knowledge Management Growth within Inclusive Education

Please use the code:

1	=	<i>Yes definitely</i>	Y
2	=	<i>Yes, but not significantly</i>	S
3	=	<i>No, but probably within the next 5 years</i>	P
4	=	<i>No</i>	N

6.1	Please reflect on the growth of knowledge management in the organization over the past 5 years	Y	S	P	N
		1	2	3	4

V104 108

Thank you for your time and co-operation

APPENDIX B-2

Scoring - Point allocation to answers of the KMMAQ

Section 1 (20) <u>Section 1.1:</u> Points Allocated Y (1) – Add 4 points S (2) – Add 2 points P (3) – Add 1 point N (4) – No points awarded <u>Section 1.2:</u> Points Allocated (1) – Add 4 points (2) – No points awarded	Section 4 (94) <u>Sections 4.1 and 4.3:</u> Points Allocated Y (1) – Add 4 points S (2) – Add 2 points P (3) – Add 1 point N (4) – No points awarded <u>Section 4.2:</u> Points Allocated (1) – Add 2 points (2) – Add 2 points (3) – Add 2 point (4) – Add 4 points (5) – Add 1 point <u>Section 4.4–4.6:</u> Points Allocated (1) – Add 2 points (2) – No points awarded <u>Section 4.7:</u> Points Allocated (1) – No points awarded (2) – Add 2 points
Section 2 (76) <u>Sections 2.1–2.3:</u> Points Allocated Y (1) – Add 4 points S (2) – Add 2 points P (3) – Add 1 point N (4) – No points awarded <u>Section 2.4:</u> Points Allocated (1) – Add 4 points (2) – No points awarded	<u>Section 4.4–4.6:</u> Points Allocated (1) – Add 2 points (2) – No points awarded <u>Section 4.7:</u> Points Allocated (1) – No points awarded (2) – Add 2 points
Section 3 (88) <u>Section 3.1–3.4:</u> Points Allocated Y (1) – Add 4 points S (2) – Add 2 points P (3) – Add 1 point N (4) – No points awarded <u>Section 3.5:</u> Points Allocated (1) – Add 2 points (2) – No points awarded	Section 5 (76) <u>Section 5.1 and 5.2:</u> Points Allocated Y (1) – Add 4 points S (2) – Add 2 points P (3) – Add 1 point N (4) – No points awarded
Total section 1 – 20 Total section 2 – 76 Total section 3 – 88 Total section 4 – 94 Total section 5 – 76 Total section 6 - 4 Total – 358	Section 6 (4) <u>Section 6.1:</u> Points Allocated Y (1) – Add 4 points S (2) – Add 2 points P (3) – Add 1 point N (4) – No points awarded

APPENDIX B-3

Overview of the scores of the individual participants

	Possible Scores							
	20	76	88	94	76	4	358	100
Participants per Organisation	Section 1: Information and Communications Technology	Section 2: Information Management	Section 3: Formulation of KM principles	Section 4: Implementation of KM	Section 5: Ubiquitous Knowledge	Section 6 : Assessment of KM growth	Total	% use of KM
WCED: Directorate Specialised Educational Support	Actual Score							
Participant 1	18	39	53	53	18	4	185	51.7
Total	18	39	53	53	18	4	185	51.7
Average	18	39	53	53	18	4	185	51.7
%	90	51.3	60.2	56.4	23.8			
% KM implementation	51.7%							
WCED: Education District	Actual Scores							
Participant 1	8	40	34	32	24	4	142	39.7
Participant 2	15	50	74	0	27	4	170	47.5
Participant 3	20	64	60	36	7	4	191	53.4
Participant 4	12	29	53	42	14	0	150	41.9
Participant 5	20	40	14	48	10	0	132	36.9
Total	75	223	235	158	82	12		
Average	15	44.6	47	31.6	16.4	2.4	157	43.9
%	75	58.7	53.4	33.6	21.6	60		
% KM implementation	43.9%							
ECED: Education District	Actual Score							
Participant 1	12	33	41	39	42	2	169	47.2
Participant 2	4	40	29	60	13	0	146	40.7
Total	16	73	70	99	55	2		
Average	8	36.5	35	49.5	27.5	1	157	43.9
%	40	48	39.8	52.7	36.2	25		
% KM implementation	43.9%							

The individual subject experts' evaluation of the use of knowledge management in inclusive education

	Possible Scores									
	20	76	88	94	76	4	358	100		
Participants	Section 1: Information and Communications	Section 2: Information Management	Section 3: Formulation of KM principles	Section 4	Section 5	Section 6	Total	% use of KM		
WCED: Learning Support Teachers Circuit	Actual Score									
Participant 1	11	14	20	25	19	0	89	24.8		
Participant 2	0	1	0	4	12	0	17	04.7		
Participant 3	8	11	26	30	28	2	105	29.3		
Participant 4	8	16	13	17	35	2	91	25.4		
Participant 5	8	12	33	28	33	1	115	32.1		
Total	35	54	92	104	127	5				
Average	7	10.8	18.4	20.8	25.4	1	83.4	23.3		
%	35	14.2	20.9	22.1	33.4	25				
% KM implementation	23.3%									
WCED: Special Needs School as Resource Centre	Actual Scores									
Participant 1	20	76	84	68	30	4	282	78.8		
Participant 2	7	36	74	52	31	4	204	56.9		
Participant 3	11	40	76	48	32	2	209	58.4		
Participant 4	14	31	70	55	46	0	216	60.3		
Total	52	183	304	223	139	10				
Average	13	45.7	76	55.7	34.7	2.5	227.6	63.6		
%	65	60.2	86.4	59.3	45.7	62.5				
% KM implementation	63.6%									

APPENDIX B-4

A summary of the average percentage scored in each question

Analysis of the responses to the Knowledge Management Maturity Assessment Questionnaire

The analysis will be done under the following nine sections, as represented in the Knowledge Management Maturity Assessment Questionnaire: The provincial education departments; the type of education structure within the provincial education department that is being assessed; the level of management positions held by the participants; the Information and Communications Technology (ICT) activities; information management; formulation of knowledge management principles, policy and strategy; implementation of knowledge management; ubiquitous knowledge; and assessment of knowledge management growth

Provincial Education Departments in which the participants are involved with IE:

88% (15) – Western Cape Education Department (WCED);
12% (2) – Eastern Cape Education Department (ECED).

The type of education structures represented by these participants:

6% (1) – Directorate: Inclusive Education (WCED Head Office);
35% (6) – An Education District (WCED);
12% (2) – An Education District (ECED);
47% (7) – Schools (WCED).

The level of management on which the participants function:

47% (8) – Operational level (e.g. teachers in schools);
41% (7) – Middle management (e.g. circuit team leader; institute management and governance manager; head of special learning in a district; senior psychologist in a district; learning support advisor);

21% (2) – Senior management (e.g. director of specialised education in a province; director of an education district).

SECTION 1: ASSESSMENT OF THE INFORMATION AND COMMUNICATIONS TECHNOLOGY (ICT)

1.1 The education system's compliance with the following:

Capability of evaluating an ICT system:

29% (5) – Yes, definitely;
53% (9) – Yes, but not significantly;
21% (2) – No, but probably within the next 5 years;
6% (1) – No.

Deduction: The education department's capability of evaluating an ICT system is questionable.

Capability of designing an ICT system:

35% (6) – Yes, definitely;
29% (5) – Yes, but not significantly;
24% (4) – No, but probably within the next 5 years;
12% (2) – No.

Deduction: The education department's capability of designing an ICT system is questionable.

Capability of planning an ICT system:

35% (6) – Yes, definitely;
41% (7) – Yes, but not significantly;
12% (2) – No, but probably within the next 5 years;
12% (2) – No.

Deduction: The education department's capability of planning its ICT system is questionable.

Effectiveness of the ICT infrastructure:

- 18% (3) – Yes, definitely;
- 59% (10) – Yes, but not significantly;
- 12% (2) – No, but probably within the next 5 years;
- 12% (2) – No.

Deduction: The effectiveness of the education department's ICT infrastructure is questionable.

1.2 The organisation regards ICT and the management thereof as:

- 96% (11) an enabler of knowledge management;
- 31% (5) knowledge management.

Deduction: A third of the participants did not reflect an understanding of the concept *knowledge management*.

SECTION 2: INFORMATION MANAGEMENT

2.1 The education system's compliance with the following statements

Has a clearly defined information management (IM) policy:

- 29% (5) – Yes, definitely;
- 24% (4) – Yes, but not significantly;
- 0% (0) – No, but probably within the next 5 years;
- 47% (8) – No.

Deduction: The education department's policy on IM is not fully communicated with all stakeholders.

Has a clearly defined information management (IM) strategy:

- 12% (2) – Yes, definitely;
- 29% (5) – Yes, but not significantly;
- 29% (5) – No, but probably within the next 5 years;
- 29% (5) – No.

Deduction: The education department's IM strategy is not fully communicated to all stakeholders.

Has an understanding of which information resources are crucial to IE:

- 12% (2) – Yes, definitely;
- 41% (7) – Yes, but not significantly;
- 18% (3) – No, but probably within the next 5 years;
- 29% (5) – No.

Deduction: The education department's understanding of which information resources are crucial to IE is questionable.

It is clear which managers are accountable for information resources:

- 24% (4) – Yes, definitely;
- 29% (5) – Yes, but not significantly;
- 29% (5) – No, but probably within the next 5 years;
- 18% (3) – No.

Deduction: The education department is not effective in communicating to stakeholders who are the managers that are accountable for information resources.

Key information is easily available:

- 29% (5) – Yes, definitely;
- 35% (6) – Yes, but not significantly;
- 24% (4) – No, but probably within the next 5 years;
- 12% (2) – No.

Deduction: The education department's ability to make key information easily available is questionable.

All employees are trained to access sources of information relevant to their jobs:

- 12% (2) – Yes, definitely;
- 47% (8) – Yes, but not significantly;
- 29% (5) – No, but probably within the next 5 years;
- 12% (2) – No.

Deduction: The level of training of employees to access sources of information relevant to their jobs is questionable.

2.2 The education department's proficiency in the following Management activities:

Identification of information needs:

24% (4) – Yes, definitely;
41% (7) – Yes, but not significantly;
12% (2) – No, but probably within the next 5 years;
24% (4) – No.

Deduction: The education department's proficiency in identification of employees' information needs is questionable.

Acquisition of information:

24% (4) – Yes, definitely;
41% (7) – Yes, but not significantly;
12% (2) – No, but probably within the next 5 years;
24% (4) – No.

Deduction: The education department's proficiency in identification of employees' information needs is questionable.

Information storage:

18% (3) – Yes, definitely;
24% (4) – Yes, but not significantly;
41% (7) – No, but probably within the next 5 years;
18% (3) – No.

Deduction: The education department's proficiency in storage of information is highly questionable.

Information distribution

12% (2) – Yes, definitely;
53% (9) – Yes, but not significantly;
18% (3) – No, but probably within the next 5 years;
18% (3) – No.

Deduction: The education department's proficiency in distribution of information is highly questionable.

Information retrieval:

6% (1) – Yes, definitely;
47% (8) – Yes, but not significantly;
29% (5) – No, but probably within the next 5 years;
18% (3) – No.

Deduction: The education department's proficiency in retrieval of information is highly questionable.

Information disposal:

6% (1) – Yes, definitely;
53% (9) – Yes, but not significantly;
24% (4) – No, but probably within the next 5 years;
18% (3) – No.

Deduction: The education department's proficiency in disposal of information is highly questionable.

Protection of information:

18% (3) – Yes, definitely;
47% (8) – Yes, but not significantly;
18% (3) – No, but probably within the next 5 years;
18% (3) – No.

Deduction: The education department's proficiency in distribution of information is highly questionable.

Determination of the value and cost of information:

6% (1) – Yes, definitely;
47% (8) – Yes, but not significantly;
18% (3) – No, but probably within the next 5 years;
18% (3) – No.

Deduction: The education department's proficiency in distribution of information is highly questionable.

2.3 The institutionalisation of the following information management tools and services:

Inventory of information entities:

19% (3) – Yes, definitely;
63% (10) – Yes, but not significantly;
6% (1) – No, but probably within the next 5 years;
13% (2) – No.

Deduction: The institutionalisation of an inventory of information entities in the education department is questionable.

Information management system:

24% (4) – Yes, definitely;
53% (9) – Yes, but not significantly;
18% (3) – No, but probably within the next 5 years;
6% (1) – No.

Deduction: The institutionalisation of an information management system in the education department is questionable.

Database:

18% (3) – Yes, definitely;
59% (10) – Yes, but not significantly;
18% (3) – No, but probably within the next 5 years;
6% (1) – No.

Deduction: The institutionalisation of a database of information entities in the education department is questionable.

Information service/Library:

24% (4) – Yes, definitely;
53% (9) – Yes, but not significantly;
12% (2) – No, but probably within the next 5 years;
12% (2) – No.

Deduction: The institutionalisation of an information service/library of information entities in the education department is questionable.

2.4 The education department regards Information Management as:

59% (10) of the participants regard it as a prerequisite for knowledge management and

41% (7) regards it as knowledge management

SECTION 3: FORMULATION OF KNOWLEDGE MANAGEMENT PRINCIPLES, POLICY AND STRATEGY

3.1 Evaluation of the following statements:

The organisation is aware of the power vested in knowledge, i.e. knowledge is seen as a strategic resource:

59% (10) – Yes, definitely;

12% (2) – Yes, but not significantly;

12% (2) – No, but probably within the next 5 years;

18% (3) – No.

Deduction: Although there is a strong agreement with the value of knowledge, there is also a significant disagreement indicating that value of knowledge is not valued to the full.

Good knowledge management is one of the top five (5) internal priorities of the organisation:

35% (6) – Yes, definitely;

35% (6) – Yes, but not significantly;

18% (3) – No, but probably within the next 5 years;

12% (2) – No.

Deduction: Although there is an acknowledgement that KM is one of the top five priorities, there is also a significant disagreement indicating that the prioritisation of KM is questionable.

The management of knowledge is supplying a direct input to the strategic management process, i.e. the chief knowledge officer is an active participant in the formulation of business strategy:

- 24% (4) – Yes, definitely;
- 24% (4) – Yes, but not significantly;
- 24% (4) – No, but probably within the next 5 years;
- 29% (5) – No.

Deduction: The execution of a core aspect in the knowledge management process is seriously questionable.

3.2 Are the following goals important in motivating the establishment of KM practices in the organisation?

Improving work efficiency and/or productivity by producing and sharing knowledge more rapidly within the organisation:

- 41% (7) – Yes, definitely;
- 29% (5) – Yes, but not significantly;
- 18% (3) – No, but probably within the next 5 years;
- 12% (2) – No.

Deduction: Although there is a strong acknowledgement of the value of this goal, it is also indicated that this goal is not openly sought after in the organisation.

Decentralisation of authority:

- 35% (6) – Yes, definitely;
- 41% (7) – Yes, but not significantly;
- 12% (2) – No, but probably within the next 5 years;
- 12% (2) – No.

Deduction: Although there is a strong acknowledgement of the value of this goal, it is also indicated that it is not openly sought after in the organisation.

Releasing information more rapidly and making it more widely available to staff:

- 47% (8) – Yes, definitely;
- 24% (4) – Yes, but not significantly;

12% (2) – No, but probably within the next 5 years;

18% (3) – No.

Deduction: Although there is a strong acknowledgement of the value of this goal, it is also indicated that this goal is not openly sought after in the organisation.

Promoting lifelong learning:

35% (6) – Yes, definitely;

41% (7) – Yes, but not significantly;

18% (3) – No, but probably within the next 5 years;

6% (1) – No.

Deduction: Although there is a strong acknowledgement of the value of this goal, it is also indicated that this goal is not openly sought after in the organisation.

Improving transparency:

41% (7) – Yes, definitely;

35% (6) – Yes, but not significantly;

12% (2) – No, but probably within the next 5 years;

12% (2) – No.

Deduction: Although there is a strong acknowledgement of the value of this goal, it is also indicated that it is not openly sought after in the organisation.

Improving working relations and trust within the organisation:

29% (5) – Yes, definitely;

35% (6) – Yes, but not significantly;

18% (3) – No, but probably within the next 5 years;

18% (3) – No.

Deduction: Although there is an acknowledgement of the value of this goal, it is also indicated that this goal is not openly sought after in the organisation.

Making up for loss of knowledge (due to staff turnover, retirement, etc.):

24% (4) – Yes, definitely;

35% (6) – Yes, but not significantly;

24% (4) – No, but probably within the next 5 years;

18% (3) – No.

Deduction: Although there is a strong acknowledgement of the value of this goal, it is also indicated that this goal is not openly sought after in the organisation.

3.3 In the organisation, the following initiatives have been taken to manage knowledge:

There is a conscious decision to invest in knowledge management:

59% (10) – Yes, definitely;
12% (2) – Yes, but not significantly;
12% (2) – No, but probably within the next 5 years;
18% (3) – No.

Deduction: Although there is a strong agreement that this initiative has been taken, it is also indicated that it is not openly sought after in the organisation.

It is agreed upon that there is a need for hybrid KM environment, i.e. technology and people:

41% (7) – Yes, definitely;
24% (4) – Yes, but not significantly;
29% (5) – No, but probably within the next 5 years;
6% (1) – No.

Deduction: Although there is a strong acknowledgement of this initiative, it is also indicated that it is not openly sought after in the organisation.

High-ranking knowledge champions are identified:

29% (5) – Yes, definitely;
35% (6) – Yes, but not significantly;
29% (5) – No, but probably within the next 5 years;
6% (1) – No.

Deduction: Although there is an acknowledgement of this initiative, it is also strongly indicated that it is not openly sought after in the organisation.

There is a commitment from top management to the establishment of a formal knowledge management function:

31% (5) – Yes, definitely;

25% (4) – Yes, but not significantly;

6% (1) – No, but probably within the next 5 years;

38% (6) – No

Deduction: Although there is an acknowledgement of this initiative, it is also very strongly indicated that it is not openly sought after in the organisation.

A decision was taken by top management to judge people according to their ability to share knowledge:

24% (4) – Yes, definitely;

18% (3) – Yes, but not significantly;

24% (4) – No, but probably within the next 5 years;

35% (6) – No.

Deduction: Although there is an acknowledgement of this initiative, it is also strongly indicated that it is not openly sought-after in the organisation.

A decision was taken by top management to constantly improve knowledge work processes:

35% (6) – Yes, definitely;

18% (3) – Yes, but not significantly;

29% (5) – No, but probably within the next 5 years;

18% (3) – No.

Deduction: Although there is an acknowledgement of this initiative, it is also strongly indicated that it is not openly sought after in the organisation.

There is a conscious drive to get all employees involved in knowledge-sharing exercises:

29% (5) – Yes, definitely;

18% (3) – Yes, but not significantly;

24% (4) – No, but probably within the next 5 years;

29% (5) – No.

Deduction: Although there is an acknowledgement of this initiative, it is also very strongly indicated that it is not openly sought after in the organisation.

3.4 To what extent does the organisation comply with the following statements?

The organisation has a clearly defined MK policy:

24% (4) – Yes, definitely;
24% (4) – Yes, but not significantly;
6% (1) – No, but probably within the next 5 years;
47% (8) – No.

Deduction: Although there is an acknowledgement of compliance with this statement, it is also very strongly indicated that it is not openly sought after in the organisation.

The organisation has a clearly defined KM strategy:

18% (3) – Yes, definitely;
35% (6) – Yes, but not significantly;
6% (1) – No, but probably within the next 5 years;
41% (7) – No.

Deduction: Although there is an acknowledgement of compliance with this statement, it is also very strongly indicated that it is not openly sought after in the organisation.

The KM strategy has been communicated widely to staff:

12% (2) – Yes, definitely;
35% (6) – Yes, but not significantly;
12% (2) – No, but probably within the next 5 years;
41% (7) – No.

Deduction: Although there is an acknowledgement of compliance with this statement, it is also very strongly indicated that it is not openly sought after in the organisation.

3.5 If the organisation already has a KM strategy/strategies, which key elements does it include? (If the organisation does not have a KM strategy, please continue with Question 4 below.)

Information management:

57% (8) – Yes definitely;

7% (1) – Yes, but not significantly;

36% (5) – No

Deduction: Although there is a strong acknowledgement that information management is included, it is also very strongly indicated that it is not openly sought after in the organisation. Furthermore, three (3) candidates did not answer this section, thus indicating that they do not perceive the education department to have a KM Strategy.

Information technology aspects:

57% (8) – Yes, definitely;

7% (1) – Yes, but not significantly;

36% (5) – No.

Deduction: Although there is a strong acknowledgement that information management is included, it is also very strongly indicated that it is not openly sought after in the organisation. Furthermore, three (3) candidates did not answer this section, thus indicating that they do not perceive the education department to have a KM Strategy.

Human resources management aspects (e.g. incentives, recruitment, training and mentoring):

57% (8) – Yes, definitely;

14% (2) – Yes, but not significantly;

36% (5) – No.

Deduction: Although there is a strong acknowledgement that information management is included, it is also very strongly indicated that it is not openly sought after in the organisation. Furthermore, two (2) candidates did not answer this section, thus indicating that they do not perceive the education department to have a KM Strategy.

Organisational aspects (e.g. communities of practice, decentralised authority and networks):

- 46% (6) – Yes, definitely;
15% (2) – Yes, but not significantly;
38% (5) – No.

Deduction: Although there is a strong acknowledgement that information management is included, it is also very strongly indicated that it is not openly sought after in the organisation. Furthermore, four (4) candidates did not answer this section, thus indicating that they do not perceive the education department to have a KM Strategy.

SECTION 4: IMPLEMENTATION OF KNOWLEDGE MANAGEMENT

4.1 In the organisation, the following initiatives have been taken and organisational arrangements made:

Opening up bureaucratic divisions:

- 38% (6) – Yes, definitely;
13% (2) – Yes, but not significantly;
13% (2) – No, but probably within the next 5 years;
38% (6) – No.

Deduction: Although there is an acknowledgement that bureaucratic divisions have opened up, it is also very strongly indicated that it has not taken place at all.

The creation of a central co-ordinating unit for knowledge management:

- 27% (4) – Yes, definitely;
13% (2) – Yes, but not significantly;
20% (3) – No, but probably within the next 5 years;
40% (6) – No.

Deduction: Although there is an acknowledgement that a central co-ordinating unit for knowledge management has been created, it is also very strongly indicated that it has not taken place at all.

The appointment of a Chief Knowledge Officer (CKO) with executive status:

19% (3) – Yes, definitely;
19% (3) – Yes, but not significantly;
19% (3) – No, but probably within the next 5 years;
44% (7) – No.

Deduction: Although there is an acknowledgement that a Chief Knowledge Officer (CKO) with executive status has been appointed, it is also very strongly indicated that it has not taken place at all.

Reorganisation of offices (e.g. open plan offices)

27% (4) – Yes, definitely;
7% (1) – Yes, but not significantly;
20% (3) – No, but probably within the next 5 years;
47% (7) – No.

Deduction: Although there is an acknowledgement that offices have been reorganised, it is also very strongly indicated that it has not taken place at all.

Establishment of informal networks (e.g. communities of practice):

31% (5) – Yes, definitely;
19% (3) – Yes, but not significantly;
13% (2) – No, but probably within the next 5 years;
38% (6) – No.

Deduction: Although there is an acknowledgement that informal networks have been established, it is also very strongly indicated that it has not taken place at all.

Institutionalisation of training and mentoring programmes:

25% (4) – Yes definitely;
25% (4) – Yes, but not significantly;
19% (3) – No, but probably within the next 5 years;
31% (5) – No

Deduction: Although there is an acknowledgement that training and mentoring programmes have been institutionalised, it is also very strongly indicated that it has not taken place at all.

Communication with customers:

19% (3) – Yes, definitely;
38% (6) – Yes, but not significantly;
6% (1) – No, but probably within the next 5 years;
38% (6) – No.

Deduction: Although there is an acknowledgement that communication with customers does take place, it is also strongly indicated that it has not taken place at all.

Establishment of incentive schemes for knowledge sharing:

6% (1) – Yes, definitely;
19% (3) – Yes, but not significantly;
13% (2) – No, but probably within the next 5 years;
63% (10) – No.

Deduction: Although there is an acknowledgement that incentive schemes for knowledge sharing have been established, it is also very strongly indicated that it has not taken place at all.

Communication with suppliers:

19% (3) – Yes, definitely;
25% (4) – Yes, but not significantly;
19% (3) – No, but probably within the next 5 years;
38% (6) – No.

Deduction: Although there is an acknowledgement that communication with suppliers does take place, it is also very strongly indicated that it has not taken place at all.

4.2 Which of the following groups has the overall responsibility for KM in the organisation? (Please mark only one answer.)

7% (1) – indicated that it was the human resource management team;
7% (1) – indicated that it was the information technology team;
27% (4) – indicated that it was the special knowledge management unit;
60% (9) – indicated that it was the top managers.

Deduction: A significant number of participants understood that top managers have the overall responsibility for KM in the organisation, but an alarmingly high percentage did not grasp that KM is a priority function of top managers.

4.3 In the organisation, staff members spend an increasing amount of time on the following activities:

Information meetings:

- 27% (3) – Yes, definitely;
- 53% (8) – Yes, but not significantly;
- 7% (1) – No, but probably within the next 5 years;
- 13% (2) – No.

Deduction: There is a strong indication that staff spend an increasing amount of time on information meetings; however, it is also indicated, though to a lesser degree, that this is not the case.

Peer reviewing/quality reviews:

- 0% (0) – Yes, definitely;
- 79% (11) – Yes, but not significantly;
- 7% (1) – No, but probably within the next 5 years;
- 14% (2) – No.

Deduction: This is not an activity that is fully practiced in the organisation.

Presentation of projects and activities:

- 19% (3) – Yes, definitely;
- 69% (11) – Yes, but not significantly;
- 6% (1) – No, but probably within the next 5 years;
- 6% (1) – No.

Deduction: There is a strong indication that staff spend an increasing amount of time on presentation of projects and activities; however, it is also indicated to a lesser degree that this is not the case.

Information sharing by electronic devices (e.g. email):

20% (3) – Yes, definitely;
53% (8) – Yes, but not significantly;
20% (3) – No, but probably within the next 5 years;
7% (1) – No.

Deduction: There is a strong indication that staff spend an increasing amount of time-sharing information by means of electronic devices; however, it is also indicated, though to a lesser degree, that this is not the case.

Building databases:

7% (1) – Yes, definitely;
80% (12) – Yes, but not significantly;
0% (0) – No, but probably within the next 5 years;
13% (2) – No.

Deduction: There is a strong indication that staff spend an increasing amount of time building databases; however, it is not significant. It is also indicated, though to a lesser degree, that this is not the case.

4.4 In the organisation, good work practices have been outlined and updated on a regular basis, in documents such as:

Training manuals:

53% (8) – Yes;
47% (7) – No.

Deduction: There is a strong indication that good work practices have been outlined and updated on a regular basis in training manuals; however, an almost equal number of participants have indicated that this is not the case.

Best practices:

40% (6) – Yes;
60% (9) – No.

Deduction: There is an indication that good work practices have been outlined and updated on a regular basis in best practice manuals; however, a significant number of participants have indicated that this is not the case.

Guidelines

47% (7) – Yes;

53% (8) – No.

Deduction: There is a strong indication that good work practices have been outlined and updated on a regular basis in guidelines; however, an almost equal number of participants have indicated that this is not the case.

4.5 Which follow-ups are conducted to access the progress made in implementing KM practices in the organisation?

The use of indicators to assess the implementation of KM practices:

47% (7) – Yes;

53% (8) – No.

Deduction: There is an indication that indicators are used to assess the implementation of KM practices; however, an equal number of participants have indicated that this is not the case.

Use of scorecards

20% (3) – Yes;

80% (12) – No.

Deduction: There is an indication that scorecards are used to assess the implementation of KM practices; however, a significant number of participants have indicated that this is not the case.

Written/Oral feedback from staff on achievements in KM:

53% (8) – Yes;

47% (7) – No.

Deduction: There is a strong indication that written/oral feedback from staff on achievements in KM is in use; however, an almost equal number of participants have indicated that this is not the case.

Comparisons are made between the organisation and other organisations in the same industry:

50% (8) – Yes;

50% (8) – No.

Deduction: There is a strong indication that comparisons are made between the organisation and other organisations in the same industry; however, an equal number of participants have indicated that this is not the case.

4.6 Do you consider that the culture of the organisation has changed in the following ways?

Staff now consider that the sharing of knowledge will be good for their career in the organisation:

69% (11) – Yes;

31% (5) – No.

Deduction: There is a strong indication that staff now consider that the sharing of knowledge will be good for their career in the organisation; however, a number of participants have indicated that this is not the case.

Staff spontaneously organise knowledge events such as meetings with staff from other divisions/departments.

53% (8) – Yes;

47% (7) – No.

Deduction: There is an indication that staff spontaneously organise knowledge events such as meetings with staff from other divisions/departments; however, an equal number of participants have indicated that this is not the case.

Staff make documents available to others more spontaneously

56% (9) – Yes;

44% () – No.

Deduction: There is a strong indication that staff make documents available to others more easily; however, a significant number of participants have indicated that this is not the case.

4.7 Has the organisation experienced difficulties in implementing KM practices because of the following factors?

The organisation has put a strong focus on information and communication technology, rather than on people or organisational matters:

60% (9) – Yes;

40% (6) – No.

Deduction: There is a strong indication that the organisation experienced difficulties in implementing KM practices, because they have put a strong focus on information and communication technology, rather than on people or organisational matters; however, a significant number of participants have indicated that this is not the case.

Lack of time or resources to concretely share knowledge on a day-to-day basis:

100% (14) – Yes;

0% (0) – No.

Deduction: There is a very strong indication that the organisation experienced difficulties in implementing KM practices, because of a lack of time or resources to concretely share knowledge on a day-to-day basis.

Resistance by certain groups of staff:

75% (12) – Yes;

25% (4) – No.

Deduction: There is a very strong indication that the organisation experienced difficulties in implementing KM practices due to resistance by certain groups of staff; however, a number of participants have indicated that this is not the case.

Staff do not make documents available to others easily:

86% (14) – Yes;

13% (2) – No.

Deduction: There is a very strong indication that the organisation experienced difficulties in implementing KM practices due to the fact that staff do not make documents available to others easily; however, a small number of participants have indicated that this is not the case.

Difficulty in capturing employee's undocumented knowledge (know-how):

80% (12) – Yes;

20% (2) – No.

Deduction: There is a very strong indication that the organisation experienced difficulties in implementing KM practices due to the fact that it is very difficult to capture employees' undocumented knowledge (know-how); however, a small number of participants have indicated that this is not the case.

Concern that other organisations/general public would be able to access sensitive/confidential information:

57% (9) – Yes;

44% (7) – No.

Deduction: There is a very strong indication that the organisation experienced difficulties in implementing KM practices due to the fact that there is a concern that other organisations/the general public would be able to access sensitive/confidential information; however, a significant number of participants have indicated that this is not the case.

Knowledge and information management is not a top priority in the modernisation programme of the organisation:

62% (10) – Yes;

38% (6) – No.

Deduction: There is a very strong indication that the organisation experienced difficulties in implementing KM practices due to the fact that knowledge and information management is not a top priority in the modernisation programme of the organisation; however, a significant number of participants have indicated that this is not the case.

SECTION 5: UBIQUITOUS KNOWLEDGE

5.1 Does the organisation increasingly rely on outside knowledge coming from the following entities/organisations to carry out its activities?

Between departments in the organisation:

35% (6) – Yes, definitely;
41% (7) – Yes, but not significantly;
12% (2) – No, but probably within the next 5 years;
12% (2) – No.

Deduction: There is a strong indication that the organisation increasingly relies on knowledge coming from interdepartmental cooperation; however, it is also indicated to a lesser degree that this is not the case.

Local Government:

18% (3) – Yes, definitely;
41% (7) – Yes, but not significantly;
24% (4) – No, but probably within the next 5 years;
18% (3) – No.

Deduction: There is an indication that the organisation increasingly relies on knowledge coming from local government; however, there is a significant indication that this is not the case.

Peer organisations:

6% (1) – Yes, definitely;
41% (7) – Yes, but not significantly;
29% (5) – No, but probably within the next 5 years;
24% (4) – No.

Deduction: There is an indication that the organisation increasingly relies on knowledge coming from peer organisations; however, there is a significant indication that this is not the case.

Universities/Research centres:

12% (2) – Yes, definitely;
65% (8) – Yes, but not significantly;
18% (3) – No, but probably within the next 5 years;
6% (1) – No.

Deduction: There is an indication that the organisation increasingly relies on knowledge coming from universities/research centres; however, there is a significant indication that this is not the case.

Supplier organisations:

12% (2) – Yes, definitely;
47% (8) – Yes, but not significantly;
18% (3) – No, but probably within the next 5 years;
24% (4) – No.

Deduction: There is an indication that the organisation increasingly relies on knowledge coming from suppliers; however, there is a significant indication that this is not the case.

Customer organisations:

6% (1) – Yes, definitely;
41% (7) – Yes, but not significantly;
12% (2) – No, but probably within the next 5 years;
35% (6) – No.

Deduction: There is an indication that the organisation increasingly relies on knowledge coming from customer organisations; however, there is a significant indication that this is not the case.

Consulting firms:

24% (4) – Yes, definitely;
41% (7) – Yes, but not significantly;
24% (4) – No, but probably within the next 5 years;
12% (2) – No.

Deduction: There is an indication that the organisation increasingly relies on knowledge coming from consulting firms; however, there is a significant indication that this is not the case.

Trade unions:

31% (5) – Yes, definitely;
50% (8) – Yes, but not significantly;
6% (1) – No, but probably within the next 5 years;
13% () – No.

Deduction: There is an indication that the organisation increasingly relies on knowledge coming from trade unions; however, there is an indication that this is not the case.

Other:

- 10% (1) – Yes, definitely;
- 20% (2) – Yes, but not significantly;
- 20% (2) – No, but probably within the next 5 years;
- 50% (5) – No.

Deduction: There is an indication that the organisation increasingly relies on knowledge coming from other sources than those indicated above; however, there is a significant indication that this is not the case.

5.2 Staff are encouraged to take up positions in:

Other departments in the organisation:

- 29% (5) – Yes, definitely;
- 24% (4) – Yes, but not significantly;
- 24% (4) – No, but probably within the next 5 years;
- 24% (4) – No.

Deduction: There is an indication that the organisation increasingly relies on knowledge coming from other sources by encouraging its staff to take up positions in other departments in the organisation; however, there is a significant indication that this is not the case.

Local Government:

- 6% (1) – Yes definitely;
- 25% (4) – Yes, but not significantly;
- 25% (4) – No, but probably within the next 5 years;
- 44% (7) – No

Deduction: There is an indication that the organisation increasingly relies on knowledge coming from other sources by encouraging its staff to take up positions in local government; however, there is a significant indication that this is not the case.

Peer organisations:

13% (2) – Yes, definitely;
31% (5) – Yes, but not significantly;
19% (3) – No, but probably within the next 5 years;
38% (6) – No.

Deduction: There is an indication that the organisation increasingly relies on knowledge coming from other sources by encouraging its staff to take up positions in peer organisations; however, there is a significant indication that this is not the case.

Universities/Research centres:

24% (4) – Yes, definitely;
29% (5) – Yes, but not significantly;
24% (4) – No, but probably within the next 5 years;
24% (4) – No.

Deduction: There is an indication that the organisation increasingly relies on knowledge coming from other sources by encouraging its staff to take up positions in universities/research centres; however, there is a significant indication that this is not the case.

Supplier organisations:

6% (1) – Yes, definitely;
29% (5) – Yes, but not significantly;
24% (4) – No, but probably within the next 5 years;
24% (4) – No.

Deduction: There is an indication that the organisation increasingly relies on knowledge coming from other sources by encouraging its staff to take up positions in supplier organisations; however, there is a significant indication that this is not the case.

Customer organisations:

0% (0) – Yes, definitely;
31% (5) – Yes, but not significantly;
25% (4) – No, but probably within the next 5 years;
44% (7) – No.

Deduction: There is an indication that the organisation increasingly relies on knowledge coming from other sources by encouraging its staff to take up positions in customer organisations; however, there is a significant indication that this is not the case.

Consulting firms:

6% (1) – Yes, definitely;
59% (10) – Yes, but not significantly;
0% (0) – No, but probably within the next 5 years;
35% (6) – No.

Deduction: There is an indication that the organisation increasingly relies on knowledge coming from other sources by encouraging its staff to take up positions in consulting firms; however, there is a significant indication that this is not the case.

Trade unions:

18% (3) – Yes, definitely;
47% (8) – Yes, but not significantly;
6% (1) – No, but probably within the next 5 years;
29% (5) – No.

Deduction: There is an indication that the organisation increasingly relies on knowledge coming from other sources by encouraging its staff to take up positions in trade unions; however, there is a significant indication that this is not the case.

Other:

9% (1) – Yes, definitely;
21% (3) – Yes, but not significantly;
29% (4) – No, but probably within the next 5 years;
43% (6) – No.

Deduction: There is an indication that the organisation increasingly relies on knowledge coming from other sources than those indicated above; however, there is a significant indication that this is not the case.

Secondees* from other organisations are frequently accepted (*Secondees: staff who are lent by one organisation to another one – remain paid by their parent organisation – for a limited amount of time.):

- 7% (1) – Yes, definitely;
- 21% (3) – Yes, but not significantly;
- 29% (4) – No, but probably within the next 5 years;
- 43% (6) – No.

Deduction: There is an indication that the organisation increasingly relies on knowledge coming from other sources by making use of Secondees; however, there is a significant indication that this is not the case.

SECTION 6: ASSESSMENT OF KNOWLEDGE MANAGEMENT GROWTH

6.1 Please reflect on the growth of knowledge management in the organisation over the past 5 years.

- 40% (6) – Yes, rapid growth (3+ maturity levels);
- 27% (4) – Yes, but not significantly (1–2 maturity levels);
- 7% (1) – No growth, probably within the next 5 years;
- 27% (4) – No growth – decline in growth.

Deduction: Although there is a strong acknowledgement that knowledge management has grown in the organisation it is also indicated to a significant degree that there was limited or no growth.

APPENDIX C

Questionnaire: A Knowledge Management Model



UNIVERSITEIT•STELLENBOSCH•UNIVERSITY
jou kennisvennoot • your knowledge partner

Subject Experts Evaluation

A KNOWLEDGE MANAGEMENT MODEL TO CAPACITATE TEACHER LEARNING IN AN INCLUSIVE EDUCATION SETTING

Researcher - PS Dorfling

June 2013

Please give your expert opinion of the model with regards to the following:

(Should the spaces provided not be sufficient to record your response to the question please use the back of the page or add additional pages. Use corresponding references).

1. The clarity of the model:

- a. Is the model clear and understandable?

.....

- b. If not, why?

.....

- c. Are there any areas of confusion in the model? Please name them.

.....

- d. Can the model be interpreted differently by different people?

.....

- e. If so, why?

.....

- f. Is there any ambiguous or unclear terminology in the model? Please name them

.....

.....

- g. Please evaluate the clarity of the model by using the continuum below.

(Key: 1= Not clear and 7 = fully understandable)

1	2	3	4	5	6	7
---	---	---	---	---	---	---

2. The degree of comprehensiveness of the model:

- a. Does the model, encompass the necessary requirements for effective continuous knowledge development as a management intervention and as a tool for teachers to enhance their knowledge and skills in the field of teaching children with disabilities?

.....

- b. If not, why, and how could it be improved?

.....

- c. Does the model provide sufficient detail?

.....

d. If not, which particular areas could be expanded upon?

.....

e. Please evaluate the comprehensiveness of the model by using the continuum below

(Key: 1= Not comprehensive enough and 7 = comprehensive enough)

1	2	3	4	5	6	7
---	---	---	---	---	---	---

3. The effectiveness of the model:

a. Do you think that by implementing the model, it will enhance the knowledge and skills of teachers in the field of teaching children with disabilities?

.....

b. If not, why, and how could it be improved?

.....

c. Are the strategies advocated in the model appropriate for ensuring continuous knowledge development of teachers?

.....

d. If not, why, and how could it be improved?

.....

e. Your evaluation of the model's potential to enhance the knowledge and skills development of teachers who teaches learners with disabilities.

(Key: 1= Low and 7 = Very high)

1	2	3	4	5	6	7
---	---	---	---	---	---	---

4. The implement ability of the model:

a. Is the model user-friendly/understandable?

.....

b. If not, why, and how could it be improved?

.....

c. Is this model executable in the education system?

.....

d. If not, why, and how could it be improved?

e. Your evaluation of the implement ability of the model

(Key: 1= Not implement able and 7 = fully implement able)

1	2	3	4	5	6	7
---	---	---	---	---	---	---

5. Any comments about the model.

Will you encourage the use the model?

(Key: 1 = No and 7 = Yes

1	2	3	4	5	6	7
---	---	---	---	---	---	---

Compiled by:

Date: