Examining the use of Systems Thinking Approach to School Development: A Case Study of Five Schools in the Umgungundlovu District

By

Bongani Sibusiso Mchunu

Submitted to the School of Education, University of KwaZulu-Natal in fulfillment of the academic requirements for the degree of Doctor of Philosophy

UNIVERSITY OF KWAZULU-NATAL

December 2015

Durban, South Africa

Supervisor: Dr T.T. Bhengu

DECLARATION OF ORIGINALITY AND STATEMENT BY SUPERVISOR

I, Bongani Sibusiso Mchunu declare that:

(i) The research reported in this thesis, except where otherwise indicated, is my original research.

(ii) This thesis has not been submitted for any degree or examination at any other university.

(iii) This thesis does not contain other person‘s data, pictures, graphs or other information, unless specifically acknowledged as being sourced from other persons.

(iv) This thesis does not contain other persons‘ writing, unless specifically acknowledged as being sourced from other researchers. Where other written sources have been quoted, then:

  a) Their words have been re-written but the general information attributed to them has been referenced:

  b) Where their exact words have been used, their writing has been placed inside quotation marks, and referenced.

(v) The thesis does not contain text, graphics or tables copied and pasted from the Internet, unless specifically acknowledged, and the source being detailed in the thesis and in the references sections.

Signed: …… Date……..

Bongani Sibusiso Mchunu

STATEMENT BY SUPERVISOR

As the Candidate‘s Supervisor, I agree to the submission of this thesis.

Signed: ……. ….. Date……

Doctor T.T. Bhengu.

ABSTRACT

The research aimed at examining the understanding, use of system thinking approach, benefits and challenges thereof. The problem which gave rise to the research was how to formulate a framework that will address the gaps in existing approaches school development. School systems are bound by the hard to change patterns which need to be revisited and looked at from a whole systems perspective. Systems thinking offer the thinking tools to empower the leadership with the capacity to invest in more difficult and more lasting fundamental school development. A systemic view seeks to enhance the ability of principals to shift away from using non-linear and reductionist methods when faced with problematic issues.

A qualitative case study design was deemed appropriate from five purposely selected school principals who were previously exposed to systems thinking. In addition, I drew on a constructivist-interpretative and critical theory paradigm to guide the design. Data was collected from by way of qualitative semi-structured interviews, focus groups and collections of reflections from diaries and journals. The study is constructivist and interpretive in its nature. Findings from data were discussed in terms of emerging themes on understanding, the benefits and challenges of the efficacy of systems thinking to school development. Findings point to basic, simplistic, linear and functional understanding and views on systems thinking. SWOT analysis was solely used as system tool for strategic thinking. Systemic and holistic thinking is observed as of benefit to teaching and learning, curriculum development, continuous professional development, formation of clusters and networks, participation in extra-curricular activities, and infrastructural development and formation of partnerships to handling of social ills. The principals understanding of systems thinking was minimal and limited, however their application of its tenets in practice was of benefit to school development. The use of systems tools is minimal, due to lack of understanding the techniques involved in applying such to practice. Finding also point to lack of sustainability is use of systems theory and lack of engagement in reflective thinking. These findings present evidence that suggests the value of developing a holistic and multi-methodological framework for systemic school development.

The Systemic School Development Framework (SSDF) was formulated to address the identified gaps as a holistic, multi-methodological model. Its assumptions are based on the Soft Systems Methodology (SSM), Systems Dynamics (SD), Viable Systems Methodology (VSM), Critical Systems Heuristics and Systemic Leadership. Its basic principles are systemic reform and upscaling of school development to pervade the three tiers of the system, i.e. province, district and school systems. The structure of the model was explained, and explicit guidelines for operationalizing it in practice were provided. Based on the findings and the construction of the model, a number of recommendations were put forward to guide the implementation, adaptation of the model. The recommendations point to leverage points identified for future research and practice at school, circuit, district and provincial level. It advocates for engineering the systemic structures at the provincial, district and school levels to reconsider systemic leadership as the framework for undergirding the three tiers. In conclusion, this research study contributed to the body of knowledge by examining the efficacy of systems thinking to school development, which until now has not been covered in the existing literature and research. The study culminated in a theoretical model which can be used for systemic and holistic school development. The model is designed to allow adaptation and flexibility given the complexity of contextual factors prevailing in the system. It is an innovative participatory idea considering the reductionist and linear approach which has been a norm in the system. Hopefully, the SSDF model will be tried in practice in a participatory and action learning study for purposes of reflecting on its efficacy, benefits and challenges in implementation.

ETHICAL CLEARANCE APPROVAL LETTER

UNIVERSITY OF
KWAZULU-NATAL
INYUVESI
YAKWAZULU-NATALI

01 December 2014

Mr Bongani Sibusiso Mchunu {912421041}
School of Education Edgewood Campus

Dear Mr Mchunu,

Protocol reference number: HSS/0386/014M
Project title: Examining the use of Systems Thinking Approach to School Development: A case study of five schools in the Umgungundlovu District

Full Approval - Expedited Approval

With regards to your application for ethical clearance received on 08 May 2014. The documents submitted have been accepted by the Humanities & Social Sciences Research Ethics Committee and **FULL APPROVAL** for the protocol has been granted.

Any alteratlon/s to the approved research protocol l.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modrffcation prior to Its implementation, in case you have further queries, please quote the above reference number.

Please note: Research data should be securely stored in the discipline/department for a period of 5 years.

The ethical clearance certificate is only valid for a period of 3 years from the date of issue. Thereafter Recertification must be applied for on an annual basis.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully

Dr Shenuka Singh (Chair)

/ms

DEDICATION

Firstly, I would like to give thanks to the Holy Spirit for wisdom, knowledge and understanding.

I dedicate this to my parents (umaGatsheni noMacingwane) for providing the background and firm foundation. To all those we call iNzalo kaRubeni for your love and support. To my wife Dudu, children (Mfundo, Thandeka and Thando), sisters (Sbongile & Nomusa). I pass the baton to abazukulu nabashana and to the next generation isizwe sikaRubeni

ACKNOWELDGEMENTS

Firstly, I would like to give thanks to the Holy Spirit for wisdom, knowledge and understanding.

I wish to sincerely thank the following, in no particular order of contribution, for the different roles played during this study:

My supervisor, Dr TT Bhengu, for supervising and guiding this work to its logical conclusion. Your supervisory style is hereby acknowledged.

I wish to acknowledge and thank all members of staff from the School of Educational Leadership at University of KwaZulu-Natal, Edgewood Campus.

Dr Vethe, Dr Pillay and Cynthia who took the time to read the thesis and provide a critical analysis.

To my wife Dudu, children Mfundo, Thandeka and Thando, uMangaliso I pass the baton to you.

To co-Pastors, amaBethel, leadership and Body of Christ for words of encouragement.

Umgungundlovu District MANCO and former Vulindlela CMC personnel for the support and encouragement during the study.

ABBREVIATIONS AND ACRONYMS

ACE: SL	Advanced Certificate in Education in School Leadership
ANA	Annual National Assessment
CAPS	Curriculum Assessment Policy
CATWOE	Customers, Actors, Transformation, Worldview, Owners, Environment
CPTD	Continuous Professional Teacher Development
CSH	Critical Systemic Heuristics
CST	Critical Systems Thinking
DAS	Developmental Appraisal System
DBE	Department of Basic Education
DMEDU	District Management and Education Development Unit
DDSP	District Development Support Programme
DoE	Department of Education
EE	Equal Education
EMD	Education Management Development
IQMS	Integrated Quality Management System
LOLT	Language of Learning and Teaching
MANCO	Management Committee
MEDU	Midlands Education Development Unit
MSSI	Mpumalanga Secondary Science Initiative
MSTP	Management Systems Training Project
NCS	National Curriculum Statement
NGO	Non-governmental Organisation
NTA	National Teaching Awards
OD	Organisational Development
PLC	Professional Learning Communities
PMDP	Principal Management Development Programme
PM	Performance Management
QLP	Quality Learning Project
QLTC	Quality of Teaching and Learning Committee
RNCS	Revised National Curriculum Statement
SACE	South African Council of Educators
SASA	South African Schools Act
SD	Systems Dynamics
SDC	School Development Committee
SDPI	School Development Initiative
SDT	School Development Team
SGB	School Governing Body
SMC	School Management Committees
SMT	School Management Team
SSDF	Systemic School Development Framework

SSDP	Soshanguve School development Project
SSM	Soft Systems Methodology
STADE	Systems Thinking Approach to School Development
SWOT	Strengths, Weaknesses, Opportunities and Threat
TESM	Towards Effective School Management
UK	United Kingdom
USA	United States of America
VSM	Viable Systems Model
WSD	Whole School Development
WSE	Whole School Evaluation

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER ONE

ORIENTATION TO THE STUDY

1.1 Introduction

Principal leadership is a demanding responsibility in the 21st century which requires an understanding of the complexities existing in the schooling systems. A new way of thinking needs to be embraced by leadership at all levels of the schooling system in order to realise school development beyond the confines of one school. This new way of thinking demands that leaders engage in sharing the vision and put their intellectual forces together (Fullan, 2010a). Educational researchers and scholars embrace diverse views regarding ways principal's leadership contributes to school development. The 21st century demands that principals learn to meet the diverse challenges which have an impact on school development (Drucker, 1999; Bentley, & Miller, 2003; Drago-Severson, Maslin-Ostrowski & Hoffman, 2012). Given the complex nature of school development, especially as a key responsibility for principals, coming up with systemic frameworks for upscaling education reform is an urgency in the 21st century (Fullan, 2004; 2010; Prain, 2014; Hung, Lee, & Teh, 2015). Legotlo (2104) outlines a wide range of challenges that are faced by the education system in South Africa. Most of the challenges that he elaborated on have to be handled by principals as heads of schools. Scholars have identified different kinds of barriers to upscaling education reform in South African system (Adelman, & Taylor, 2007; Goldman, Mathe, Jacob, Hercules, Amisi, Buthelezi, & Sadan, 2015; Samuels, Taylor, Shepherd, van der Berg, Jacob, Mabogoane, 2015).

There is widespread agreement that principals are indispensable in bringing about sustainable school improvement (Copland, 2003; Hargreaves, & Goodson, 2006; Starr, & White, 2008). Internationally school principals are held accountable for school development in terms of the manner they display their leadership skills and attributes (Leithwood, Day, Harris, Hopkins, 2006; Beatriz, Deborah, & Hunter, 2008; Leithwood, Harris, & Strauss, 2010; Leigh, Sherman, & Clayton, 2011). Policy makers place confidence in principals to lead systemic improvements, hence the emphasis and shift towards capacity building programmes that go with this immense responsibility (Bush, 2008; Macpherson, 2009; Theisohn & Lopes, 2013).

For the past decades of educational reform, not much serious consideration has been put on the principal‘s use of the systems thinking approach to school development. The era of reform has greatly shifted from the past paradigms which accentuated the relationship between principalship and school improvement (Woods, Bennett, Harvey & Wise, 2004; Anderson, 2009; Hoffman, 2009; Harris, 2013). Due to the nature of the complexity of education reform, there is now a growing realisation of the need to understand schools as systems (Fullan, 2007; Moos & Johansson, 2009; Aple, 2013; Barnad, 2013, Bagobiri, Asimiran & Basri, 2015). The co-authors place value on the need for principals to have acquired systems thinking skills and its efficacy for school development. Thornton, Shepperson and Canavero (2007) indicate that there is failure on the side of principals to plan changes that address root problems. Barnad (2103) advocates that systems thinking empower principals with the skills for examining the interrelationship between system components. It also assists the principal to challenge his or her assumptions and beliefs that result in school dysfunctionality.

Siegriest, Green, Brockmeier, Tsemunhu and Pote (2013) renewed the interest of approaching schools from a systems thinking perspective. Masinde and Masinde (2006) proposed a systems thinking approach as a framework to the quality assurance work required in Kenya for higher institutions on the basis of its ability to identify and promote co-ownership by all stakeholders.

It is the intention of this study to examine how principals use systems thinking as an approach in conducting school development. Besides that I am introducing the reader to be acquainted with the concepts that inform the study. As part of the background, I outline the purpose, rationale and method the study will be conducted.

1.2 Background issues

There is a growing realisation of the immense task involved in upscaling education reform. Education is considered to be a complex field which is also dynamic in its nature. School development is also of no exception. There is acknowledgement from many quarters of the complexity of the school system (Bryk, Sebring, Allensworth, Luppsescu & Easton, 2010) Joseph and Reigeluth (2010) are some of the advocates of schools to be regarded as learning organisations (Retna, 2010; Grieves, 2008; Silins, Zarins, Mulford, 2002). The current approaches to education reform lead to a piecemeal and fragmented nature of school

development which fails to handle the complex needs of the 21st century (Plate & Monroe, 2014; Barr, Cross & Dunbar, 2013; Jenkins, 2008).

The principal's understanding of school development cannot be based on the old paradigm which it was underpinned (Davies, & Ellison, 2003). The total quality management framework which underpinned the school development framework has its own weaknesses and shortcomings which cannot match with the turn of events in this twenty first century. The way principals perceive their school development responsibilities is disempowering due to the mindset that is stuck in the old school effectiveness and school improvement orientation. A plethora of approaches to school development are used for purposes of assisting principals to enhance their schools. Murphy (2103) claims that his theories form a background and architecture for school development. Peacock (2013) postulates a transformative approach to school development. Pochart (2012) combined teacher and leadership and professional development as key factors in school improvement. Hermond (2103) poses another critical area of principal professional development, whereby they need to be skilled to work with learners with diverse learning abilities. Coe, Carl and Frick (2010) explored the value of lesson study as an approach to facilitate Continuous Professional Teacher Development (CPTD) in South Africa, which requires of principals to be aware of in order to support curriculum development.

The vast literature school improvement indicates serious gaps ranging from the theoretical framework, application and research findings in terms of the piecemeal nature it is presented (Plate & Monroe, 2014; Barr, Cross & Dunbar, 2013; Jenkins, 2008). The new lens on school development considers the complex, holistic and integrated nature in which schools are perceived by principals which has shifted the frameworks of the schooling system (Durlak, Domitrovich, Weissberg, 2015; Potash & Anderson, 2015; Crich, 2014; Jenkins, 2008; Deming, 2013; Mattier, 2007). Bergman, Powers and Pullen (2010) designed several toolkits for use by principals in foregrounding elementary learning principles. A vast array of handbooks and toolkits have been formulated in order to capacitate principals in asking the right questions (Jenkins, 2008) designing systems (Deming, 2008) and approaching systemic issues (Bayers & Sommers, 2009). Ainscow, Beresford, Harris & Hopkins (2013) formulated handbooks for use by principals based on systems thinking approaches to school improvement. Durlak, Domitorvich & Wiesberg (2105) formulated a systems framework for addressing emotional and social learning, having considered the nature of the complexity of

the issues. The Creative Learning Exchange, which is a newsletter for the Waters Foundation is dedicated to the dynamic nature of issues that need to be understood in the management of schooling issues. Plate and Monroe (2014) present diverse skills for approaching assessment from a systems thinking perspective. Vijay, Vadar, Adkukari, Seshdari & Fullan (2015) address the social problems from a systems thinking orientation as a way of demonstrating this shift in thinking.

In systems thinking the paradigm shifts from focussing on the leadership attributes and forms of leadership theories, due to the recognition of the complex nature of the issues. The critique of school effectiveness was on the reductionist and parochial manner in which schooling was perceived (Beare, & Slaughter, 1994; Beare, 2001).

The Waters Foundation has supported the development and implementation of systems thinking for a number of years in K-12 level schools in the USA (Thornton, Peltier & Perreault, 2010). Hobbs (2012) combined systems thinking, critical thinking and philosophy to underpin a framework for engaging in organisational development. Kendal (2015) advocates systems thinking as one of the ways of looking into the 21st century by the next generation of thinkers. Biggs, Schiitler and Schoon (2015) used systems principles as a foundation for building resilience and sustainability in organisations. They question the kind of mental models that is carried by this generation whether it will be able to assist them in meeting the challenges of the 21st century. Liljenberg (2105) combined the idea of distributed leadership of principals as a way of developing learning schools.

Currently there is broad recognition of the need to upscale the education reform efforts that have been postulated in the past five years. The plethora of reform initiatives in past five years indicate the dire need for moving the thinking of principals to the next level in order to cope with the challenges. Luneberg (2013) sounds critical of the reform efforts, yet there being little evidence of change in our schooling system. Duggart (2008) sounded a warning about the need to prepare principals for the 21st century. In this challenge, he offers a systems thinking approach as one of the ways and means of handling complexities of the 21st century.

The professional development of the current cadre of South African principals was based on reductionist and narrow paradigms, which make them disempowered to face the problematic issues they are faced with in school development. In the current setting South African

education reform initiatives have introduced ranging from curriculum development, professional development, teaching and learning, National goals, Quality of Teaching and Learning Committee (QLTC) to mention a few. Bush (2011) makes a comparison of the English and South African professional development programme for principals. The studies that have been conducted on the principals in terms of the Ace programme indicate that there are shortcomings and weaknesses amongst some of the principals who were trained (Kiggundu &Moorosi, 2012). Kiggundu and Moorosi (2012) discovered that the practice, development and sustainability of the networks were complex. The networking amongst the principals improved their shared learning and support during the course of the programme. However, there was a lack of continuity after the programme was completed by the principals.

Kershav (2012) in his study discovered that principals were faced with challenges of integrating the three key pillars of IQMS. Biggs, Rhodes, Archibald, Kunene, Mutanga, Nkuna, Ocholla and Phadima (2015) outline the challenge that we are faced with of improving our ability to manage complex, and undefined challenges in the 21st century. The co-authors applied systems strategies in their research conducted in South Africa in dealing with complex case studies.

Policy changes in South Africa are cascaded though the principal, who has a role to play in disseminating such to the stakeholders at school. The policies for curriculum development, school development planning and whole school evaluation were placed as the responsibility of the principal to ensure their implementation. With the task placed upon the principal to cascade new policies and departmental initiatives, has resulted in overreliance on the cascade model. The cascade model is underpinned by a deficit model which does not believe in investing in the proper training of principals. The manner in which programmes are presented to schools by school leadership is fragmentary. As a result a number of policies become watered down in the process. Studies report on different experiences which are attached to failed implementation of school development programmes. A report by Ntombela (2009) points to the shortcomings that were experienced in the implementing inclusive education. Other negative reports point to how teachers were told to cascade their two hour training to the next level of colleagues at school (Ntombela, 2009). The continuing anomaly of poor performance in some schools addresses some of the issues as due to poor teacher content knowledge, lack of professionalism and work ethos, lack of community support of schools

and also lack of parental involvement in life of learners (Taylor & Moyana 2005; Khanyisa 2006; Khosa, 2008).

Studies report on a range of issues affecting the schooling system. These cannot be explored further due to the limited nature of this study. Literature draws us to a range of issues which indicative of dysfunctionality in some schools (Taylor & Moyana, 2005; Khosa, 2008; Fleischer & Christie 2004; Christie, 1998). A closer observation of this literature highlights critical areas of school development which are compromised due to poor teacher content knowledge, and lack of professionalism (Taylor & Moyana, 2005; Khosa, 2008; Fleischer & Christie 2004; Christie, 1998). The department of education introduced several initiatives and programmes as a way of trying to alleviate the situation. To cite a few examples, these include Culture of Learning and Teaching System (COLTS), Developmental Appraisal System (DAS), Towards Effective School Management (TESM), Curriculum 2005, Integrated Quality Management System (IQMS), Quality of Learning Teaching Committee, (QLTC) and Continuous Professional Teacher Development (CPTD). All of the above programmes were introduced with good intentions; however the implementation indicates serious flaws. The failure in the implementation of departmental policies points to the lack of co-ordination and integration of the programmes in most of the schools (Mbalati, 2010; Sambumbu, 2010; Kok, Rabe, Swarts, Van der Vyver & Van der Walt, 2010; Mathews, 2011). Two prominent studies that have been conducted on IQMS paint a different picture about the how systems thinking has potential for school development if appropriately implemented (Mchunu, 2006; Mntambo, 2009). The other studies are showing that IQMS is not achieving its aim of being developmental, but is misused as a tool to reward teacher‘s inspite of their poor performance (Ramanarain, 2008; Dhlamini, 2009; Sterling, 2009; Kok, Rabe, Swarts, Van der Vyver & Van der Walt, 2010). A comparison based on these studies based on IQMS, shows different findings. It can be argued that IQMS as an initiative for school development is not a problem; rather it is the way approaches are used for its implementation. It can be argued that the piecemeal and fragmentary manner in which policy initiatives has been implemented is a cause of hindered school development (Taylor & Moyana, 2005; Khosa, 2008; Fleischer & Christie 2004; Christie, 1998). Bertram (1998) critiqued the deficit model in which school development was conducted by NGOs in schools. This study proposes to introduce systems thinking as an approach to bring about sustainable development. The systems thinking approach offers unique way of dealing with problematic

situations and working in complex and messy systems (Flood, 1999; Jackson, 2001; Caulfield & Maj, 2001; Joseph, 2003).

The review of related literature focuses on the efficacies of the system thinking approach and critiques the existing body of knowledge on school improvement and school effectiveness for its linearity and failure to consider local contexts of schools (Vijay et al. 2015; Durlock, Domitrovich, Weissburg, 2105; Crick, 2104; Geller, 2014; Fisher & Frey, 2015). These scholars further argue that there are differences in schools which show that these reforms cannot necessarily be imposed in a blanket way. Systems scholars advocated a developmental, holistic and integrated perspective to school improvement (Matier, 2015; Fullan, 2011; Hopkins, Harris, Stoll, Mackay 2011; Stoll & Mackay, 2010; Senge, 2010; Joseph, 2003). The main argument these scholars pursued call for whole school reform and the exploration of a holistic approach to school development. They propose a system wide education change which needs to move across the province, the district, the circuit and the school from a systems approach (Fullan, 2011; Hopkins, Harris, Stoll, Mackay 2011; Stoll & Mackay, 2010). The soft systems model is recommended to be introduced to dysfunctional schools, especially where there are differences of opinion, conflicts and infighting (Caulfield & Maj, 2001; Liu, Meng, Mingers, Tang &Wang, 2012). Studies conducted in education from the systems thinking perspective brought a new understanding in support school development (Mntambo, 2009; Young, 2009; Mchunu, 2006).

These scholars argue that development needs to be promoted within the organisation through individuals and organisations (Matier, 2007; Senge, 1999; Senge, Ritzer & Goodman, 2004; Sillins, Zarins & Wilford, 2012; Ari & Auria, 2013). These scholars advance the value of the need for organisations to be amenable for learning in order to grow into learning organisations (Silins, Zarins & Mulford, 2002; Giesecke & McNeil, 2004; Seddon & O'Donovan, 2010). Several studies have been conducted based on Senge's ideas on organisational learning and the requirements for principals to be learners in the process (Bhengu, 2014; Moloi, 2010; Grieves, 2008).

Research and literature on organisations puts it clearly that whole school development is a complex process which takes a lot of time (Barnad, 2013; Baruch, 2010). There is more to understanding the implementation of school improvement than what meets the eye. A paradigm shift is needed in terms of understanding school development. The issue of context

particularly in rural and township schools further complicates the matter. Schools can be better understood and approached as systems comprised of conceited elements, which are complex.

There seems to be lack of coherence in most departmental efforts to improve the school system. The political agenda to make an impression for bringing about school reform which is not informed by research and funding for resources to support such are some of the hindrances to sustainable school development (Tuysens & Devos, 2013).

Another angle in the critique of failed initiatives could be attributed to what Senge (2008) ―quick fixes that fail." This points to the long history of chapping and changing that has been experienced in the South African education schooling system. Some of the reported failures can be better explained by using Senge's (2006) language of metaphors. The way school development is conducted can also be attributed to what Senge (2006) calls mental models that are carried by school leadership. Another way of trying to figure out what happens in the schooling system could be better described using Senge's (2006) iceberg tool. Systems language offers a new lens of understanding what causes problems affecting school development (Senge, 1999. The thought of influencing change in leadership of schools regarding the provision of strategic leadership, visionary and missionary goals and capacity to manage the curriculum sounds as a deep change, represented by the lowest layer of Senge's (2008) iceberg. Challenges of various natures require systems thinking which advocates viewing the issue as a whole instead of compartmentalising it (Checkland & Poulter, 2006; Pisapia, 2009).

1.3 Statement of the Problem

The conceptualisation of school development is trapped in the old paradigm of school effectiveness and school improvement, which are underpinned by the positivist views of the machine age. Scholars critique the cascade model used for training as used for upscaling new education reforms (Dichaba, 2013; Dichaba & Mokhele, 2012; HRSS, 2002; Chisholm, 2000). The approaches to teacher professional development are inadequate to deal with the challenges and complex nature in which schools are located (Jansen & Christie, 1999; Taylor & Vinjevold, 1999; Jansen & Taylor, 2003; Ono & Ferreira, 2010; Coe, Carl, & Frick, 2010).

Jansen (2003) critiqued the effective school movement on the basis of what he describes as comparison of inappropriate schools, focus on outcomes at the expense of the process, minimal control of the background characteristics. Studies indicate that several initiatives failed due to the nature in which the provincial and district officials implemented Quality of Learning Teaching Committee (QLTC) (Hlomuka, 2014) and Continuous Professional Teacher Development (CPTD) (Coe, Carl, & Frick, 2010) at school level in a piecemeal and disjointed manner.

Principals are faced with the responsibility of implementing a chronicle of initiatives aimed at improving the quality of teaching and learning. Studies indicate that these initiatives have not produced the significant changes in terms of delivering quality education to learners. Studies have listed some of these initiatives namely, Culture of Learning, Teaching and Service (COLTS) campaign, Whole School Evaluation (WSE), incorporating the Integrated Quality Management System (IQMS), the Development Appraisal System (DAS) and the Advanced Certificate in Education in School Leadership (ACE: SL) (Msila, 2013; Mncube & Harber, 2010; Ngcobo, 2008; Bush, Duku, Glover, Kiggundu, Kola, Msila, & Moorosi, 2007). Scholars cite different categories of challenges that were faced during the implementation of Integrated Quality Management System (IQMS) and Whole School Evaluation (WSE) (Mchunu, 2014; Segoe, 2014; Mazomba, 2013; Hlongwane & Mestry, 2013; Mbulawa, 2012; Mbalathi, 2010; Kok, Rabe, Swarts, van der Vyver, & van der Walt, 2010). Principals are finding it difficult to develop the school improvement plans, a policy document which is critical for school development (van der Voort, & Wood, 2014; Xaba, 2006). Leadership challenges have also been cited as some of the barriers to school improvement (Hlongwane & Mestry, 2013).

Currently there is little information on the application of systems thinking approaches to school development and therefore the research question is: ***How do principals use the systems thinking approach to school development?*** The systems thinking perspective proposes a radical move from these piecemeal approaches used in effectiveness and school improvement studies. Systems thinking perspective is preferred theoretical framework for this study as it provides a shift towards a holistic, integrated, synergistic and developmental approach.

1.4 The Purpose of the study

In this study I will examine how principals use the systems thinking approach in conducting school development. Furthermore, the study examines how principals understand systems thinking as a theoretical framework. In engaging with principals I will examine how they implement systems thinking, and check how it is of benefit and also a challenge in practice. The study is located within an interpretive paradigm, which is based on the assumption that reality is socially constructed, which implies that there varied perceptions of reality as well as its interpretation (Merriman, 2009). In examining the use of systems thinking the aim is to understand its nature and meaning as an approach to school development. Literature reveals the gaps in school effectiveness and school improvement research approaches. Some of these approaches are linked to school development as it is based on the traditional paradigms which seem not able to cope with the complexity of change in the school context. In this study I argue school improvement is stuck in the mechanistic and reductionist paradigm. The principals seem not to be able are unable to manage problematic situations that prevail in the schooling system. The aim of the research is to understand the benefits and challenges in the use of systems thinking approach to the current the school development model.

In this section of the chapter I argue that school development is underpinned on the theoretical frameworks that show the principal unable to manage change. For many principals the idea of school of development is narrowly reduced to the submission of documents as part of malicious compliance. From this point the concept of school development is reduced to a quick fix that fails, for some as a waste of school time. I believe it is not only the principals who have narrow view of school development, but also the district officials who are totally lost as far being able to deal with this phenomenon. Another intended consequence of this thesis, is to develop a model for school development that is framed from a systems perspective.

1.5 Key concepts underpinning the study

Some of the key concepts will be discussed in detail in Chapter Two under literature review and Chapter Three as part of the theoretical framework. This study covers these as some of the concepts for critical analysis namely, systems thinking, reflective practice, school development, systems thinker, systemic leadership, systemic education reform, professional

learning communities, school improvement, school development, systems thinking and systems tools. Systems thinking will be defined from different perspectives, not in a narrow mechanical way.

(i) Systems thinking as a theoretical framework seeks to engage analysis from a holistic perspective. The focus shifts towards how the parts of the systems work together and interrelate with the larger system elements (Senge, 2006; Morgan, 2005; Banathy, 1996). The systems thinking approach contrasts with traditional analysis, which studies systems by breaking them down into their separate elements. Systems thinking can be used in any area of research and has been applied to the study of medical, environmental, political, economic, human resources, and educational systems, among many others (Cabrera, 2006).

(ii) Reflective practice involves thinking about our practice, which enables us to reconsider how we do things, which leads to new and better approaches to our work Different strategies are employed for such, which may include writing about our practice, journaling, using diaries, peer coaching, debriefing, studying articles and books to mention a few (Lambert, 2003).

(iii) Professional development is a wide field which has evolved over a long time to be narrowly confined to a definition. Amongst others it includes a variety of areas which scholars engage in discourse from different angles. Lambert (2003) narrowly included in his scope the professional learning dialogue, mentoring, coaching, use of reflective journals and a number of professional practices.

(iv) The definition of school development that was coined for this study envisages being able to benefit the learners across all the schools in the district. It has to be learner centred. Leadership needs to ensure that it is owned by all stakeholders. It must be based on an effective team based action approach. The assumptions upon which it is based must be on theories of systemic thinking and emancipatory approaches.

(v) A systems thinker by definition are leaders who look beyond limited boundaries, but rather see the big picture of organisational change. System leaders directly spawn and develop other system leaders. Systems thinkers in action actually create the intellectual (ideas) and moral (purpose and social commitment) conditions that increase motivation without sapping energy (Fullan, 2007).

(vi) Systemic leadership encompasses a wide variety of ideas, ways of thinking which tend to characterise this kind of leadership. Scholars come from various lenses in articulating

their thoughts regarding systemic leadership. For some in essence systemic leadership starts from being visionary, and engaging on the organisation as a system to enable appropriate leadership to flourish so that, in turn, the enterprise will be well led (Tate, 2013). The organisation has to be clear about its particular need for leadership and pull a matched response into itself, and not be led by providers' supply. It embraces the novel perspective that leadership is a key resource that needs to be managed. Managing leadership requires pulling on a wide range of levers in the organisation that influence the delivery of appropriate and applied leadership. The organisation is a system to be understood, a powerful force and contributor that can either open or close doors to improved leadership (Taylor, 2013; Cater, Bond & Franey, 2006; Hargreaves & Shirley, 2009; Bolden, Hawkins, Gosling, & Taylor, 2011; Depress, 2013; Fullan, Cuttress & Kilcher, 2009a; Fullan, Cuttress & Kilcher, 2009b; Fullan, 2007; 2010; Ash & D'Auria, 2012).

The approach is not one of seeing ~~u~~se" as being perceived in the total quality management systems approach which is underpinned by control and other perspectives which draw from the industrial mechanical era. For purposes of this study, the concept of _use' is broader than necessarily looking at the application of theory in practice. It is broader than the positivist sense of examining how two variables influence each other. Rather it is an indication that systems thinking plays a broader role, hence the approach has the character of being able to integrate, bring wholeness (holistic), and show the interrelationship and sustainability of the systems thinking theory to understanding phenomena.

The intention of giving a brief background about school effectiveness is initially to show the roots of school development. There are critical gaps that have been identified in the school effectiveness research which are relevant for us in order to understand where we are in terms of the broader education reform. School improvement is also considered as linked to school effectiveness and this study will locate where it is in the broader education reform. There are different perspectives on school effectiveness and school improvement as this will be illustrated in the literature review in the next chapter. The different approaches and model attached to school development will be reviewed broadly in the next chapter. The link will also be illustrated in terms of where we as far as current ideas are from scholars who can be traced to have been making contributions in leading the reform in education. Amongst these

leading scholars are Fullan, Hopkins and Hargreaves to mention a few who made contributions to new ideas regarding school improvement and school development and also the role of leadership.
Senge (1999) has made tremendous contributions to the systems theory, especially when it comes to its use in other disciplines such as education. Banathy (1991) also contributed in her research on the application and understanding of education from a systems thinking perspective.

System thinking offers an opportunity to provide the intellectual integrity and practical application to provide new perspectives on school development. Systems thinking approach examines the areas of school development in working contexts where the soft systems methodology will be applied. Systems thinking approach fosters a collective understanding between the policy implementers and school teachers and provides space for professional support and development during the implementation of the programmes.

At the level of the school another pattern which prevails is that of ~~–s~~hifting the burden" archetype in the way school improvement is implemented. School leadership embarks on short-term, surface-level school improvement planning due to the lack of systems tools for analysing the problematic issues. The school improvement plans are submitted to the district officials as a way of malicious compliance, not as deeply thought out plans working towards engaging with the underlying systemic issues of dsyfunctionality on and poor quality of teaching and learning. Consequently, these contrived efforts do not last as they require less effort on the part of the school leaders to deal with the underlying causes of problematic issues. Systems thinking offers the tools to empower the leadership with the capacity to invest in more difficult and more lasting fundamental school development. This study aims to examine the role of systems thinking in assisting principals to be able to engage critically and robustly in sustained school development.

From the discussion so far it is clear that there is scope to research school development phenomena from a systems perspective. With this in mind I move on to introduce he location of the study, the aims and research questions that guided the study.

1.6 Setting the context of the study: personal account

The background that I have in education spans over thirty years teaching, leadership and management, to inquiry and study in education. When I began my research in teaching practice in 1989 to 1993, I came across the concepts which were fascinating such as reflective practice. I completed a dissertation on based on how teaching practice can be redesigned at the Indumiso College of Education. I was working as a Lecturer in this particular college of education. I moved into principalship in 1993 till 2002, where I experienced working with a Non-governmental Organisation (NGO) that was supporting the school in the implementation of school improvement policies such as i.e. Developmental Appraisal System (DAS). The Midlands Education Unit (MEDU) facilitators were conducting workshops at the school site on school development planning. The teams used to conduct onsite based school development planning facilitation with the whole staff and School governing body. The contribution that these approaches made to the understanding of whole school improvement was so significant for the school staff and School Governing Body (SGB). The approach to school development was so practical and empowering even to the staff and the school governing body. The support in terms of professional development and the understanding of the issues concerning the culture of the school cannot be overemphasized considering that the school was located in an area which was greatly affected by violence in the early 1990s. The whole school approach to improving the school assisted the educators and governors regarding their roles and the contributions that they can make to the school.

From mid-2003 to mid-2102, I was working as superintendent of education whilst supervising 24 schools. I was exposed to the systems thinking approach whilst working with the Towards Effective School Management (TESM), an NGO funded programme which was facilitated to equip superintendents and principals on effective leadership and management. In 1993 the District Management and Education Development Unit (DMEDU) units from the Umgungundlovu Region embarked on a rollout of capacity building for principals on school development planning. The Regional officials conducted workshops for principals on the formulation of school development plans. The officials issued documents which principals were supposed to use as source documents for cascade the model to their staff members and school governing bodies. In 2005 Towards Effective School Management (TESM) an NGO

funded by the Norwegian Embassy, conducted workshops on school development for a selection of Superintendents of Education and principals. The collaboration between the NGO and Graduate School of Business of the University of Natal brought a turning point in my professional development and career. The engagement during the workshop sessions and the research material introduced me to school development from a systems perspective. I joined the University of Natal Graduate School Of Business in 2005 and enrolled for a MComm in Strategic Leadership. At the University of Natal I conducted a MComm study from 2003-2006 entitled *A Systems Approach to the Implementation of Integrated Quality Management System in Vulindlela Circuit: A Study in Reflection in Vulindlela West.*

From mid- 2012 started working at the Umgungundlovu District in Strategic Planning. This is where I am located as I am conducting this study. From the position I where I am leading strategic planning, it is affording me to introduce systems thinking to the District Development Plan. At this point I am passionate about school development and also systems thinking as an approach to any form of context. I reflected on the previous work and the new learning taking into account the possibilities of how systems thinking approach can be used to support school development. This has led me to continue pursuing my research interest in systems thinking as a theoretical framework to school development as the context.

The study will be conducted in the Umgungundlovu District in KwaZulu-Natal. Five schools will be purposively selected to participate in this study. These principals had demonstrated their strong desire to be further exposed and trained in systems thinking approach so that they could continue utilising it in their schools. These principals and their schools are unique in terms of location, size, backgrounds and academic performance. These principals previously worked with the researcher whilst he was a circuit manager, where he introduced the systems thinking approach to the whole circuit for purposes of school development. The principals expressed further interest to be part of the research in order to further advance their knowledge of systems thinking approach and application thereof in school development.

1.7 Rationale and significance of the study

The rationale for this study is underpinned and driven by considerations related to my personal, academic, professional and theoretical issues. First as indicated earlier on, my

background is on working with schools on school development from a systems thinking perspective. This study was premised on the notion that there is not much known about systems thinking as a perspective to school development in South Africa. Furthermore, than are many stereotypes that exist about principals working on school development in located in rural areas. It is important to learn from them - what they understand about the systems thinking approach to school development, their how they implement it, the benefits and challenges that such an approach poses to school development. Second, as indicated earlier on, my immediate experience is in the field of strategic planning from a district to improve schools. Given this new role, I am able to reflect from an outside and morally responsible perspective the principal in their context working towards school development. The literature that is currently available on new ways and ideas emanates from foreign countries where we borrow policies that normally result in education system fixation with implementation of new policies. The study will fulfil the utilitarian value of providing feedback on current policy implementation which may result in the formulation of localised new frameworks for school development. Thirdly, there is limited literature available for policy makers regarding the implementation of school development from a systems theoretical framework. South Africa is lacking on literature that provides an understanding of systems thinking approaches to implementation of policy changes. There is not much focus on managing the implementation of school development. This is founded on the basis that its findings and recommendations may contribute to the addition on new knowledge in current research approaches to school development.

The purpose of this study is to examine the use of the systems thinking approach to school development. Professionals, academics, and research community need to understand not only how principals use systems thinking approach to school development, but also the benefits, challenges that it poses. The principals will also gain an understanding of how they are working towards implementing systems thinking in school development. By examining systems thinking even in the context of schools located in rural areas, this case study could make a unique contribution to the knowledge on school development. While there is literature on school effectiveness, improvement in the traditional ways of thinking, not much has been done to explore the systems approach to school development. Apparently, there does not seem to be much work that has been done that targets principals in rural school contexts and especially on school development from a systems thinking perspective. This

suggests that there is limited theory in this area. This is a vital and fairly unexplored area that I believe may shed some light on a sorely neglected component of the education system. The study provides some insights into the use of systems tools for purposes of school development.

The latest experience I have working as the Umgungundlovu District in Strategic Planning has given me an opportunity to propose to the management of the district changes in our District Improvement Plan and the way we conduct school functionality monitoring. On the 15 November 2013 I presented to the Management Committee (MANCO) a framework for our District Strategic Plan in order to get their inputs and introduced a few concepts on systems thinking. Senge (2000) stresses the importance of systems thinking in education. In my experience as circuit manager I introduced systems thinking in the implementation of IQMS whilst working with principals of schools. The experience ended up being an academic study reflecting on those experiences (Mchunu, 2006). Senge (1990) proposes that people put aside their old ways of thinking (mental models), learn to be open with others (personal mastery), understand how their organisations really work (systems thinking), form a plan everyone can agree on (shared vision), and the work together to achieve that vision (team learning) (Desta, 2009). Thornton, Shepperson & Canavero (2002) argue that systems thinking offers a broad view by exploring program interactions and relationships. The focus of the study is to examine the use of systems thinking approach on school development to school principals who were trained and exposed to this approach in order for them to reflect on their experiences, feelings, challenges they encounter in the schools due to contextual problems in implemented the systems approach.

The study provides benefits for the sampled schools in terms of providing training and further exposure to systems thinking as an approach to school development. It provides a refresher course on what the principals were exposed to whilst working with the researcher and strengthens the research experience. The study recognises the value of ongoing personal development in the context of the recent training that principals were exposed to in October 2013 on Continuing Professional Teacher Development (CPTD) in the school context. This workshop was presented by the Teacher Development sub-directorate in the Umgungundlovu District by means of a cascade model.

In this study the researcher adopted a systemic view assuming that it seeks to enhance the ability of participants to use non-linear methods when faced with problematic issues. The argument is that this will strengthen the capacity of principals who are engaged in continuous school development.

1.8 Objectives of the study

The goal of this study is to examine utilisation of the systems thinking approach by the principals in the context of school development. When departmental initiatives aimed at school improvement are implemented at the school level using the cascade model, this leads to a short circuiting of the information that is supposed to be translated into programmes at the school level due to a number of factors. Amongst others these could be due to the lack of capacity by the principals to lead professional development and training to prepare teachers for new initiatives. The principals as leaders of change and development are expected to create a conducive environment for the implementation of departmental policies and initiatives aimed at school improvement. The assumption that quick fix workshops are assisting the principals to play such key roles is a one of the prevailing fallacies in the education department. This is a cause for serious concern which is a hindrance to school development, when such expectations are placed on principals of schools who fall short of meeting these skills.

A systemic approach to school development offers the needed drive to engage deeply with a number of issues at the school level that may have a negative effect towards learner achievement. The prevailing piecemeal narrow approach towards school improvement renders the school system to be a cause of a lot of wastage in monetary terms considering the number of learners who eventually drop out, leave the school system without any skills to manage and cope in the market world. The deficit cascade model does not answer to some of the prevailing complex issues and challenges that face school leaders on daily basis. The reductionist school improvement planning seems to place so much value on learner achievement that it becomes an end goal with little regard for the process of dealing with other factors contributing towards success. For this reason, this study emphasizes the value of leadership in school taking responsibility for continual learning in order to be able to cope

with the challenging demands of strategic leadership, providing vision and setting goals leading towards sustained school development that goes beyond the surface issues.

The broad goal of examining the utilisation of systems thinking tools by principals in school development needs to be further divided into subsidiary objectives. The other subsidiary objectives for the study that support the main goals are stated as follows, viz.:
Subsidiary objectives:

- To solicit school principals‘ understandings of the systems thinking approach to school development.
- To explore how the school principals implement systems thinking approach in the schools.
- To examine the benefits of the systems thinking approach to school development.
- To examine the challenges of the systems thinking approach to school development.
- To formulate a theoretical framework for systemic school development.

1.9 Questions to be asked

The questions guiding the study emanate from the main question which deals with the use of systems thinking approach to bring about the development of the school. The questions are categorised and stated as follows, viz.:

Main Question:

- How can the systems thinking approach be utilised to bring about school development?

Sub- questions:

- What are the school principals‘ understandings of the systems thinking approach to school development?
- How do school principals implement systems thinking approach in the schools?
- What are the benefits of the systems thinking approach to school development?
- What are the challenges of the systems thinking approach to school development?
- How we can we formulate a theoretical framework for school development?

Research question one is the primary question. However, this question presupposes systems thinking is used in school development. In the body of literature that will be presented in chapter two of this thesis I will make reference to the prevailing thinking on school development. Research question two emanates from the question which proceeds regarding the two concepts systems thinking and school development. It explores the understanding of the phenomena system thinking in terms of its relation to school development. Research question three seeks to answer the practical question regarding the implementation of systems thinking in school development processes. The other subsidiary question number four seeks to examine the benefits that the systems thinking perspective brings to the whole arena of school development. The fifth question assumes that systems thinking is a new perspective which has challenges in the school development context due to the complexities that prevail in the broader school system. The final question aims to develop a theoretical dimension to our understanding of school development that goes beyond the location of the school terrain by locating it within the systems thinking perspective. While developing a theoretical framework will be a contribution to the study, I argue that will emerge from the positioning of the researcher and the responses of the participants. In this section that follows I briefly discuss the research design and the envisaged outline of the study.

1.10 Research methodology and design

The study explored the reality of principals lived experiences whilst reflecting in their contexts and practice implementing systems thinking. A qualitative case study methodology was used in this study to explore the reality of the phenomena as well as describe the lived experiences, thoughts, and feelings of principals in sampled rural schools on the use of systems thinking approach to school development (Cohen, Manion & Morrison, 2000; Heck, 2011; Cohen, Manion & Morrison, 2011). This is a qualitative study taking place in a school setting to develop an understanding of the context and the experiences of the participants. Qualitative studies allow the element of emergence, whereby there is no predetermined path to follow. It is also interpretive, as the researcher will be interpreting the data, describe settings and draw conclusions from the emerging themes in focus group discussions by principals (Rossman & Rallis, 1998, Creswell, 2003). The study is based on constructive and interpretive paradigm. The study sees value in bringing an understanding of examining school development in its context. Purposive sampling was used to select the participants as

there was a specific purpose in mind with the research. The five selected principals are located in five schools within one circuit but may have their own uniqueness. According to Thomas (2011) a multiple-site case study is when a number of cases may be studied jointly in order to investigate a phenomenon, population, or general condition. These principals are part of the Systems Thinking Approach to School Development (STADE) project and they have been exposed to the method. As a result these principals possess the first hand information on how they implement the systems approach, what benefits it hopefully has on school development and what challenges are there in the process of implementation. The selected five schools are located in the rural settings within the Vulindlela Circuit at Umgungundlovu District.

1.11 Data generation and analysis

In order to gain insight into the application of systems thinking, the understanding of systems thinking, the benefits for using this system and the challenges thereof, semi-structured interviews were conducted with principals of the five selected schools. An interview guide was used to conduct semi-structured interviews. Semi-structured interviews allow for probing and clarification of answers and information related to the phenomenon (Maree, 2010; Terre Blanche, Kelly & Durkheim, 2006; Ritchie & Lewis, 2003; Ritchie & Lewis, 2003; Key, 2000; Key, 1997). Therefor these interviews allowed the researcher to establish and explore comprehensive information from participants. To increase the comprehensiveness the interview allowed conversation where necessary. I conducted the interviews, which were recorded to ensure completeness of the information for subsequent analysis of data. Focus discussion groups were held with the participants to gain further information from them in a different setting (Neuman, 2009). Recordings were made of the data that was gathered for transcription. To analyse the data the transcriptions were initially used to determine categories and then documented data were categorised according to these categories. To obtain complete and subtle meanings participants comments were probed.

I also elicited further information from the participants by checking how they used their reflective diaries and journals to record their journey. I gathered data from the reflections of principals reflect on their ideas, insights, experiences and challenges by using the available records of diaries and journals. These reflections promoted more dialogue with the

participants to explore the hidden assumptions, intentions and mental models in order to gain insight to how they applied systems thinking in their different school contexts (Hopkins, 2002). Ethical behaviour refers to awareness that participants have that their privacy and sensitivity would be protected (Henning, Van Rensburg, & Smit, 2004). Participants signed a letter of consent to participate and assurance on anonymity and confidentiality regarding data collected during the interview, focus group and use of reflective diaries and journals. The participants were informed regarding their freedom to withdraw at any stage of the interview, focus discussion group and reflection process on journals and diaries (Hofstee, 2009).

1.12 Theoretical framework

Systems thinking is the theoretical framework for this study. This study assumes that systems thinking as framework carries with it the necessary tools of thinking that can have an influence on the way school development is conceived. Systems thinking is presented as a holistic view which emphasises the interconnectedness and interdependence of the aspects that are considered as elements of school development. To achieve the objective of understanding systems thinking and its use in school development, it would be necessary to present a thorough literature review on these two broad concepts, systems thinking and school development. The latter has its origins in school effectiveness and school improvement as its background. This review will not only critically trace the development of school effectiveness and school improvement and school development, but will also highlight the main features of these developments. The study will accept as a guiding principle the critical value of these developments and their influence in the context of the South African school context.

Senge (1990) attests to the systems thinking as a conceptual framework with a specialised body of knowledge and tools pertaining to its history and development. Soft Systems Methodology is a system of inquiry and action for improving unstructured problem situations where issues of concern are vaguely but not clearly defined (Lucket, 2001; Checkland & Scholes, 1999; Checkland & Poulter, 2006). It provides structure for making sense of difficult problems. As a specialised theoretical framework, system dynamics provides mapping, and modelling of the world for purposes of understanding its dynamics (Barton, Emery, Flood, Selsky, Wolstenholme, 2004). Critical systems thinking is using the systems

concept to construct understanding and appreciation, and also to appreciate the limits to any person‘s thinking, in groups and in organisations (Barton, Emery, Flood, Selsky, & Wolstenholme, 2004). Scholars outline the evolvement of systems thinking over decades to point how it has grown as a field of study (Barton, et al., 2004). Complexity theory introduces a special form of emergence, which is called spontaneous self-organisation. This means that things just spontaneously occur, they are not predictable, and it is not knowable what will happen even in the near future (Barton, et al., 2004, p17). According to Taylor (2013) by systemic leadership is meant to be highly connected to the organisation and focussing on meaning making, facilitating the flow of energy, learning new ways of relating ad influencing organisational learning and developing the capacities across the organisation.

1.13 Research scope and limitations

As a qualitative study it is applicable to five purposively sampled schools in the Umgungundlovu District. The five schools are not necessarily representative of all the school in the Umgungundlovu District. Their selection is based on their previous exposure to the systems thinking approach through the efforts of the researcher who was working with them as a Circuit Manager for almost nine years. This study will limit the discussion to the five sampled schools, because the inclusion of all the rest of the schools would have resulted in a ambitious study and which may end up being too bulky yet not too in depth.

Axiological assumptions address the roles and values of both the researcher and researched in the study. Answering the question, acknowledges that research is value-laden and that there are some biases (Cresswel1, 1998). As the researcher I admit the value laden nature of the data gathered from the field and also report s that my own values and biases (Cresswell, 2003; Cresswell, 1998). I therefore openly acknowledge and discuss the values that shape the study from a systems thinking perspective. I will be responsible for the gathering of data, the interpretation and presentation of data. I have an epistemological role to play which is influenced by the philosophical underpinnings on systems thinking, thus playing themselves in my axiological assumptions in this study.

The professional development in previous studies has shaped my way of thinking. The contextual role and understanding of school development enhanced my awareness and knowledge of the experiences, challenges and issues encountered by the principals in school development. I brought knowledge of the experiences of principals in school development

and understanding of the contextual factors hindering this phenomenon. I commence the study with the assumption that school development is a complex issue. Due to my previous experience working with principals in school develop my assumptions are that they have prior knowledge of the systems thinking approach to their daily experiences and activities in the schooling system.

1.14 Outline of the chapters

The presentation of this study is outlined as follows:

1. Chapter One: This chapter discusses the focus and orientation of the study, as a way of setting the tone for the study. The key questions and main purpose of the study has been clarified and the rationale for embarking on a systems approach to school development.
2. Chapter Two: This chapter discusses the published material that characterise the current leading scholars on key concepts and themes that are used in this study. The chapter will show the link between the key concepts, that is school development, school improvement and school effectiveness paradigms and also indicate the critical gaps during these epochs. The chapter also critically examines the role of systems thinkers in the context of school development. The chapter also critically examines the implementation school development in the South African context by the citation of some case studies. The study provides the rationale for using a systems approach to a complex schooling system as an engagement in a human activity which is interdependent.
3. Chapter Three: This chapter discusses the theoretical framework, systems theory and its strands. Discusses systems approaches as lenses through which knowledge is interpreted. It examines the systems tools within this the systems paradigm.
4. Chapter Four: This chapter discusses the theoretical framework, the research design and process, a qualitative, constructive and interpretive study. It discusses how these informed the study. The research design and research process section give details of the data generation and analyses methods and of how ethics and validity issues will be dealt with in the context of the study.
5. Chapter Five: This chapter presents the data gathered from fieldwork. The presented data is from the interviews, focus discussion groups and reflective dairies and journals. From this data themes are presented that address research questions.

6. Chapter Six: This chapter presents an analysis and discussion of the emerging patterns and themes. These themes and patterns are discussed and analysed. From the findings of the themes that emerged, gaps were identified. A model was formulated to address the identified gaps. I formulated the Systemic School Development framework, which is holistic, multi-methodological in approach. The Systemic School Development framework is based on assumptions from the Soft Systems Methodology (SSM), Systems Dynamics (SD), Critical Systems Heuristics, and Viable Systems Methodology (VSM). It is a holistic and comprehensive Systemic School Development Framework (SSDF) which is espouses that Systemic Leadership serve as a catalyst for school development at the level of the province, the district and school.
7. Chapter Seven: This chapter consolidates the conclusions, findings and recommendations. The presented findings are consolidated with recommendations, which include the SSSDF for further research as a way to conclude the thesis.

1.15 Conclusion

The chapter presented the orientation and general overview of the thesis. In this chapter I outlined the problem and its context. Key concepts were summarily clarified, with the theoretical framework that underpins the study. The rationale for conducting the study including my personal interest in systems thinking was outlined. The primary and secondary research questions which will drive the study were presented. In the next chapter I will introduce the review of literature. In the literature review I will cover themes that address the main research question of this study. The outline of the broad sub-themes of the study will be explicated in detail for discussion and analysis.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

In the previous chapter the scene was set for the study. The overview presentation outlined chapters of the envisaged study, starting from the review of literature on school development and systems thinking as the research framework and the research design. As stated in Chapter One this study seeks to examine the use of systems thinking approach to school development. The study further examines the principal's understanding of systems thinking, the benefits of using a systems thinking approach to school development and the challenges of using a systems thinking approach in school development. In order to critically examine the use of systems thinking for purposes of school development, it is thus necessary to pursue first the review of existing literature the field of school development. This research is guided by the following critical aspects:

- the principal's understanding of systems thinking
- the implementation of school development using the systems thinking approach
- the benefits of using the systems thinking approach in conducting school development
- explore the challenges faced by principals in using the systems thinking approach to school development

Thus this chapter will review literature within the broad context of school development which relates to the last three aspects of this research. Chapter Three will examine specifically the systems thinking theory within which this research is located. I will present the review of literature concerning the first question in Chapter Three, as part of the theoretical framework that grounds this study. This review will endeavour to be guided in look at literature relating to the last three aspects both directly and indirectly. In that endeavour the review will not be pinned down to the sequence of questions, due to the limited literature that directly answers to these questions. However, this review will present the current debates and discourses in an attempt to indicate the shift in thinking based on school development.

The review presents the different strands on systemic education reform, to indicate the shift in thinking from that has been made from the previous decades of school effectiveness and

improvement thinking. The discourse on systemic education reform is linked to the current debate which attempts to upscale school development, beyond the localised schools. This review enables us to develop an understanding of the progress in this field and its potential for future development. The weight of international research clearly shows the shift in thinking from reductionist reforms to system wide efforts in educational change. In this chapter I will therefore briefly review the historical evolution of school development and also draw the reader to the understanding of the concepts associated with school development. I will trace the evolution of debates on school effectiveness and school improvement from the early eighties and early nineties in this field. I acknowledge the relative limited nature of this study in tracing the historical evolution of school development, to the current thinking on the nature and future of educational reform. However, the main purpose of this study is to examine the use of systems thinking as a new perspective on school development. In order to acquaint the reader with the new thinking on education reform, I will discuss concepts that are related to the focus of the study. These concepts will also become clearer as the study unfolds.

There is overwhelming literature on the current debates about education reform, which cannot be exhaustively reviewed in such a limited study. Nevertheless, the reader will get an understanding why school development needs to be examined from a systems thinking perspective. It is argued that school development is steeped in the reductionist and linear frameworks that have constrained us in breaking away from the industrial age to 21st century thinking. The current total quality management and cascade models are some of the old frameworks that always rear their heads in practice, thus constraining systemic change in education (Cobb, 2003). In this review the reader should note the interchangeable uses of the concepts of school improvement and school development. The literature on school reform at times overlooks context or deals with it in a narrow manner. I will briefly acquaint the reader with the evolution of the school improvement and systemic eras, in order to show where are coming from, where are currently we and where we are going in terms of education reform. By so doing, it will assist the study to clarify the current debates and discourses are during this era. It is argued in this study that the current education debates have an impact on the thinking regarding the way school development is conducted.

2.2 Evolution of school development theory and practice

While there are a many reviews of the effective and school improvement movement it will be suffice for this study to summarily mention the epochs and phases in the development of the school effectiveness and improvement movement. This study will then elaborate further on the systemic reform phase, which is more relevant to current debates and discourses in education reform. These reviews, I argue will assist us in understanding where we are coming from, and point where were are, and how we are still stuck in those old paradigms even in this 21st century. In the past three decades it has been observed that evolution of effectiveness and school improvement movements were underpinned by a consumerist, individualistic approach which was prevalent in the Western developed world (Banathy, 1991; Bertrand, 1999; Fullan, 2007; Hopkins, 2010). For purposes of this study I will summarily confine the review of the evolution as presented by Hopkins and co-authors (Hopkins, Harris, Stoll, & Mackay, 2010). In their review, Hopkins and co-authors (2010) catergorised the evolution of school development into five phases which have distinctive features which shows the dominant thinking that prevailed during that era. The five phases are summarised as follows, viz.

- understanding the organisational culture of the school,
- action research and individual initiatives,
- managing change and emphasis on leadership,
- building capacity for learning all levels,
- towards systemic improvement (Hopkins et al., 2010).

The focus during the first phase was on the culture of the school. The main thinking that dominated during this era was the emphasis on the culture of the school as the key factor in improving the school. During this era of action research and individual initiatives, schools embarked on the development of school development plans. The shift moved towards the management of change and leadership as drivers of school improvement. The next move was towards building the capacity for all schools to improve learner performance across all the schools. During this era the focus is on improving the system across all the three tiers of the education system, which includes the school, district and state.

What is totally different about Banathy's (1992) review is that she draws a critique of the school effectiveness and school improvement movements for their theoretical underpinnings. She calls for a rethinking of the way school development has been conceived, by introducing systems theory in education (Banathy, 1992; Banathy, 1996).

In this section I am elaborating on the phase of systemic education reform embracing the current education debates of conceptualising school development. The contributions to the current debate on education reform are made by many scholars, but I will cite a few due to the limited nature of this study (Fullan, 2008, 2013, Hopkins, 2013, Hargreaves, 2013, Ash & D'Auria, 2013, DuFour, 2013). School systems are bound by the hard to change patterns which need to be revisited and looked at from a whole systems perspective. The study further delves into the era when the main focus shifted towards scaling up education reform. The shift from the piecemeal conceptions of school development led to the current debates on systemic school development. There has been a great interest shown by renowned scholars, researchers and policy makers on whole school reform. The educational changes cover a wide field which cannot be covered in this study. An effort however is being made to scale the current debate on the thinking regarding the upscaling of school reform. The current debate about upscaling whole school reform is supported from many quarters by scholars (Fullan, 2010a; Hargreaves, 2013; Hopkins, 2013; Ash & D'Auria, 2012) to mention a few. These scholars present a compelling case in support of system wide education reform. Fullan (2010a) examined what he considered as successful school reform initiatives in three countries, the USA, UK and Australia. Fullan (2010) focuses on the future of the schooling system whilst also raising concerns about the current state of education at the level of the school, district, state as well as the global arena.

The two pronged school based and national based approaches is supported from many quarters by scholars in terms of its merits (Hopkins, 2007; Barber, 2009; Hargreaves & Shirley, 2009). Hopkins, Harris, Still & MacKay (2011) reviewed education systems across the developed world with the intention of drawing conclusions about the way education reforms are improving. Some scholars believe it is the responsibility of the principal to keep the school focused on its mission, and influences others to follow suit (Fullan, 2010a; Habegger, 2008; Boggan, 2014). Scholars strongly emphasise the value of collective

capacity within the school system in order to realise the goal of school development and beyond the district schools (Fullan, 2010a; Harris & Chrispeels, 2008; Pont, Nusche & Hopkins, 2008). The school development framework that Fullan (2010a) presents outlines the significance of precise strategies which are time framed for short periods. Scholars support the idea of principals building collective capacity through generating professional collaboration and networking across schools and district (Harris & Chrispeels, 2008; Pont, et al., 2008; Hargreaves & Shirley, 2009; Fullan, 2010a). Literature supports the idea of principals improving schools by working collaboratively with all stakeholders (Fullan 2010a; Tickly & Ngcobo, 2005; Mbugua & Raneya, 2014; Hinigh & Hooge, 2014). Scholars concur about the negative effects of overemphasing standardisation and accountability (Ash & D'Auria, 2013; Hopkins, 2013; Harris, 2012; Fullan, 2010a). In this phase there is a strong desire to see the shift by principals in overemphasing the use of standardisation and accountability which is considered to be a negative driver for school development (Fullan, 2011; Ash & D'Auria, 2012; Hopkins, 2013).

Scholars recognise the value of stakeholder mobilisation towards systemic improvement (Fullan, 2011; Ash & D'Auria, 2012; Hopkins, 2013). It is the belief of some scholars that there is value in support from all the stakeholders in mobilising a successful programme of schools development (Fullan, 2010a; Bush, 2015). In some circles other scholars claim that system improvement can be further enhanced by focusing on moral purpose and clear communication as the lead drivers (Harris, 2012; Ash & D'Auria; 2013; Hopkins, 2013; Wriggley, 2013). Literature contributes to the debate and claims regarding what needs to be considered for any successful systemic reform (Barnard, 2013; Ash & D'Auria, 2012; Hargreaves, 2013; Hopkins, 2013). There is acknowledgement by scholars of the complexities in the implementation of large scale education reform to advance it from schools to districts, regions and provinces (Fullan, 2010a; Ash & D'Auria, 2012; Hopkins, 2013). There is great acknowledgement by some studies that cite the famous McKinsey Reports (2007, 2010) as an example of a study based on twenty education systems that were characterised as being consistent in their improvement (Mourshed, Chijioke,& Barber, 2010; Ash & D'Auria, 2012; Green, 2014; Hargreaves, 2013; Hopkins, 2013). The idea of looking at principals as system leaders to support schools as instructional leaders is supported form many quarters (Hopkins, 2013; Fullan, 2013; Ash & D'Auria, 2012). The current debates

embraced by these scholars and researchers points to a rethinking of the way in which schooling is perceived.

Systemic reform scholars claim that capacity building and networking are the leading drivers for scaling up systemic education reform across the school, district and state, which are the three tiers of the education system (Fullan, 2011; Wrigley, 2013; Ash & D'Auria, 2012). There is wide support by scholars for capacity building programmes for principals that need to be extended beyond the local school boundaries (Ash & D'Auria, 2013; Fullan, 2010a; Hargreaves, 2013; Hopkins, 2013). The shift towards integrated and holistic thinking saw the evolution of programmes that were supported from the schools identified and informed the nine key areas of Whole School Development (WSD) (Hargreaves & Fullan, 1992).

South African scholars concur on a diverse factors that led to the failure in the implementation of school development due to the reductionist and consumerist approaches that were underpinned from school effectiveness and school improvement practice (Sister, 2004; Mchunu, 2006; Dhlamini, 2009; Mntambo, 2009; Xulu, 2009; Mbalati, 2010; Sambumbu, 2010; Mathews, 2011; Mji, 2011; Mbulawa, 2012; Van der Voort &Wood, 2013; Van der Voort, 2014). A systems perspective recognises the complex nature and the influence of political and socio-economic context on school development (Harber, 1999; Bertram, 1999; Fertig, 2000; Mnisi & Prew, 2001). In the South African school system it is observed that some principals do not work with the recognised structures such as the School Management Team (SMT), the School Development Team (SDT) and the School Governing Body (SGB) on issues of school improvement (Mnisi & Prew, 2001; Mji, 2011).

I argue that the way school development is conceived needs to shift from the traditional reductionist approaches in the light of complex and multiple challenges that are facing schools on a day to day basis. School development is a wide field that is linked to different ways and approaches used in engaging with it. The purpose of this study is to examine how the principals used the Systems Thinking Approach as a framework for school development. Therefore, in the next section the study will focus on the understanding of school development as part of the review of literature. I will elaborate in-depth in Chapter Three, on

the understanding of systems thinking which links the review of literature in this chapter.

2.3 Conceptualisation of school development

For this study it is important to indicate what has been the thinking in the last decades about school development. In answering that question I will draw on the definitions that were posited by the scholars during the era of school improvement and school development, as was practised by then. It will be observed that the definitions sponsored no longer fit into the systemic paradigm and the 21st century challenges. This study will indicate new thinking concerning the current debates on these issues and which this study considers to be pertinent to school development. It is critical in this study to understand that literature part of the understanding of school improvement and school development. According to some scholars a reductionist and linear thinking is restricting to school development (Morrison, 2013; Brooke-Smith, 2002; Zweibelson, 2011; Raman, & Ramachander, 2002; Banathy, 1991). At the same time, this will also show that whilst much has been written on current systemic reforms, little has changed in the school practice. This review presents diverse evolutionary conceptions of school improvement from three decades ago to current discourse.

Three decades ago different opinions were expressed by scholars on how they perceived school improvement and school development. A narrow view of school development is defined in the School Development Initiative (SDPI, 1999) document, as a systematic, collaborative and inclusive, ongoing and progressive process undertaken by the school to promote whole school effectiveness, school improvement, quality enhancement, staff development, partnerships, effective resource deployment, change management and the furtherance of aims and priorities of the national education system. Three decades ago, Barth (1990) defined school improvement as an effort to determine and provide from within and without, conditions under which the adults and youngsters who inhabit schools will promote and sustain learning among them. According to Haynes, Emmons, Gebreyesus and Ben-Avie (1996) school development is a system whereby changes and innovations of any part are considered to affect the interrelated parts. In the past ten years Hopkins and his co-authors (1994) considered the critical role of stakeholders in the process of strategic planning as a

vehicle leading to school development. However, Hargreaves and Hopkins (1994) considered school development planning as an end in itself, rather than as a means towards achieving the envisaged results. The holistic approach takes into consideration the changes needed in the structure of the school and the culture that prevails in a school (Hargreaves & Hopkins, 1994). The context of school culture could not be isolated from the environmental issues that bear much influence on school development. Two decades ago, Lander and Eckholm (1998) narrowly defined school improvement as a process of deliberate change in structure, rules, norms, conceptions, habits and working patterns, which immediately, or over a long period, helps students to improve their learning and development according to the requirements of school society (Wijesundera, 2002). Traditionally school development has been defined by Hopkins (2001) as aimed at improving learner performance and also consolidating the capacity of the school to managing change. The above definitions point to the narrow and linear manner of thinking that prevailed during the era of school effectiveness and school improvement. There is a plethora of school improvement initiatives but which fall short of the holistic, systemic and developmental approach that has all the elements of being sustainable.

Drummond, Hart and Swann (2013) offer an alternative approach to school development which is grounded on learning involving learners. Stoll (2015) argued for a partnership self-improvement school approach that involves pedagogy and professional development and leadership as key factors. Lilly, Peacock, Shoveller & Struthers (2104) proposed alternative assessment approaches as a way of contributing to school development. Hargreaves and Braun (2013) espoused data-driven accountability as a system to bring about school improvement. Glazer and Peurach (2012) advocated for large scale school development based on viable networks which need community involvement, coordinated institutional structures and resources. Many school-based initiatives are promoted on these understandings, but on closer observation, these initiatives are underpinned by cause effect linear approaches and fall short of addressing systemic issues.

The 21st century challenges faced by schools require a rethinking of the way school development is conceptualised. The mechanistic and single loop thinking that prevailed stifled school development (Harris, Adams, Suzette, Muniandy & Muniandy, 2015). Many scholars have greatly influenced the discourse on education reforms across a wide spectrum which challenged the traditional paradigms of school development (Ash & D'Auria, 2013; Fullan, 2004; 2010; 2011; Hopkins, 2013; Hargreaves, 2012; DuFour & DuFour, 2013) to mention a few.

With the advent of sweeping educational reforms there is a great shift in thinking on school development. The definitions presented in the above discussion clearly show the need for reconceptualising school development and breaking away from the single loop, linear and mechanistic manner it has been conceived in the past three decades. The discussion below moves further to the focus on studies that have been conducted in order to understand the practices in the implementation of IQMS as a school improvement policy. This study is examines the use of systems thinking and its use in school development. The exposition below will review key features of school development initiatives which are peculiar to South Africa.

2.4 School development in South Africa

2.4.1 Introduction

The bearing influence of the thinking on effective school reform had a resounding effect internationally in education circles and South Africa was no exception. The dominant thinking that prevailed and the studies that were conducted were based on effectiveness and the school improvement paradigm. The traits of the effectiveness and school improvement research paradigm are prevalent in a number of circles in our education system. The emergence of the school improvement followed on the heels of the effectiveness movement. In South Africa there have been many school development initiatives over the past three decades. Amongst others, Developmental Appraisal System (DAS), Outcomes Based Education (OBE) Whole School Evaluation (WSE), Culture of Teaching and Learning

(COLT), Tirisano, Integrated Quality Management System (IQMS) and Quality of Learning Teaching Committee (QLTC) to mention a few. The focus on DAS was on the appraisal of teachers. COLT focused on the return of the Culture of Teaching and Learning in school which were considered to be dysfunctional. Tirisano was considered to be an initiative to promote teaching and learning in school after the merger of the departments of education. Whole School Evaluation focused on tools for identifying the strengths and weaknesses of the school based on nine key areas. Another initiative lately is Quality of Teaching and Learning Committee, which was an attempt to draw different stakeholders with an interest in education into the school structure. These initiatives were implemented in a disjointed manner. Curriculum reform has a history of changes that have evolved from Outcomes Based Education (OBE), Curriculum 2005, Revised National Curriculum Statement (RNCS), National Curriculum Statement (NCS) and latterly Curriculum Assessment Policy Statement (CAPS). All of the above mentioned policies were addressing curriculum development and its delivery over span of twenty years and above. For this study curriculum development is considered to be a critical pillar of school development.

2.4.1 IQMS Implementation

There is plethora of studies that have been conducted in South Africa based on IQMS as a school improvement policy initiative. These studies were conducted over a period of more than ten years at various levels with the aim of finding out how IQMS was implemented in practice as policy aimed at school improvement. For purposes of this study, IQMS is considered as a policy initiative that serves a leverage point that contributes to school development. It is not the purpose of this study to reinvent the wheel regarding studies that have been conducted on IQMS, but to show the extent to which there is great interest that has been indicated by diverse scholars in examining the implementation of IQMS. In this thesis, I argue that IQMS is a supra system with a number of subsystems, which are ultimately aimed at school development.

In South Africa there is limited published literature on school development, however there is a plethora of studies conducted on the implementation of IQMS. As An initiative of the National Department of Education in South Africa, IQMS encompasses school development

and school improvement which has been widely researched in South Africa from different perspectives the diverse focal areas (Sister, 2004; Mchunu, 2006; Dhlamini, 2009; Mntambo, 2009; Xulu, 2009; Mbalati, 2010; Sambumbu, 2010; Kok, Rabe, Swarts, Van der Vyver & Van der Walt, 2010; Mathews, 2011; Mji, 2011; Kershaw, 2012; Mbulawa, 2012; Van der Voort & Wood, 2013; Mchunu, 2014; Mpungose & Ngwenya, 2014; Ngwenya & Mpungose, 2014; Van der Voort, 2014). These studies shed light on the shortcomings and limitations in the way IQMS has been implemented, inspite of the objectives of the National Department of Education to improve schools. From the emphasis placed on IQMS implementation and research conducted on it, it can be concluded that much interest is being put on school development by scholars in an effort to show the gap between theory and practice.

Literature on the failure of school reform (Lunenburg, 2013) highlights several barriers to the upscaling of reform efforts. In South Africa many studies have focused on shortcomings of IQMS (McDermot, 2000). Kershav (2012) in his study discovered that principals were faced with challenges of integrating the three key pillars of the Integrated Quality Management System (IQMS). These three pillars of IQMS are Whole School Evaluation (WSE), Development Appraisal System (DAS) and Performance Measurement (PM). The National Whole School Evaluation Policy (2001) was introduced as a component of the National Department of Education‘s initiative to improve the quality of education in South African schools through introducing self and external evaluation of schools together with accountability indicators and measures. There was also a lack of co-ordination and integration of the programmes in most of the schools as attested by some scholars (Kershav, 2012; Mji, 2011). Biggs, Rhodes, Archibald, Kunene, Mutanga, Nkuna, Ocholla and Phadima (2015) outline the challenge that education systems are faced with in terms of improving their capacity to manage complex, and undefined challenges in the 21st century. This shows clearly that the mistakes that were made in the past can still be repeated, if the same strategies are employed in implementing school development. From these examples it can be concluded that the South African schooling system is stuck in the reductionist and consumerist approaches to school development.

Biggs and the co-authors applied systems strategies in their research conducted in South Africa to dealing with complex case studies (Biggs, et al., 2015). Biggs and coauthors make a recommendation for continuous and sustained development based on principles of participation, empowerment, ownership, learning, adaptability and simplicity (2015). There is consensus among stakeholders that the IQMS was implemented too rapidly. Mtapuri (2014) proposed a bottom-up approach which is well-resourced, and anchored on partnerships as a way of improving schools. Sister (2004) focused on the role of the School Management Team (SMT) in the leadership and management of school improvement. Msimango (2009) espoused a systems perspective in order to understand the social, cultural and contextual problems in the context of building a complex, holistic picture of school development. Prew (2009) advocated for community based involvement in school development and the modification of school improvement concepts to South African needs. Xaba (2006) outlines the difficulties that were encountered by the School Development Committees in formulating school development plans due to the lack of skills and capacity. De Clerq (2008) identified serious flaws in the implementation of IQMS due to the lack of integration between appraisal, development and performance measurement. Mbalati (2010) critiqued the disjointed and disintegrated approach to the implementation of the Whole School Evaluation in Limpopo schools. Dhlamini (2009) examined the use of IQMS as a policy for measuring how to improve teaching and learning in higher education. De Clerq and Phiri (2013) advocated for the cluster system as a strategy for implementing school-based teacher development, although it has its own limitations and challenges.

De Clerq (2008) critically exposed the shortfalls prevalent in the Whole School Evaluation as a tool for monitoring and evaluating schools in South Africa. Osei-Owusu and Kwame Sam (2012) identified the critical role of the School Management Committees (SMC) in improving the quality of teaching and learning. Van Der Voort (2013) used an action learning approach to empower SMTs to formulate school improvement plans. Van Der Voort (2013) points out the shift towards an empowering approach which has the elements of co-learning and continuous improvement, whilst working with SMTs in the formulation of school improvement plans (Van der Voort & Wood, 2014). The study shows a paradigm shift from the cascade models that have resulted in the failure of a number of education

reform efforts in South Africa. It is my argument that much could be learnt from Van der Voort's research.

There are diverse lessons which can be learned from the studies that have been conducted on the implementation of IQMS, which I argue is a human activity system. In IQMS there are a number of actors, consumers who play a significant role in order for the system to be effective. Amongst those lessons, I can conclude that school development is a dynamic, unpredictable and uncontrollable system to be comprehended from one-dimensional perspective. In systems thinking, diverse views are integral to the way school development is perceived. For purposes of this study school development is cannot be confined to the boundaries neither of an era nor of an epoch as articulated by these reviewers (Hopkins, Hopkins, Harris, Stoll & Mackay, 2011; Banathy, 1991). School development is in dire need of a new theoretical framework that considers the challenges faced by principals in the 21st century as have been articulated in literature (Kendal, 2015; Lovett, Dempster & Flückiger, 2015; Barr & Saltmarsh, 2014; Peurach, 2011; Kershaw, 2012; Dempster, Lovett & Fluckiger, 2011; Townsend, 2011; Duggart, 2008). The reductionist approaches to school development are inadequate to deal with the challenges and complex nature in which schools are located, particularly the South African school system which is divided into diverse categories due to inherited backlogs (Ono & Ferreira, 2010; Mathews & Jones, 2008). Prestige (2013) in his study advocated for the use of systems thinking tools as approach to facilitating school development. Literature on traditional school effectiveness and school improvement indicate critical gaps of principals who are stuck in the old paradigms that cannot cope with the new school development challenges of the 21st century (Schleicher, 2012; Duggart, 2008; Duffy, 2007).

Most of the studies on IQMS have focused on different strands and themes which indicate the gap between theory and practice in the implementation phases. In the review that has been conducted, only two studies have used a systems thinking approach to IQMS (Mchunu, 2006; Mntambo, 2009). However, there has been a steady increase of interest in South Africa in conducting studies from the systems thinking perspective in education, and other disciplines which focus on wide areas of interest (Green, 2013; Jack, 2012; Xulu, 2009; Msimango, 2009; van Soelen, 2008). The studies that have been conducted on IQMS show that there has

been great interest in school development and school improvement under the holistic supra system of IQMS. The limited nature of the studies conducted on school development from a systems thinking perspective, justifies the value that this study will add to body of knowledge on school development. It also shows the increasing interest by South African scholars on conducting studied in education from a systems thinking approach. With the advent of systemic education reform there is a rethinking of the way school development is perceived. The shift has tilted towards collaboration, capacity building and co-learning across the schooling system. The literature that has been reviewed shows the gaps that exist in the developing countries in studies conducted on school development from a systems thinking lens.

The challenges faced by developing countries include shortage of resources and other hindering environmental and situational factors, which negatively impact on school development (Scherer, 2015; Khupe, Balkwill, Tshoe & Selesho, 2014; Osman & Cameron, 2013; Panday & Xu, 2012; Rotherham & Willingham, 2009; Pont, Nusche & Hopkins, 2008). This poses a challenge to the manner in which local communities and society needs to be engaged in determining the needs of the school (Chetty, 1992; Prew, 2009). The prevailing situation from the Western countries to developing Southern African countries is totally different, particularly when these school development initiatives are imported wholesale without due regard to the localised contexts (Mtapuri, 2014; Mji, 2011; Nkambule, 2010; Khumalo, 2008; Buthelezi, 2005). In the next paragraph the discussion shifts to the initiatives on school improvement that were undertaken in South Africa.

The above review shows the focus of South African scholars and their interest in understanding how IQMS has been implemented across the length and breadth of South Africa. Amongst others, one of the key objectives in this study is to examine the benefits of utilising systems thinking for purposes of school development. The review of literature that will follow is based on examining some of the key areas considered as benefits to school development.

2.4.2 Partnerships and networks for school development

Literature in South Africa indicates that in the past two to three decades studies were conducted on the partnerships that were shared by schools with NGOs, universities and businesses, with the school development as the outcome in the long run (Bertram, 1999; Khosa, 2006; Taylor, 2007; Prew, 2009). In the past ten years Prew (2009) conducted a study involving 96 schools in partnership between Link Community Development and the Soshanguve School development Project (SSDP). In this project the school development process was localised to suit the contextual factors of the school needs and the local community. Innovative means were infused into the approach in order to address the governance issues, the low teacher morale and poor performance of learners. The SSDP focused on adapting and localising a holistic school development plan to address the issues prevailing in the township schools (Prew, 2009). Scholars attest to the overly used cascade model which was during the implementation of the state sponsored and initiated school development models during the training of teachers (Dichaba, 2013; Dichaba & Mokhele, 2012; HRSS, 2002). There are lessons that can be learned from the South African model of school development and emerging themes that can be drawn from the research on partnership based school development programmes (Blunden & Prow, 1999; Bertram, 1999; Davidoff & Lazarus, 1997; Potterton, 1999; Prew, 2009; Schofield, 1995, 1997, 1998). Ngesi (2003) reported that few schools had embarked on the formulation of school improvement plans and the establishment of School development Committees (SDC). Furthermore, Ngesi (2003) indicated the other gap, whereby very few schools implement their written Action Plans. Two decades ago Bertram (1999) critiqued the school development planning approaches that were used by Non-Governmental Organisations (NGOs) in schools as being atomistic and mechanical due to the nature of their implementation.

The advent of school development planning in South Africa came amidst a complex background that hindered school development, due to past imbalances in the education system. Some of the South African school development projects were undertaken by donor companies and non- profit organisations. Scholars conducted projects which were school development oriented in South African schools across the spectrum of the country (Human, 2003; Onwu & Mogari, 2004; Kanjee & Prinsloo, 2005).

The disjointed nature in which these initiatives were implemented led to schools failing to sustain what was invested by the NGOs due to the lack of ownership. To cite a few examples of these initiatives we are presenting those that were researched. The latest South African school reforms and development projects such as Dinaledi Project, UNIVELAMASHI, Education Project (SEED), the Soshanguve School Development Project (SSDP) and the District Development Support Programme (DDSP), the Quality Learning Project (QLP), Mpumalanga Secondary Science Initiative (MSSI) have tended to adopt a systemic approach to school transformation (Kanjee & Prinsloo, 2005; Chinsamy, 2013). This involves focusing on all levels of the system: classroom, school, and development of education in the quest to ensure that quality teaching and learning is provided and supported.

In the UNIVEMALASHI Project, which was a district-level systemic reform initiative for teacher development, it was found to be successful in improving the content knowledge, skills and attitudes of 110 participating foundation phase (6–9 years) teachers during the first three years of its implementation (Onwu & Mogari, 2004). The Mpumalanga Secondary Science Initiative (MSSI) study focused for seven years on science and mathematics professional development intervention. Mokhele (2010) stated that CPD (Continuous Professional Development), however well-intentioned and executed, is received differently by each teacher as a result of their personal circumstances and investment in the programme. The self-evaluation is conducted by the school community and forms the basis of the school improvement plan.

Bertram (1999) recommended a shift towards a holistic approach to school development planning, which have been embraced by several systems scholars as critical in dealing with complex school issues (Mathews & Jones, 2008; Prestige, Siegrist, Green, Brockneir, Tsemuchu, Pate, 2013; Barnard, 2013;Steele, 2014; Peurach, 2013; Lunenberg, 2015). These scholars recommend that principals shift their role towards being a system thinker whose role is to facilitate school development programmes (Fullan, 2010a, 2012; Ash & D'Auria; 2013; Hopkins; 2013). Scholars concur that principal system leadership plays a critical role in facilitating the process of school development of any nature (Hopkins & Higham 2007; Pont, Nusche & Hopkins, 2008; Hargreaves, Hola & Pont, 2008; Southwork & Du Quesney, 2005;

Pont, Nusche & Moorman, 2008). With the systems thinking approach there is a shift in thinking towards moving from the product of the school development plan to the process of change that needs to take place in schools. According to Haynes, Emmons, Gebreyesus and Ben-Avie (1996) school development is a system whereby changes and innovations of any part are considered to affect the interrelated parts. In a study conducted by Miller-Grandvaux, Welmond and Wolf, (2002) the role of NGOs in education particularly in Africa is discussed in detail, as well as their contribution to the education system. Sean Morrow (in Chisolm, 2005) outlines the historical background, critical challenges of NGOs and their adaptation to the dynamic changes in South Africa.

School development planning in a linear and atomistic approach ends up being non-sustainable due to lack of skills and also lack of ownership by the stakeholders (Gray & Wilcox, 1995; Taggart & Sammons, 1999; Bell, 2002; Skidmore, 2004; Gustafsson, 2007). The other angle of school planning is a holistic approach which can usher various approaches which are peculiar to the school systemic issues (Taggart & Sammons, 1999; Supovitz, Taylor, 2005; Fullan, 2006; Hargreaves, Halasz & Pont, 2007; Hallinger & Heck, 2010; Morrison, 2013). With a holistic strategy school development becomes a systemic way of dealing with issues which indicate the interrelationships of all the elements of the school (Senge, 1999; Hopkins, Harris, Stoll & Mackay, 2011). The discussion below shows what can be learned from the work that was conducted by NGOs with regard to school development.

There are lessons that we can still gain from a study that was conducted two decades ago by scholars researching the role of NGOs working in partnership with schools for purposes of school development (Bertram, 1999; van Wyk & Lemmer, 2007; Prew, 2009; Myende, 2014). The NGO and donor funded approach to school development lacked sustainability of programmes due to lack of continuity in the funding to upscale these partnerships. The dynamic and complex nature of schools suggests that this approach cannot be a one size fits all, as schools have diverse needs and are located in diverse contexts. The sustainability of the programmes needs principals and SMT members to be systems learners in order to carry the process of school development (Hargreaves, 2006; Fullan, 2010a). There are suggestions based on scaling up systemic reform that can be identified with improving the capacity of the principal and SMT as key players to sustain school improvement in a learning organisation

(Fullan & Barber, 2010; Joseph & Reigeluth, 2010; Fullan, 2011; Hopkins, 2010; Moloi, 2010; Pont, Nusche & Hopkins, 2008).

Fullan (2010b) prefers to the principal‘s moral purpose, capacity building and partnerships amongst schools as the contribution to school development across schools. The lack of capacity in some districts to manage partnerships with the private sector and NGOs can also be a stumbling block to effective school development (Hampel & Isaacs, 2006). The idea of working with partners in underperforming schools cannot be promoted, unless the district has played its role of attending to prevailing issues of conflict, poor morale and lack of discipline (Gallie, 2007; Hampel & Issacs, 2006). Xaba (2006) points out the pivotal role that is played by the stakeholders, especially the governors for an effective school development. Maswela (2009) also cautions about the dependence on funding as key sustainability feature of school improvement. Sambumbu (2010) observed that the implementation of school development prevails much better in schools where there is a democratic, participatory, and transformational culture. Studies support the role of NGOs in supporting school improvement in diverse interests which include addressing social ills, developing infrastructure, providing resources, supporting the curriculum and other aspects leading to school development (Grandvaux, Welmond & Wolf, 2002; Khamba, 2006; Berg, Maleville & Blank, 2006; Mazibuko, 2000).

The examples clearly show the prevalence of wide consultation in the South African School development concept (Clarcke, 2007; du Plooy & Westraad, 2004; Nelson Mandela Foundation, 2005). From these examples it can be concluded that South Africa is stuck in the reductionist and consumerist approaches to school development. The systemic thinker skills that are needed by principals are pivotal in sustaining school development (Fullan, 2010c, Ash & D‘Auria, 2010; Pont & Hopkins, 2008). In the next paragraph I will draw the reader to the understanding of strategic planning and its value to school development.

2.4.3 Strategic planning process and context

Many studies in the South African context expose the diverse contextual factors in both rural and township schools that hinder strategic planning for school development (Chikoko, Naicker & Mthiyane, 2015; Lumby, 2015; Maringe & Relebohile, 2015;Maringe, Masinire & Nkambule, 2015; Moletsane, Juan, Prinsloo & Reddy, 2015; Van Wyk & Moeng, 2013). In this study I will show that the sampled schools have all these features considered to have multiple deprivations. This will be further indicated later in Chapter Five, where the profiles will be further elaborated, preceding the presentation of data these five cases. Therefore, it is against this background that I argue about the role of strategic planning from a systems thinking perspective as the framework for this research. Strategic planning is a process whereby leadership engages other stakeholders for the purpose of driving towards school development (Davies, 2011; Pisadia, Reyes-Guerra, & Coukos-Semmel, 2005; Pisadia & Reyes-Guerra, 2007). There are diverse perspectives on strategic planning which cannot be reviewed in this limited study (Andersen, 2000; Davies & Ellison, 2003; Phillips, 2010; Freeman, 2010; Orlitzky, Siegel &Waldman, 2011). The process of engaging in school development planning is intended to implement change and innovation, the outcome being school improvement (Cuckle & Broadhead, 2003; Davies & Ellison, 2003; Hargreaves & Hopkins, 2004; Ainscow, Beresford, Harris & Hopkins, 2013). There is widespread belief that the nature of strategic planning as an exercise is that it requires time and effort and a number of technical and analytical skills (Bush, 2015; Male & Palaiologou, 2015; Chan, 2014; Mbugua & Raneya, 2104). For a comprehensive long-term planning process then all the stakeholders and participants are supposed to put aside time, effort, and passion and embrace strategic and systems tools as some of the skills in order to achieve this task. Albert and Grzeda (2015) suggested new ways of handling ideas to improve decision making by stimulating critical thinking, reflection and synthesis, and using heuristics effectively. They believe that it is critical to leverage the strategic thinking tools is such a way that it facilitates reflection and critical thinking and moves beyond analysis to application on suggested interventions (Ibid). The co-authors indicate the shortfall of strategic planning whereby facilitators and stakeholders are unable to utilise mental models and concept mapping as tools for thinking (McLaren, Vuong, & Grant, 2007). This a systems thinking approach which calls

for identification of the root problems and illustrating their interconnection by multi-cause diagrams (Batra, Kaushik, & Kalia, 2010).

It is observed that several strategic sessions are conducted without any consideration of showing the interconnection between the problematic issues. This is attributed to lack of understanding the skills for systems thinking. Gilbert (2013) is of the opinion that the complex issues that are identified need a systems understanding and the use of appropriate systems tools. Gilbert (2013) suggests that stakeholder engagement is key to the collaborative effort required for the intended outcomes of the strategic session. The narrow strategic guidelines have been challenged for revolving around routinely formalised stages involving decision-making about structure, leadership, policies, procedures, incentives, roles, culture, monitoring, and control systems (David, 2011;Thompson, Strickland & Gamble, 2010; Albert & Grzeda, 2015).

Scholars emphasize the role of leadership and management in strategic planning and decision- making in organisations (Bunning, 1992; Floyd & Woolridge, 1992; Floyd & Lane, 2000). Strategic planning can take the form of an annual ritual or consensus seeking approach, depending on the leadership that prevails in the institution (Bunning, 1997; Beinhocker & Kaplan, 2002). In view of the above, I argue that systemic leadership, can provide the needed catalyst for school development to be scaled across the school, district and state tiers of the education system. Scholars understand the role of governance, which shows the level of networking required for effective strategic planning (Kersbergen &Van Waarden, 2004; Pollit, 2003; White, 2001). In view of the level of turbulence in the environment, strategic partnerships are critical for organisational development (White, 2001; Johanson, 2009). A combination of key elements of the deterministic and complexity approaches is to needed to craft and align the strategy. Hence, the significance attached to systems leadership that knows how to work in conditions which may seem to be in contradiction (Johanson, 2009). In view of the environmental influences on organisations, strategies are based on assumptions about systems. Organisations may be viewed as open, closed and non-systemic systems (Johanson, 2009). Emery and Trist (1965) describe the environment which influences our thinking about organisations as either being, placid randomised, placid clustered, disturbed-reactive and turbulent. The open- systems view is in

contrast with the closed and functionalist approach, which fails to consider emergent and unpredictable outcomes (Luhmann, 1995).

I argue that the present process of strategic planning is stuck in a linear, reductionist and single loop learning. School development planning can serve as a catalyst for strategic planning to manage educational reforms further leading to school improvement (Hopkins, et al., 1994; Stilglitz, 2002; Muijis, Harris, Chapman, Stoll & Russ, 2004). School development planning has a number of purposes which end up culminating in school improvement (Tyler, 2103; Huberman & Miles, 2013, Andreas, 2012). The introduction of changes and other innovations that can lead to the improvement of the quality of teaching and learning as well as the standards of learning is one of its purposes (Huberman & Miles, 2013, Andreas, 2012; Johnson, Hays, Center & Daley, 2004). The purpose of development planning is to assist the school to introduce changes successfully, so that the quality of teaching and the standards of learning are improved (Xaba, 2006; Hargreaves, Earl, Moore & Manning, 2002; Fishman, Marx, Best & Tal, 2003). The assumption in school development planning was that eventually the outcome needs to be school improvement, although this was not the case in other schools (Glewwe & Kremer, 2006; Leithwood & Jantzi, 2006; Knight, 2002; MacGilchrist & Mortimore, 1999).

There are a number of approaches as there are ways and means of conceptualising a school development plan (Ainscow, Booth & Dyson, 2004; Duit & Treagust, 2003; Hopkins & Reynolds, 2001). Some scholars distinguish between planning for school improvement, innovation or introducing changes and routine and operational planning (Xaba, 2006; Marzano, Waters, & McNulty, 2005; Wasserstein-Warnet, & Klein, 2000). The school needs to determine the ways and means of planning and the requirements that justify the kind of school development and its outcome. It is a practice internationally and in South Africa that the poorly performing schools are subjected to stringent measures which include the compulsory submission of turn around strategies to mitigate poor performance (Hussain, 2015; Nkuta, 2015; Herman, Dawson, Dee, Greene, Maynard, R., Redding & Darwin, 2008; Taylor, 2008, Peterson & West, 2003). A critical scrutiny of school development plans and other academic school improvement documents shows the lack of depth in terms of identifying the gaps that need to be addressed (Bryk, Sebring, Allensworth, Easton &

Luppescu, 2010; Herman, et al., Dawson, Dee, Greene, Maynard, Redding & Darwin, 2008).

The most crucial area involved in the process of school planning is a conceptual framework that normally consists of the formulation of the vision, mission and goals. A simplistic cycle and process will normally include the prioritisation of key areas, the review, the design of the plans, the implementation and evaluation (MSTP, 1998; SDPI, 2003). The approach that this study advocates is based on perceiving schools as integrated, holistic organisations which are working towards achieving the same shared vision (Hargreaves & Fullan, 1992; Senge, 2006). Hopkins et al. (1994) caution about development planning that fails to address the fundamental issues, which may be deeper than what is observed. Studies in South Africa concur on the strategic direction role to be played by SGBs (School Governing Bodies) working in collaboration with other stakeholders with the principal leading school development (Van Wyk & Moeng, 2013; Xaba, 2006; Xaba, 2011). Scholars recognise the role of SGBs as key leaders in strategising and the purpose of the school development plan is to identify the weaknesses and challenges existing at the school (Bush & Jourbert, 2004; Van Wyk & Moeng, 2013; Mbalathi, 2010).

Scholars agree that the key outcome of strategic planning is the formulation of the vision and mission and the strategic goals of the school (Wijesundera, 2002; Harris & Jones, 2010; Hopkins, Harris, Stoll & Mackay, 2010). Strategic leadership and planning for school development requires critical skills that need to be develop in order to cope with the complexity of changes (Davies & Davies, 2004; Leithwood, Jantzi, Earl, Watson, Levin, & Fullan 2007; Morse, 2009; Senge, 2014). Prestridge (2013) espouses the significance of the systems tools in the process of providing leadership and direction to stakeholders in schools. A detailed discussion is presented in Section **3.17** of Chapter Three on systems tools. The Iceberg Tool is one such example of a systems tool that empower the leaders with skills for identifying root causes and dealing with the assumptions that affect the decision-making. Research on the role of principals in school reform suggests that they have great influence in providing on ongoing leadership and support for school development (Blasé & Blase, 1999; Blase & Kirby, 2000; McLaughin & Talbert, 2001; Kola & Selesho, 2012). Pisapia, Reyes, &

Coukos-Semmel (2005) linked three strategic thinking skills to leadership success, which is reframing, reflection and systems thinking.

Three decades ago principals in South Africa were trained in school development planning and documents were issued to assist in that regard. These booklets were issued to serve as a guide for the principal to facilitate the process of school development planning when working with School Governing Body members and SMT members. In the past two to three decades the principals were introduced to key conceptual frameworks based on schools as learning organisations, without any grounding on such concepts. I my observation I argue that the linear nature of the prevalent strategic planning perspective is conceptualised and underpinned by the quality management theory. The most common features of this cyclic process requires the facilitator to guide the stakeholders in addressing critical areas such as the vision, mission and strategic goals of the school organisation in its pursuit of quality teaching and learning (MSTP, 1998; SDPI, 1999). The South African conception of whole school development is different from the Western approach in the sense that which goes beyond to include the school community as the important stakeholders (Prew, 2009). In the above discussion the context of South African school development was presented, showing the unique character it has and the gaps that were identified during that era. Bottom and Schmidt-Davis (2010) defined the different roles of the province, the district and schools as strategic partners in support of learner improvement. All these levers are significant for a successful school development. The districts are viewed as strategic, whilst the province creates the necessary structures and policies that will enable the districts to take ownership of school improvement. Davis, Sumaro & D'Armour (2012) warn against districts being too prescriptive but rather be proscriptive, based on the understanding that schools are dynamic learning systems. Pisadia, and Reyes Guerra (2007) presented the Strategic Thinking Questionnaire as a tool designed to check the leadership skills of principals. Another study conducted by Pang and Pisadia (2012) used the same questionnaire to check on the systems thinking skills of school principals as an indicator that predicts their effectiveness. These studies substantiate the argument that systems thinking can be a critical conceptual framework for principals engaged in school development (Pisadia &Reyes Guerra, 2007).

In Chapter Three I will present some of the tools for thinking that assist in facilitating strategic planning from a systems thinking perspective. What is presented next however, are some of the key focus areas which are elements of a bigger sub-systems involving a whole school development approach.

2.4.4 The focus of school development planning

The focus areas for school development planning may differ as per the identified needs of specific schools. In South Africa the Whole School Evaluation (WSE) policy documents served as a guide to identifying the nine key areas for whole Schools Development. There are nine key areas for development in terms of this policy document (WSE, 2001). The critical areas for school development are school functionality, curriculum development, learner achievement, leadership and management, infrastructure development, and the school culture. The development plan enables the school to locate change in areas of policy, goals, learner attainment, governance and community involvement, and needs for development (Hargreaves & Hopkins, 1991, Bertram, 1999). Whole School Development Planning should be based on the results of whole school evaluation in order to address the barriers in the school, such as infrastructure backlogs, poor teaching and learning and the culture of the school in order to improve the quality of teaching and learning (Davidoff & Lazarus, 2003).

The focus by the stakeholders on key was based on key issues raised by the process of thinking about development planning (Hargreaves & Hopkins, 1991). School development plans differed in terms of focus from one school to the other. The whole school evaluation policy document requires that each school engage in internal evaluation. In terms of the Integrated Quality Management System (IQMS) policy document a whole school approach is suggested whereby the internal evaluation needs to start at the school. The process of a school undergoing an internal evaluation is significant step in order to identify the gaps that exist in the system. In this process the principal is presupposed to work with the School Management Team (SMT) and School Development Committee (SDC) in formulating a school development plan. The SDC is a structure that is supposed to lead the process of school development. This process needs to be conducted with an understanding that there are

key areas that cut across all schools. School development in South Africa is totally different from what research indicates in European countries. Ngesi (2003) in his study reported that few schools had embarked on the development of School development Plans and the establishment of School Development Committees (SDC). There are a number of structures which are responsible for the functionality of the school. The co-ordination of such structures requires the leadership and management of the principal so that they work towards achieving one desired goal.

There has been research conducted on the monitoring and implementation of educational reform in South African schools. Reports which are prepared are based on the implementation of educational reforms of a wide variety (Centre for Education Policy Development, 1998, Harber & Muthukrishna, 2000). The ideological differences that shape the South African school context make it difficult to implement a one size fit all process of school development. However, this does not mean the schools cannot identify other key performance areas due to the complexity of the school system. To make an illustration of this there are a number of social ills that manifest themselves such as drug abuse, abuse of alcohol, sexual harassment, corporal punishment, early teenage pregnancy. These do not feature in the same instrument for conducting a holistic evaluation of the school. These are tendencies that have become prevalent in this decade. The other feature which has not been prevalent previously is the proliferation of satanism in which manifests itself in hysteria, and other horrendous acts of vandalism and ritual killings. Studies have been conducted which identify the gaps in the implementation of the Whole School Evaluation approach to school development in South Africa. Nkosi (2014) reports on the challenges of ~~u~~kuthwala" ~~b~~ride abduction" which is facing some principals in rural school contexts. In the next paragraph the discussion focuses on the relationship between the context of school development and the effect it has on its character. Lopez- Yonez and Sanchez-Moreno (2013) who conducted research in difficult contexts attributed challenges to school development to the capacity to start new projects, the adoption of new ideas, the adaptation to external dispositions to new realities and characteristics. These Latin American schools were in challenging areas where they needed to cope with local contextual factors and adapt to community affiliation.

2.4.5 School development process and context

Literature on school development planning is broad and takes from the idea of engaging schools to move towards self-reliance and self–management as is the practice in the business word (Craith, 2003; MacGilchrist, 2000; Dempster, Kruchov & Distant, 1995; MacGilchrist & Mortimore, 1996; Hopkins, 1995). A critical look at the literature on school development planning shows that it was conceptualised on the deterministic and total quality management based approaches (Broadhead, Hogson, Cuckle & Dunford, 1998; Cuckle, Broadhead, Hogson, & Dunford, 1998a; 1998b; Davies & Ellison, 1992). A shift in thinking from this perspective will embrace a process of development planning that is iterative and cyclic. The critique of school development planning is the tendency to be product oriented than process oriented. In this I study I argue for a shift in thinking in terms of conceiving, practicing and school development planning. The argument is based on the critique that the traditional and single loop, linear tools utilised for school development planning is not fully effective (Hargreaves & Hopkins, 1991; Stoll & Fink, 1996; Kannepel, 2000; Hopkins, Harris, Stoll & Mackay, 2011; Mette, 2013). The prevalent practice is stuck in the mechanical analysis of individualistic factors whilst engaging in planning (Murphy, 2013; Wrigley, 2004; Peacock, 2011). Scholars advocate for a systems tools as part of the process of engaging in school development planning (Senge, 2006; Fullan, 2006). Scholars have different views about the way the school development planning tool is prescriptive (Gray, 2000; Fullan, 2006; Mette, 2013). There is a perception that school development planning is undertaken to give direction to the work of the whole school in order to ensure that learners receive quality education in terms of both their holistic development (Broadhead & Cuckle, 2002; SDPI, 1999). The key activities in the process of school development planning include the audit of the development needs, the prioritisation of key performance areas, the setting of goals and plans for addressing the identified development key areas (McNamara & O'Hara, 2008; Leithwood, Jantzi & McElheron-Hopkins, 2005). Kannepel (2000) believes there must be a middle ground between standard based reform and rural school improvement. The standard based approach provides the schools with a set of standards which need to be adapted by the local rural schools (Kannepel, 2000). Mbokazi (2013) indicated in his findings the role of leadership in focus on managing teaching and learning and the creation of a positive school culture of high-performance and development and sustenance of relationships within and

outside the school community as critical for school development. However, he draws attention to the contextual factors which were militating against the improvement of results, yet the leadership of these schools was able to turn schools around inspite of adverse circumstances.

In the South African context the leading team to guide such a technical process is made up of the School Development Team (SDT) and the SGB. Scholars have emphasise the dire need for effective training of governance structures (Mgadla, 2011; Tsotesti, Van Wyk, Lemmer, 2008; Heystek, 2006; Looyen, 2000; Sibuyi, 1997). These scholars have indicated that these structures lack the capacity and skills to take school improvement to another dimension of innovation (Mgadla, 2011; Tsotesti, Van Wyk, Lemmer, 2008; Heystek, 2004; 2006). The role of a systems facilitator is to guide and steer the process of strategic planning by asking the right questions of the stakeholders. The facilitator requires special strategic planning facilitation skills in order to probe questions. The systems facilitator addresses a number of questions during the process of strategic planning. To illustrate this point further the following are some of the kind of questions that the facilitator may ask; –Who are the customers?" In other words –whom does the school serve?" Another follow up question will be based on the kind of service that the school provides. Linked to that question will be: –What service does the school provide?" In order to follow up on this question the facilitator will enquire also about the beliefs and values that the school stands for (SDPI, 2003). The process of engaging in strategic planning as a specialised skill requires a certain level of technical skills for the principal to facilitate the process of conducting a situational analysis.

In this study I am advocating that all the structures that need to be involved in strategic planning can be trained. The SDT, SGBs and principals can be trained in such skills when approaching it form a system thinking perspective. In this linear approach, school development planning involves working on the conducting a situational analysis, identifying key performance areas, prioritising key performance areas, setting of goals and objectives, spelling out performance indicators and mapping the school development plan with realistic timeframes. In systems thinking approach as postulated by Checkland (2000) strategic

planning takes a different direction from the normal cyclic course envisaged by the quality management system.

Amongst some of the challenges that face school development is the failure to consider the context prevailing in the school system (Harber & Muthukrishna, 2000; Van der Berg, Burger, Burger, Louw & Yu, 2006; Van der Berg & Van der Berg, 2007; Van der Berg, 2008). The dominant discourses on school change, education reform focus on the different conceptions of school development based the contexts which influence various approaches. The gap between the theory as advocated from the sidelines of school change and the prevailing conditions in the context of schools leaves a lot to be desired. The understanding of context influences the way people think about the interrelationship between the school community and the circumstances that prevail at school. Two decades ago Cole (1996) understood the issue of context and its complexity in terms of boundaries which are ambiguous and dynamic (Wrigley, Thompson & Lingard, 2012). Van Oers (1998) preferred to call this intellectual exercise contextualising due to the consideration of existing socio-cultural factors (Wrigley, et al., 2012). Attempts were made in England and Wales under the banner of DES project to change the school culture (Hargreaves & Hopkins 1991). The Development planning provided an illustration of an authentic school improvement strategy which was combined with curriculum innovation and the modification of the school management structure (Hargreaves & Hopkins 1991; Hopkins, et al. 2011). As the systems evolved comprehensive school improvement plans were developed for submission to authorities by individual schools. The shift towards a holistic approach included a variety of areas that were considered for improvement. There has been a strong argument to seriously consider the political and socio-economic context of the schools where school development is needed due to multiple deprivations that face the schooling system (Harber, 1999; Bertram, 1999; Fertig, 2000; Mnisi & Prew, 2001; Chikoko, Naicker, & Mthiyane, 2015).

This study takes note of the value of schools as systems that exist within context of culture which in turn impact on the school system. The above discussion indicates the value attached to the process of school development as a complex process which requires skillful facilitators and role of structures in supporting the process. In the ensuing discussion the focus shifts to the professional learning communities as a key area in the current debate in school reform.

2.4.6 Professional learning communities

In this study professional learning communities are taken as interconnected to school development. The idea of professional learning communities (PLCs) is being promoted in order to make a difference to school improvement. Several studies have been conducted and scholarly discourse undertaken in the global arena on professional learning communities (DuFour, 2008; Harries & Jones, 2010; DuFour & DuFour, 2013). There is consensus on the idea of establishing professional learning communities as part of school development (Fullan, 2010b; Ono & Ferreira, 2010; Hargreaves, 2012; DuFour, 2013; Jones, Stall & Yarbrough, 2013; Ash & D'Auria, 2012; Lee & Lee, 2013). The idea of teachers working collaboratively across networks is postulated from several quarters. There is a strong belief that the formation of PLCs can add value to improvement of teacher development. The advocacy for improving teacher capacity is the responsibility of principals for purposes of school development.

Scholars value the collaborative role of principals across the spectrum of professional learning communities (Ash & D'Auria, 2013; DuFour & Eaker, 2013; Hargreaves, 2012; Fullan, 2011). These scholars all recommended that collaboration between the professional learning communities be strengthened amongst principals across the schooling system. According to DuFour et al. (2013) teamwork is prioritised in order to improve results. DuFour et al. (2013) strongly believe that if these key characteristics can be applied across the schools, districts and provincial offices they can eventually lead to learner improvement. Ash and D'Auria (2013) argue for collaboration across the school system in order to benefit the other levels of the schooling system. The co-authors are positive about the influence that collaborative work can have on increasing organisational sustainability. When stakeholders work together the leaders can be held collectively accountable for results (Ash & D' Auria, 2013). Ash and D'Auria (2013) emphasise that the strength of the teams is in gaining synergistic collaboration that is driven by trust, capacity building and leadership. In line with the earlier contributions of Hopkins (2011) professional teaching, networks, collaboration and accountability have been postulated as the lead drivers. This idea is resonated also by Fullan (2011) and Hargreaves (2012) who support the idea of principals and teachers working across all the networks. De Witt (2012) however, in an interview conducted with Hargreaves (2012) cautions us about making assumptions about PLCs and thinking they can be a panacea

for our teacher development programme. Lately, twitter as part of the social networks is used by teachers to exchange ideas (De Witt, 2102). The above discussion adds value to the understanding that we need concerning the issues that are critical in professional development and their relationship to school development.

Fullan (2011) supports the idea of collaboration as espoused by DuFour and colleagues (2010) in the professional learning communities (PLCs). Fullan (2011) reported on the PLCs which were found to be making a marked improvement in some of the districts. He firmly believes that the successful implementation of PLCs depends on building of the capacity of principals and also collaboration across the schools and districts (Ibid). The current debates and issues raised above concerning professional learning communities and the networks that are used for promoting collaboration amongst the principal places value on how they can provide another angle to school development. Williams, Brien and LeBlanc (2012) outline the challenges that were faced by 50 New Brunswick schools that are attempting to implement a professional learning community approach.

In South Africa teacher development programmes have also been researched (Ono, Chikamori, Ozawa & Kita, 2007; Mokhele, 2007; Pandey, 2010; Mokhele, 2011). The professional learning communities is however different in the South African landscape due to the nature of prevalent contextual factors. In South Africa teacher clusters are being used as a substitute for the traditional approaches to professional development to help teachers reshape their professional knowledge and change their classroom practices (Jita & Ndlalane, 2009; Jita & Mokhele, 2012; Jita & Mokhele, 2014; Mokhele, 2014).

Systems thinking is regarded as significant in developing schools as professional learning communities as recommended by Wells and Keane (2008). The co-authors demonstrated how Senge‘s (2006) laws of Systems Thinking may be utilised to improve professional learning communities.

The existence of professional learning communities is of benefit to school development. In the next paragraph, I show how the continuing professional teacher development is linked to school development.

2.4.7 Continuing professional teacher development

This study sees teacher professional development not in isolation from the broader scope of school development. It is an integral part of a complex system of school development. According to Karagiogi and Symeou (2006) the professional development programme at Cyprus is decontextualized as it does not relate to school-based training that leads to school development. Karagiogi and Symeou (2006) advocate for CPTD that is located at school level, integrated with other school development initiatives that promote networking and ownership amongst educators and create a learning environment. Karagiorgi and Symeou (2006) advocated for a shift in thinking for purposes of improving in professional development. Reflection is considered a key area for educators to share professional experiences (Walsh & Gamage, 2003).

The emergence of teacher development as an important contributor towards school development is cited in international studies (Mourshed, 2008; DuFour & DuFour, 2008; DuFour, 2013). According to Ash and D‘Auria (2013) a new way of engaging in professional teacher development is needed in order to maximise the potential of learners. The co-authors argue for a rethinking of professional development and also a radical break from the old and traditional models of professional development. In the model which they purport they advocate for new programmes which will also incorporate opportunities for teacher reflection, collaboration and building of professional community. They believe this model will eventually contribute to the strengthening of teachers‘ capacity to improve the learner performance. According to O'Neill (2013) principals exercise leadership by managing the school but their fundamental goal is to promote student achievement through the provision of professional growth of their teachers and by influencing the school environment to ensure greater opportunities for educational success. Haar and Foord (2013) provide insightful guidance involving the establishment of professional development networks.

Ash and D‘Auria (2013) underpin professional development on principles such as coherence, consistency and sustainability. The co-authors argue that these principles can make an impact on whole school development. The ideas presented by Ash and D‘Auria (2013) are

practical for purposes of implementation. They firmly believe that the key priority of the districts is the provision of professional development needs for teachers. The co-authors argue against the quick fixes that districts normally offer as professional development programmes which fall short in meeting the requirements of consistency and sustainability of the programme.

The South African education system is taking cue from international trends on continuous professional teacher development as a critical and integral part of school development educational reform (Mokhele, 2011; De Clercq & Phiri, 2013; Steyn, 2013; Mokhele & Jita, 2014; Mahlangu, 2014; Mkhwanazi, 2014). A plethora of studies in South Africa have been conducted on teacher professional development as an emerging phenomenon in education reform (Steyn, 2008; 2009;2011;2013; Jita & Ndlalane, 2009; Bertram, 2011; Bush, Kiggundu & Moorosi, 2011; Jita & Ndlalane, 2012; Jita & Mokhele, 2012; Queen-Mary & Mtapuri, 2014; Mkhwanazi, 2014). Steyn (2014) cautions against the current South African state sponsored CPTD programmes which may lend up as other technicist-functionalist paradigm imperatives. However, Steyn (2014) advocates for CPTD that empowers individuals to identify their weaknesses and plan to mitigate them. Mokhele (2011) argues that teacher circumstances and CPTD expectations need to be aligned for an effective programme. In turn, the ability to sustain the benefits of the intervention will be enhanced. Mitchell and Jonker (2013) highlights the value of using a long-term developmental and organic approach to develop a community of practice for teacher support and development.

Scholars report the barriers and challenges of a diverse nature in the implementation of CPTD in South Africa (Coe, Carl & Frick, 2010; Phorabatho, 2013). The findings indicate that curriculum coordinators and SMTs are ineffective in discharging their role of managing teachers‘ CPD for curriculum change implementation. They lack sound understanding of their role, and they also experience a litany of practical impediments. These barriers, inter alia, include limited training for CPTD managers, shortage of relevant resources, difficulties of finding a suitable day and time for teachers‘ CPTD, CPTD managers‘ work overload and teachers‘ change weariness (Phorabatho, 2013). Ramango (2014) reports on CPTD implementation challenges which included the limited time allocated for CAPS training and

content/subject training meetings held after working hours. Furthermore, these cascade models when used for policy implementation, they end up not adequately empowering teachers with knowledge and teaching skills for effective teaching practice in real classroom settings. In spite of these challenges and limitations Steyn (2013) strongly believes there are collaboration amongst teachers and principals is a great learning opportunity that needs to be exploited in order to improve the quality of education in South Africa.

The National Department of Education has provided a policy for the introduction of continuous professional development. From March 2014 the Umgungundlovu District started embarking on a roll out plan for the advocacy of Continuing Professional Teacher Development (CPTD). The workshops were conducted for deputy principals and principals across the district in cluster meetings. The traditional cascade model has been used for this advocacy of CPTD as also cited by other studies (Kriek & Greyston, 2009). The principals and deputy principals are expected in return to keep records and score points on the training they receive from the Teacher Development unit at the District and also other forms of training. I caution that this approach with all its good intentions may end up being a ritualistic tick exercise. The cascade model has been seen to fail the system by its lack of follow ups and the assumptions upon which it is based (Dichaba, 2013; Dichaba & Mokhele, 2012). Mapotse (2012) is his study argues in favour of Action Research (AR) as an intervention strategy that revealed an improvement in the teachers‘ understanding and implementation of Technology in the Mankweng Circuit, in Eastern Cape.

The CPTD programme in its essence is not a founded on sound educational principles, however the way it gets presented lacks coherence as the principals and deputy principals will be left on their own. In the website of the Kwazulu-Natal Department of Education, the Teacher Development Directorate has outlined the 2015 rollout plan for the training of post level one educators, which will be a mammoth task. However, the plans for the rollout of workshops are underpinned from the cascade model, which has its own shortcomings (Dichaba, 2013; Dichaba & Mokhele, 2012; Mapotse, 2012). Amponsah (2014) concluded that examined the Student Teams Achievement Division (STAD) technique, which was a

teaching learner-centred approach impacted on the way teachers managed their responsibilities in the classroom.

Principal leadership is pivotal to systemic change, which adds to the three drivers of change that is trust, collaboration and capacity building. There is wide consensus regarding the idea that professional development is bound to be successful if it is a lifelong process (Middlewood & Parker, 2005; Robertson, 2008; Steyn, 2014; Steyn, 2015). However, several studies are also indicate the barriers in the establishment of PLCs (DuFour, 2004; DuFour, DuFour & Eacker, 2006; Clarke, 2014; Steyn, 2015). During this era of education transformation there is a general expectation that the school principal must initiate the facilitation for professional teacher development programmes in schools (Bush & Middlewood, 2005; DuFour, DuFour & Eaker, 2006; Fullan, 2009; Mncube, Naicker & Nzimakwe, 2010; Hilty, 2011;Jones, Stall & Yarbrough,2013). There is a growing requirement for the training of principals in order to be equipped to handle the challenges of school development (Bush, Briggs & Middlewood, 2006; OECD, 2009; Dempster, Lovett & Fluckiger, 2011).

Leading change in an organisation goes beyond the narrow view of analysing the attributes of leadership. Many scholars have done research in this area and their findings reveal that continuous professional teacher development (CPTD) enhances teachers‘ daily practice and learner performance (Hord, 2008; Sargent & Hannum, 2009; Williamson & Blackburn, 2010; Mncube, Naicker & Nzimakwe, 2010; Maloney & Konza, 2011; Seo & Han, 2012). Maloney and Konza (2011) in their study of PLCs in elementary schools, found that teachers are better positioned to successfully lead professional networks if they take ownership.

There is acknowledgement from several quarters of the need to professionally develop principals to meet challenges in this 21st century and the changing school needs (Chiome, 2011; Schley & Schratz, 2011; Morrison, 2013; Qian & Walker, 2013; Chu & Cravens, 2012; Gay & Howard, 2000). Many teachers consider being overladen with too many initiatives. This can be considered as an obstacle to change. The other limitation that is reported is the problem of policy overload to the education system, which results in teachers and leaders being demotivated. Another trajectory has been the proliferation of policies which are

fostered from the top down without any support from the districts. The Umgungundlovu District recently rolled out support for curriculum policy changes in National Curriculum Statement (NCS) and also Continuous Professional Teacher Development (CPTD) which directly affect schools. Studies have been conducted in the context of the implementation of the South African curriculum which has been a bone of contention for decades (Carrim & Keet, 2005; Chisholm, 2003; Chisholm, 2005; Pinar, 2103). The expectation from schools is that districts are supposed to provide ongoing and sustainable support in the interpretation of such policies to the letter. The glaring gaps are already seen in existing cascade model which leaves the teachers and principals on their own once the workshops have been finished (Dichaba, 2013; Dichaba & Mokhele, 2012; Scott, Swartz & Cooper; 2014).

Another critical aspect of professional development is journaling, which is a tool or demonstrating reflective practice. McMillan & Schumachi (2006) supports the value attached to the use of the journal as tool for record keeping. Towndrow, Ling & Ventham (2008) agree that journaling allows the researcher to produce information that is generated from the data by means of written narratives from the participants (Faziah, 2008). It assists in verifying the co-learning and co-researching between the respondents and the researcher, however training is critical for the success of this learning journey. The principals are shying away from using the journal for reflection as part of their responsibility in terms of continuing professional development (CPTD).

Amongst the leading drivers of school development, Fullan (2008) identified the role of empowerment in improving learner attainment. Fullan (2008) sponsored the idea of promoting purposive peer interaction amongst leaders. The difference with this notion is that people begin to value the idea of learning from each other. Fullan (2008) strongly believes on the idea of capacity building, which has also been supported by other scholars (Ash & D'Auria, 2013). Capacity building is valued as a significant driver for change in most education systems at all levels of the organisation. Amongst the practical ways that he has suggested are identifying talented system workers.

The principal in a school with a learning organisation mentality learns daily by means of reflection. Fullan (2008) has a firm belief that innovation and consistency can be achieved

by learning on the job. The cascade workshop and course model of learning has its own limitations as compared to reflection in action. In a learning organisation there is room for innovation and experimentation by principals (Fullan, 2008). Principals have a responsibility of creating the conditions conducive for organisational learning. There is wide consensus that professional development is bound to be successful if it is a lifelong process (Middlewood, Parker & Beere 2005; Robertson, 2008; Steyn, 2010). The CPTD programme in South Africa is underpinned by the principles of continuous learning. In this learning the reflective practice of using journals is promoted (Bryk, Sebring, Allensworth, Luppescu &Eaton, 2010; Abednego, Hovassapian, Teimournezhad & Ghanbari, 2013). In a learning organisation innovation and experimentation does not reside with the leadership. Principals are faced with the daunting task of handling journals, which demands time, practice and skill (Cohen-Sayaq & Fischl, 2012; Bryk et al, 2010). Several programmes are used for purposes of professionally developing principals for the 21st century challenges (Choy & Lidstone, 2013). South Africa is no exception as several studies refer to leadership professional development programmes for principals and the different approaches used in such programmes (Mathibe, 2007; Mestry, R., & Singh, 2007; Bush, 2011 ; Bush, Kiggundu & Moorosi, 2011; Moorosi, 2013; Steyn, 2014). Shaked and Schechter (2013) recommended the professional development of principals in systems thinking. The co-authors identified the preparatory programmes, induction, as ideal for developing principals in the acquisition of systems thinking skills.

In a systems thinking perspective collective leadership and team work is the key principle above titles and positions. Empowered leadership gears towards sustainable, coherent and flexible school development. The above discussion shows the shift in ideas concerning continuing professional development and the value it can add to the holistic development of the school. The section below focuses curriculum development as one of the components that is interconnected to school development.

2.4.8 Curriculum development

It is argued that curriculum development is not a stand-alone concept, but rather exists in a complex web which is interrelated to other components in school development. Literature is a scarce in South Africa in the area of curriculum development, considering how it has evolved at a bone of political, ideological and socioeconomic contention. Studies have been conducted in the context of the implementation of the South African curriculum which has been a bone of contention for decades (Carim & Keet, 2005; Chisholm, 2003; Pinar, 2003). According to Blasé and Blasé (2010) literature on instructional leadership falls into four broad models, which tends to limit the understanding of this concept. These will include amongst others, the prescriptive, instructional leadership, proscriptive and exploratory studies. The prescriptive includes what is found being practiced by most principals, namely integration of tasks of direct assistance to teachers, group development, staff development, and curriculum development. Principal leadership roles also include monitoring educator and learner progress. Hoadley, Christie and Ward (2009) makes a comparison regarding the prevailing realities of the South African schooling system which ends up dividing the functional from dysfunctional schools on the basis of how curriculum is dispensed. In South Africa there is limited literature that supports how schools in difficult conditions are coping with improvement of teaching and learning (Kiggundu & Van Rooyen, 2010; Bush, Kiggundu & Moorosi, 2011). According to Sofo, Fitzgerald and Jawas (2012) an effective instructional leader engages in capacity building, empowerment of the team of teachers, which is what Fullan (2010) also advocates as the role of the principal as systems thinker. Another phenomenon of instructional leadership is whereby student leaders return to their former schools and support by teaching during the vacation period (Chapman & Harris, 2004; Prew, 2007). Nuermerski (2013) calls for a rethinking of the way instructional leadership is conceived, by proposing an inclusive model that embraces the principal the teacher and coach. Mchunu and Imenda (2015) blended different teaching approaches which included the OBE, traditional and blended approaches in study conducted amongst grade 12 physical science learners.

The section below focuses on teaching and learning as the other key aspects of school development. A whole school development approach is considered from different perspectives.

2.4.9 Managing teaching and learning

From a systems perspective, teaching and learning is a highly complex human activity system, which is interrelated to other pivotal focus points in school development. For teaching and learning to continuously improve, relevant stakeholders are needed to work in an environment of a learning organisation (Bhengu & Gounden, 2014). Teaching and learning as part of school development, needs to be centered at the heart of immediate, short and long term sustainable improvement. Literature suggests that principals are key players in the management of teaching and learning (Botha, 2006; Hamzahm, Yakop, Nordin & Rahman, 2011; Taole, 2013). However, from a systems perspective and in learning organisations, teaching and learning needs to be viewed as a shared responsibility. Given the status of teaching and learning, principals and SMTs are supposed to give it high priority (Bush, Jourbert, Kiggundu & Van Rooyen, 2010). South African principals are facing challenges which impact on the execution of their responsibilities of managing teaching and learning (Bhengu, Naicker & Mthiyane, 2014; Naicker, Chikoko, & Mthiyane, 2013; Bush, Jourbert, Kiggundu & Van Rooyen, 2010; Bush & Glover, 2009; Kriek & Grayson, 2009). Scholars concur that the management of teaching and learning is a shared responsibility of the principal and the SMT members (Bush, Jourbert, Kiggundu & Van Rooyen, 2010).

Literature in developing countries attests to the critical role of instructional leadership and its contribution to improving the management of teaching and learning (Hallinger & Lee, 2014; Khan, 2012; Moswela, 2010; Pansiri, 2008). This study argues that a holistically developed programme for managing teaching and learning needs to be developed and designed in accordance with principal and teacher identified needs to avoid the "one size-fit-all" approach (Pitsoe & Maila, 2012). Dysfunctional schools are notable for their failure in managing teaching and learning and poor teacher content knowledge (Taylor & Moyana, 2005; Khanyisa, 2006; Mthiyane, Bhengu, & Bayeni, 2014).

Amponsah (2014) concluded that examined the Student Teams Achievement Division (STAD) technique, which was in teaching learner-centred approach impacted on the way teachers managed their responsibilities in the classroom. There is a shift from individualistic school-based to system-wide collaboration amongst the schools in the district. The localised school-based improvement models were based on the assumption that schools are units of analysis. The system thinkers were faced with the challenge of approaching schooling that will affect the whole school system. The discussion to follow takes the debate further by looking at systemic reform as the approach needed to upscale reform in education. Mansour, Heba, Alshamrani & Aldahmash, (2014) strongly believes that CPTD programmes need to be located in the context where teachers are located. The above indicates the embedded nature of the components of school development which need to be understood not in isolation from each as it has been the practice in reductionist approaches.

2.4.10 Leadership and governance

School governance involves core responsibilities that are assigned to governors (Potgieter, Visser, van der Bank, Mothata & Squelch (1996). Financial management is considered to be a thorny issue in school governance area (Mestry, 2006). This problem is observed by some researcher to be more prevalent in SGBs with parents who lack basic education skills (Mestry, 2006). The study of Adam & Waghid (2005) stressed that parental lack of management and other multifaceted skills is a cause for concern when it comes to issues of governance. (Mathonsi, 2004) also reports the effect this lack of skills by rural school governing bodies impacting on resource access, organisation and influencing decision making in these structures. Studies indicate that a number of the SGBs were found to be unproductive and lacked the necessary financial and managerial expertise to manage their schools‘ resources and funds (Maraj, 2000; Mabasa & Themane, 2002; Bush, 2004; Heystek, 2004; Ngidi, 2004; Govender, 2005). It has been observed that SGBs in historically disadvantaged schools usually burdened principals by compelling them to take complete custody of school governance to the detriment of the principals‘ professional duties (Heystek, 2004; Naidu, Jourbert, Mestry, Mosoge, & Ngcobo, 2008). Shahed and Schechter (2013)

bases the development of principal leadership by means of systems thinking. He clarifies the role of the principal who uses systems thinking approach to leadership.

2.5 The systems thinker and school development

Systems theory has pervaded a variety of disciplines, education being no exception. The idea of basing leadership on system thinking is increasingly contemplated by scholars in educational circles. The basic tenets in the system perspective are interdependence and interrelationship between the elements in the system. Scholars concur on the systemic leadership as a new way of conceptualising school leadership (Cater, Bond & Franey, 2006; Hargreaves & Shirley, 2009; Bolden, Hawkins, Gosling, & Taylor, 2011; Depress, 2013; Fullan, Cuttress & Kilcher, 2009a; Fullan, Cuttress & Kilcher, 2009b; Fullan, 2007; 2010; Ash & D'Auria, 2012). The new paradigm that Ash and D'Auria (2013) are presenting on whole school change is premised on four drivers of change. Ash and D'Auria (2013) demonstrate the value of building sustained, collaborative climate of trust within the institution in order to lead the whole school reform. Ash and D'Auria (2013) discuss the role of leadership at school in removing all obstacles to school development. Shaked and Shechter (2014) explored the use of systems thinking by principals as a way of improving their leadership skills.

A wide range of leadership positions are postulated across the developed and developing countries, yet not much has been written in developing countries about systemic leadership. There is a plethora of literature on instructional, distributed and transformational leadership and the assumptions regarding its influence on school improvement (Harris, 2004; Leithwood, Harris & Hopkins, 2008; Hallinger & Lee, 2014; Hallinger & Heck 2010; Williams, 2011; Mangin & Dunsmore, 2015; Van der Merwe, 2014; Silins, 1994). However, there are few studies that focus on systemic leadership and its influence on school development (Thoonen, Sleegers, Oort & Peetsma, 2012). Systemic leadership shies away from linear, simplistic and reductionist approaches to leadership (Harris, Adams, Suzette, Munimandy & Munimandy, 2015). Scholars advocate for a different approach to leadership that is flexible to apt to change and bring the needed innovation in a learning organisation

(Fullan, 2011; Ash & D'Auria, 2012; Hargreaves, 2013). Scholars appeal to principals as system thinkers in action to be able to respond to challenges of school development (Cater, Bond & Franey, 2006; Hargreaves & Shirley, 2009; Fullan, 2007; 2010; Ash & D'Auria, 2012). Wagner and co-authors (2006) believe that principals who are considered systems thinkers need to start by understanding the 4Cs and the effect that these interrelate with the task of improving learning, teaching and leadership.

2.6 Reflection on practice and its role in school development

The focus of this is study is to examine principal's understanding of systems thinking, which is also coupled with examining their use of systems thinking approach in school development. For principals to demonstrate that ability, they need to reflect on how they have conducted those activities and also check reflective journal and diaries as sources and references to back up their reflections. It is in line with that thinking that I think it is expedient to review reflection as a skill and practice that is linked to systems thinking. For purposes of this study, I will not present a detailed explication of the concept, but rather focus on its application for purposes of reflection in context of principals. I need to acknowledge, however that there are different strands of reflection and ways of engaging which have been developed by various scholars in literature.

The following studies indicate that the level of reflexivity can be enhanced by means of journaling. In the study conducted by Degago (2007) arguments were advanced for using journal writing as an opportunity to improve the reflection skills (Abednea, Hovassapian, Teimournezhad & Ghanbari, 2013).

In his study Lee (2007) believes that reflection and reasoning skills can be improved if people are given more time and guidance on issues to reflect on. Travers (2010) shares how diaries were used in a study that focused on exploring how students were coping with stress from the perspective of both the researcher and diarist. In a study conducted by Cohen–Sayag and Fischl (2012) they report that positive feedback from teachers on how the students had done journal writing contributed to positive changes. Participants in focus group believe reflective writing in journals gave them an opportunity to engage with the teacher. Lee (2007) reports

on how a student found the dialogue with the educator to be positive in enhancing individualized learning, collaborative relationships with teacher, boosting confidence, and also leading to sharing of experiences.

From the studies conducted it is clear that journal writing requires is time consuming, and requires a lot of practice and space for practitioners to engage it properly (Jalilifar, Khazaie & Khasgari, 2014; Abednea, et al., 2013; Cohen-Sayag & Fischl, 2012; Lee, 2007). One of the suggested ways for improving the benefits of journal writing is clarifying the nature and purpose of reflective journal writing (Jalilifar, Khazaie & Khasgari, 2014; Abednea, et al., 2013; Lai & Calandra, 2010). Levine, Kern & Wright (2008) found that writing of narratives led to reflection among interns and consequently resulted in improved self –awareness, whilst Day & Thatcher (2009) discovered that there were both challenges and successes in us of dairy for journaling. Abednea, et al. (2013) recommended that proper guidance be given prior to any exercise of journal writing. Another proposal made by Abednea et al., (2013) was for the creation of a culture of dialogue and mutuality amongst teachers in order to enhance journal writing skills. Prinsloo, Sladeb and Galpinb (2010) consider that differences between logging on diaries which tends to be routine, as compared to reflective journaling. A deeper and sophisticated study on reflection on action by students in diverse activities was presented based on reflections on lessons, classroom observation, digital stories and philosophies (Thorsena & DeVoreb, 2013). Reflective journal writing is assumed to enhance critical thinking, in the sense that the practitioner can relive his or her understanding of the practice (Thorsena & DeVoreb, 2013; Lee, 2007; Abednia et al, 2013). Another recommendation for the use of reflective journal writing is that it assists in identifying shortcomings in order to improve and connect existing knowledge with new knowledge (Dalaglu, 2001; Lee, 2007). Scholars concur in their studies in pointing to both benefits and limitations in the use of diaries as tools for reflection (Tang, 2013; Farrah, 2012; Greiman & Covington, 2007; Lee, 2004). Amongst those cited by scholars are the limited contribution to achievement of higher levels of reflection, the failure to separate between telling and reflecting (Krol, 1996; Lai & Calandra, 2007). Lai and Calandra (2007) reported that teachers were expressing their failure in the use of journals and the difficulty in using the skill of journal writing as a means of reflection. What has been cited as the cause of the lack of skill in journal writing is the lack of exposure to thinking skills, poor guidance and the

disconnection between theory and practice (Lai & Calandra, 2007). Most scholars indicate that the major barriers were found to be finding time to engage in reflection due to other priorities and also failure to identify points to reflect on (Dagago, 2007; Abednea, et al., 2013). Degago (2007) discovered that Ethiopian students found it difficult to reflect in English (Abednea, et al., 2013).

There are limited studies that report on reflection as a professional development skill in the South African studies. Due to the nature of education reform in which educators are exposed to, the most common practice is that they follow uncritically what has been prescribed in the curriculum. The lack of skill in engaging in critical reflection leads to the stifling of the growth of teachers in professional development. Reflective openness means being able to acquire the skill of examining our own ideas, but mutually examining each other‘s way of thinking. According to Balfour et al. (2004) in terms of the Norms and Standards for Educators (DoE, 2000) teachers are expected to be reflective practitioners. Teacher engagement in ongoing professional development requires both pre-service and in-service education. In this journey of life-long learning the educator is expected to be engaged in self-directed knowledge and skills acquisition and adaptation of his engagement in school development. According to the Norms and Standards for Educators in South Africa every educator is supposed to continuously engage in professional development as a practitioner (DoE, 2000; Mntambo, 2009). James, Connolly Dunning & Elliot, (2005) looked at the benefits of systems thinking as providing a useful lens through which to look at the school as a whole.

Reflection is a significant systems thinking skill which is practised in countries with developed professional systems. In South African studies there is not much that had been written regarding principals using journals and diaries for reflective purposes on their professional development. In the review conducted the identified gaps are the challenges faced by schools in their lack of development of reflective skills. These significant gaps justify reflective practice and its use as a sub system, which is also underpinned from a systems thinking perspective.

2.7 Challenges of systems thinking

The 21st century challenges demand a diverse nature of skills from all kinds of stakeholders who are involved in school development (Rotherham &Willingham, 2009; Robinson, 2010; Boardman & Sauser, 2008). In South African studies it has been noted that there is less exposure by stakeholders to systems thinking skills required for handling complex schooling issues. The 21st century demands new thinking skills required from various stakeholders, such as innovation, critical thinking, problem solving, and collaborative learning results in schools not realising their potential (Huberman & Miles, 2013; Hairon, Goh & Tzu-Bin, 2014; Boardman & Sauser, 2008). These are tip of the iceberg potential hindrances to school improvement, which is required for schools to continue in a trajectory of improvement. According to Boardman and Sauser (2008) in order to cope in the 21st century, leadership needs to improve personal skills for thinking. Scholars concur that systems thinking is a complex theoretical framework which needs to be learned within the organisation as a whole in order for the sustainability of improvement (Jacobson & Wilesky, 2009; Stephen, 2012; Buckle Henning & Chen, 2012; Nguyen, Graham, Ross, Maani & Bosch, 2012). The challenges faced in the schools have huge implications for training of principals for professional development and acquisition of reflective skills (Shah, 2010; Bouchamma & Maclaud, 2013; Donkor, 2005; Male & Paliaologou, 2015). School development requires various dimensions of school leadership practices, especially in South African schools which have multiple deprivations and conditions inherited due to past imbalances (Tickly & Ngcobo, 2005; Bergman, Bergman & Grovett, 2011; Mkhwanazi, 2014; Maringe & Moletsane, 2015). In the next paragraph, I will summarise the chapter and indicate what is envisaged in Chapter Three.

2.8 Conclusion

This chapter centered on the concepts of school development, and the other interdependent systems. The eras of school development were mapped, although the emphasis was placed on the era of systemic educational reform. The current debates covered areas of educational reform which impact on school development. The areas covered by school development include continuous professional development. In the next chapter the discussion will focus

on the systems thinking concept as a theoretical framework. Furthermore the next chapter focuses on understanding systems, systems thinking, and the justification for using systems thinking as a theoretical framework.

CHAPTER THREE
SYSTEMS THINKING PERSPECTIVE

3.1 Introduction

The previous chapter reviewed the literature on school development as a system that is influenced by systems thinking. A detailed review of the evolutionary stages of school development was sketched, which led to the current debates which I consider as sub-systems of school development. The basis for reviewing literature was to answer the question regarding the benefits accrued by principals in using systems thinking in conducting school development. The review presented an overview of the application of systems thinking and also the benefits thereof which contribute to school development. In the previous chapter we linked benefits of the efficacy of systems thinking for school development. The main purpose of this chapter is to examine systems thinking as the theoretical framework that underpins this research. I will also examine concepts of systems thinking.

3.2 The meaning of system

One of the questions this study is attempting to answer is based on understanding of systems thinking. In order to understand systems thinking we need to present the multiple definitions of systems as part of the theoretical framework. The simple question that needs to be posed is what is understood as a system and also systems thinking. There are a variety of definitions of a system. Buckle Henning and Chen (2012) argue that knowing a system is an epistemological matter. The simplistic way to answer the first part of the question is that a system is a collection of things or activities which are interconnected and which can be regarded as a single whole entity that has a purpose and that can adapt and survive in a changing environment such that the purpose continues to be met (Lucket, 2004). Ackoff (1999) defines a system as a set of two or more related and interdependent elements. He further elaborates that a system is a whole that cannot divided into independent parts. Bertalanffy (1968) defined a system as a set of elements standing in interrelations. There is concurrence of thinking on this idea from Ossimitz (1997) who admits that a system is difficult to define owing to different conceptions in different fields. In diverse literatures there is general agreement on some of the features considered to be those of a system viz.,

that it is made of interrelated components, there are boundaries defined from the surrounding environment which determine the identity of the systems, they are temporarily dynamic in terms of their purpose, they are purposive and lastly, individual components in a system make up the whole, and may also be considered as whole systems at another level of analysis, thus their hierarchical nature (Togo, 2009; Morgan, 2005; Banathy, 1996). According to Weinberg (1975) a system is a way of looking at the world, which influences how people think about the world due to their different experiences. The approach used in systems is to consider the system as a whole, being consistent of interdependent elements (Kramer & De Smit, 1977). This brings to the picture the idea of the indivisibility of the system, but fostering the idea of looking at them as parts with different properties (Ackoff, 1999).

Systems theorists have defined the critical characteristics of a system as being interdependent and interconnected (Jackson, 2001; Midgley, 2000; White & Taket, 1997). Systems are looked at in patterns and types of cycles and include explicit modelling of complex issues. A system is conceived as a whole with interconnected parts that interact and influence each other (Moloi, Grobler & Grovett, 2002). Scholars across the systems field agree that a system is a number of interdependent components that form a whole and work together to attain a common goal (Senge, 2006; Midgley, 2000; Beerel, 2009; Maani & Cavana, 2007). Capra (1996) believes that a system is an interrelated whole, whose essential properties arise from the relationships between its parts, whilst systems thinking is the understanding of the phenomenon within the context of a larger whole. According to Beerel (2009) a system is regularly interacting and interdependent group of parts, items or people that form a unified whole with the purpose of establishing goal.

There is agreement amongst a number of scholars that a system as an assembly of components connected together in an organised manner (Lane, 2000; Beerel, 2009). The components are affected by being in the system and the behaviour of the system is changed if they leave it. This organised assembly of components does something. The assembly as a whole has been identified by someone who is interested in it. Most scholars ascribe purpose, boundary, emergent properties, existence in nested hierarchies and internal processes of communication and control, as some of the features of a system (Capra, 1996; Lucket, 1996; Midgley, 2000; Meadows, 2008). In the light of views that have been expressed regarding

the meaning of systems, we will also take into consideration the nature and types of systems which are all concepts related to systems thinking.

3.3 The nature and type of human systems

The discussion below points some of the key issues and concepts that arise in systems thinking. The discussion looks at the nature and different types of systems. This study will not indulge into details regarding which approaches support which concepts. It starts with a general explanation about the nature of systems (Ackoff, Ackoff, & Emery, 2005). A system is an entity that maintains its existence and functions as a whole through the interaction of its parts or elements (Morgan, 2005). It is a group of things that are connected in some sort of way. The behaviour of the parts depends more on how the parts are connected rather than on the nature of the parts. The resulting assembly does something and its activities are of interest to other groups (Morgan, 2005; Balle, 1994). These interrelated elements are affected by being in the system and are changed by leaving it (Ackoff, 1991). The key point is that the character and properties of any system come from the myriad of interrelationships between and amongst the elements (Morgan, 2005). The understanding of what constitutes the whole system cannot be inferred from studying the workings of individual elements (Boardman & Sauser, 2008; Boardman & Sauser, 2006). The approach is on focussing on the behaviour of the inseparable whole, with its constituent parts. Systems are also known for their ability to survive and adapt to the environment in which they are exposed to (Laszlo & Krippner, 1998). The idea of systems being regarded as able to survive changes in the environment is supported by scholars from different fields (Checkland & Scholes, 1999; Wetherill, Rezgui, Boddy & Cooper, 2007).

Scholars use different categories to classify systems, however this study will not exhaust all those classifications (Checkland & Scholes, 1999; Midgley, 2000; Gharajedaghi, 2011; Morgan, 2005; Meadows, 2008). Different types of systems are classified into natural systems, designed physical systems, designed abstract systems, human activity systems and transcendental systems (Checkland, 1999). A different argument is presented by Checkland (1999) regarding the social systems regarding the issue of boundary between a designed human activity system and a natural system. He posits that it can result from natural

relationships in a community (e.g. a family) or it can be an assembly meant for specific activities. In another angle, there is also consideration that there is no generally accepted classification and sometimes there is a mix of logical categories as this classification is based on a variety of purposes, interests or outlooks (Checkland, 1999). The understanding of what constitutes the whole system cannot be inferred from studying the workings of individual elements Schools as living systems are open and dynamic, which makes them to be complex (Bertalanffy, 1969). The closed systems are those systems considered to be isolated from their environment. The understanding of what constitutes the whole system cannot be inferred from studying the workings of individual elements Open systems are those involved in exchange of matter (materials, energy, information) with their respective environments and can achieve a steady state based upon continuous material exchange with their environment (Bertalanffy, 1968).

Systems come in the form of natural, technical and human forms. The human systems include families, groups, organisations, networks, partnerships and consortia (Morgan, 2005). All these human systems are webby, non-linear, entangled, wandering messes that do not lend themselves easily to traditional analysis and action (Morgan, 2005). All societies contain an almost infinite number of systems, most of which are interconnected or nested in the sense of a group being part of another system that is part of a national system that is in turn part of a regional or global enterprise (Morgan, 2005). Some may be formal and institutionalised. Others such as cultural or belief systems are more informal. Churchman (1968) characterised the systems as total system objectives, system‘s environment, the resources of the systems, the components of the system, and the management of the system.

There is general agreement amongst scholars regarding the purposive nature of the human systems (Checkland, 1999; Haines, 1999; Gharajedaghi, 2011). Schools are classified as human systems which are known to be purposeful (Emery, 2000). Organisations hold diverse goals which are both unique and shared amongst members found in the system (Haines, 1999). Human systems display the individual and collective goals of its members, which makes them unique. The understanding of what constitutes the whole system cannot be inferred from studying the workings of individual elements. The interactions and relationships that are structured and developed in a system eventually influence its results and

its performance (Boardman & Sauser, 2008; Meadows, 2008). Scholars concur that systems are characterised by individuality and plurality as well as with dichotomies and tensions (Boardman & Sauser, 2008; Gharajedaghi, 2011; Jackson, 2003; O Weinberg, 2001; Checkland, 1999; Haines, 1999).

This study focuses on school development as a phenomena formed mainly by human systems. The understanding of what constitutes the whole system cannot be inferred from studying the workings of individual elements. They are made up of several human activity systems with a number of groups of actors. The human systems differ in their inherent nature from technical and natural systems but share a number of behavioural characteristics common with natural systems. There are several attributes attached to human systems. Human systems are living organisms. They are more than just delivery systems or pieces of performance machinery. Amongst these attributes is that they have an identity, a memory, patterns of behaviour, disabilities, a life span and in most cases death (Morgan, 2005). According to Morgan (2005) their behaviour can be understood partly as an outcome of the workings of feedback loops where variables are interrelated (Morgan, 2005). Human systems show pathways, patterns of behaviour and communication flows (Morgan, 2005). They are constantly engaged in some form of capacity change regardless of their involvement with external actors. When systems do not change, they begin to decline and die. Almost all human systems are open to their context to a greater or lesser degree given the multiplicity of interconnections in modern life. These complex contexts provide both support and threat. Morgan (2005) argues that human systems usually try to adopt a range of strategies to deal with contextual factors including buffering, resource extraction, adaptation and reconfiguration, aggression to mention a few.

Complex systems can behave in non-linear ways and produce escalating levels of unintended consequences through spontaneous self-organisation (Morgan, 2005). Cause and effect becomes separated in time and space between what happens in systems, although there is an assumption that these are simplistically related. The belief in chaos theory is that systems can converge to a point of stability or equilibrium. Systems seek order but they do so by evolving though messes or chaos. Another characteristic of systems is that they seek more complexity, discover what is possible and constantly engage in experimentation. Added to that, systems

tend to begin in randomness and end in stability. One tactic used by system participants is to push the organisation into disequilibrium and then help it to stabilise in another pattern (Morgan, 2005). This is practically observed in different kinds of schools which manifest different ways of efficiency of leadership and management, the behaviour of teachers and learners and the culture of teaching that prevails in such schools. Consequently, schools will end up being classified depending on the nature of the culture that is manifested ranging from functional to dysfunctional schools.

The attributes and properties of systems emerge over time as individual system components are combined into increasingly complex systems (Morgan, 2005). Most of the time they evolve into the classic system form called the network, which end up producing other elements and components and is then itself changed by the new interrelationships induced by the introduction of those new components. The system works to connect, expand, reconfigure and transform. It shifts to ever greater diversity. In this sense, human systems have the potential ability to self-organise or to keep creating themselves. Most systems tend to become more complex themselves as they try to deal with complex contexts and performance improvements. They add components, functions, interrelationships and resources. When they do change, they can do so quite suddenly (Morgan, 2005). In the schooling system the above attributes are observed, particularly in small rural schools which cannot be compared with the schools with large numbers of enrolment and a variety of both human and non-human of resources.

Morgan (2005) observes that many systems have a flexible and autonomous combination of character whilst working towards the same goal. It is observed that organisations which have high level of human activity there is a lot of competition as well as collaboration. Both factors can be considered as positives. It is normal for organisations to experience a state of entropy. Morgan (2005) cited a variety of factors which may negatively influence an organisation and lead it to the state of decline. Amongst others he mentioned that organisations lose their energy and drive due to lack of common values and identity, money, information, legitimacy, commitment loses energy and the drive to survive (Morgan, 2005). During this process of decline the organisation reaches a saturation point and everything collapses. Human systems struggle to survive as described above but can lose quickly

resilience. This is observed decline in some schools which were renowned for good performance in other years. The decline can be attributed to a number of reasons which will not be discussed due to the scope of this study.

Systems dynamic is a strand of systems thinking which is unique in dealing with complex and dynamic issues. Different kinds of patterns are observed in the culture of the organisations which are their dynamics. Senge (1999) spelled out a series of patterns of behaviour which he labelled archetypes. These include amongst others patterns which he called vicious and virtuous circles, the tragedy of the commons, limits to growth, shifting the burden (Senge, 1999), to mention a few. These will be discussed in detail during the course of the study. These kinds of patterns can observed at work also in the schooling system, consequently it manifests in dysfunctional school and underperforming schools. Morgan (2005) considers the working of feedback loops as a key part of systems thinking. This includes negative and positive feedback which happens across all organisations (Morgan, 2005). In the next paragraph we look at the diverse ways of understanding systems thinking as it relates to the critical questions of this study.

3.3.1 Understanding of systems thinking

Several studies have been conducted using systems thinking as a theoretical framework. Studies across the spectrum affirm that the systems thinking lens accommodates an interdisciplinary approach as is observed in a plethora of studies. In most studies several scholars outline the general background to the understanding of systems thinking, which is an elusive concept (Green, 2013; Beerel, 2009; Elgart, 2009; Adelman & Taylor, 2007; Cabrera, 2006; Sterling, 2003; Banathy, 2001). An in-depth study by Cabrera (2006) takes a philosophical and critical perspective in systems thinking and makes counter claims against the functionalist definitions of the phenomena. Cabrera (2006) takes a neutral position and looks at systems thinking as a broader construct in that systems is any form of thought that takes into account knowledge about systems that is informed by what is currently known as real systems. There are many types of systems which give the reader a lens to understand systems.

One of the main objectives of this study is to understand the meaning of systems thinking. There is consensus amongst scholars regarding what systems thinking does and its characteristic features. However, there are different meanings attributed to the approaches informed by a systems perspective. Different approaches are used within systems thinking as a theoretical framework. Another observation made is that systems thinking provides a set of tools that influence how reality is understood (De Savigny & Adam, 2009). This is in opposition to the notion of a hammer approach in positivist thinking, whereby people only have the hammer in the tool box, as a thinking technique. According to Frenk (2008) it involves working from multiple angles and work towards creating synergy and handle unintended results. The positions that scholars take on system thinking is based and grounded in their specialist fields. According to Cabrera (2006) systems thinking is not a science; it is a conceptual ability, an orientation, and a framework. Therefore, is offers an orientation to whoever needs to be exposed to other ways of thinking about interpreting the world. The other feature of systems thinking is that it is informed by knowledge about systems. This a critical part in this study, as it shows how important it is for anyone to be exposed to continuous learning. Senge (1999) is an advocate of personal and individual developmental learning, Furthermore, Senge (1999) spearheaded the advancement of organisational learning in his theory of learning organisations. According to Kay and Foster (1999) systems thinking is a study of objects as wholes and synthesising all the relevant information regarding an object, in order to have a sense of it as a whole. In a similar vein, MacNamara (1999) affirms that systems thinking is utilised to assist in viewing the world from a broad perspective that includes structures, patterns, and events besides focusing on events themselves. This idea cannot be overemphasised, considering the lack of holistic thinking in existent school leadership. A holistic view of systems thinking describes it as thinking holistically or seeing the big picture of where the organisation is moving towards. A mechanical approach to problem solving in which leadership is oriented, is that of breaking up the elements into small units, which is antagonistic to holistic thinking.

Leadership in organisations brings this as a mental model when engaged in strategic planning processes for school development. Most organisations and leaders are shackled by this reductionist mode of thinking which shows the influence of mechanical and positivist

approaches (Winter & Checkland 2003). Churchman (1968) declared that systems are made up of components that work towards achieving the main goal of the whole system.

The pluralist view held by organisational leaders on systems thinking includes seeking to identify systems thinking with thinking skills for learners. Bertalanffy (1968) categorises between open and closed systems. By the latter he refers to the systems which are isolated from the environment. The living organisms are classified as open systems (Beerel, 2009). The functionalist view of systems is when we look at them in terms of what they can do. Cabrera (2006) considers the functionalist approach as reductionist and atomistic as the focus is only on what the system can do. A multiple perspective on systems thinking considers the inclusivity of new ideas and is driven from an interdisciplinary approach (Cabrera, 2006).

The epistemological stance that accommodates and combines both the functionalist and multi-perspective lenses bridges the gap between theory and practice. Systems theory is conceptual and is set on the habits of the mind. There is a held belief that systems thinking is a conceptual framework in orientation to the world and a model for thinking and learning about systems of all kinds (Cabrera, 2006). Ulrich (2005) argues for an efficient management based on the systems thinking conceptual framework to provide efforts for scholars to understand systems thinking based on their experiences, backgrounds and their lenses. This aspect is significant for the primary question regarding the principals understanding of systems thinking. The discussion below focuses on the philosophical and ontological underpinnings of systems thinking.

3.3.2 Ontological and philosophical underpinning of systems thinking

Different views of systems have various philosophical foundations, which cannot be exhausted in this limited study. A distinction is made by Flood and Jackson (1991) between hard and soft thinking systems. On the other side, Burrell and Morgan (1979) in the social sciences focus on the assumptions related to ontology, epistemology, human nature and methodology. A decade later, Jackson (2001) acknowledged the influence of this work on the development of critical systems thinking. The same can also be said of Hirschheim and Klein (1989) who followed more or less the same trend of thinking when they defined the

four paradigms of information system development. It can be observed that their ideas concur with Burrell and Morgan (1979) who bring another dimension in understanding the assumptions regarding the fields of epistemology, ontology, human environment and methodology. These co-authors categorise the two dimensions of understanding as objectivism–subjectivism and order–conflict dimension. Burrell and Morgan (1979) discussed at length the differences in assumptions that lead to what they categorise as functionalism, social relativism, radical structuralism and neo-humanism. By functionalism Burrell and Morgan (1979) meant the application of objective predetermined tests. Secondly, by social relativism, is meant a move towards acknowledging the existence of other parties in the co-formulation of objectives. Thirdly, neo-humanism in its application means collaboration and understanding and emancipation can lead to change in the environment. Lastly, the radical structuralism reflects the challenge that is made against the status quo which ends up in conflict (Burrell & Morgan, 1979).

Systems ontology answers the ‗what' question, that is, what things are, what a person or a society is and what kind of world we live in (Banathy, 2000). The ontological task is therefore the formation of a systems view of what is or, in other words, a systems view of the world (Banathy, 2000). Systems ontology is difficult to define as systems take different forms, e.g. a cell, a human being, an organisation are all systems (Bertalanffy, 1968). With regard to critical realist ontology, reality is also argued to be not quite accessible to immediate observation (Banathy, 2000). However critical realism accepts this position and argues that theories of social studies may be wrong and may change as new discoveries are made. It explicitly recognises the fallibility of knowledge, depth ontology and causality in open systems (Banathy, 2000). This study examines the use of systems thinking to school development using the former as both the ontological frame and epistemological perspective. Systems epistemology deals with general questions of how we know what we know (Banathy, 2000). The other focus area is the investigation of organised wholes (Bertalanffy, 1968). In research what is considered as knowledge is what the researcher considers as what he or she knows from his or her perspective. In a system such as school development there are multiple human agencies involved where the researcher interprets reality from his or her own perspective (Banathy, 2000). Most of the time what is considered as knowledge is subjective since it involves the interpretation of reality from the perspective of the knower

(Banathy, 2000). Systems epistemology is therefore based on social constructivism in which reality is believed to be a social construct (Banathy, 2000). In order to apply the systems thinking concepts and their efficacy to school development which is the core of this study, it is important to understand the philosophical underpinnings of systems thinking. There are general points of convergence in understanding the key concepts around systems thinking. Some of these have been shared in this study, such as reflective practice and understanding of systems. As part of the conceptual framework for understanding systems, Morgan (2005) bases the assumptions of variety of concepts in relation to understanding the field of systems thinking. Amongst those assumptions is that feedback loops consists of linked patterns which end up in outputs from one major part influencing input to that same part (Morgan, 2005). This cyclical flow results in delays, large amplification and dampening effects which affects the entire behaviour of the system (Morgan, 2005).

Complex social systems exhibit counterintuitive behaviour (Morgan, 2005). This concept embodies the adoption of systems thinking, whereby intuitive methods are used to solve difficult complex social system problems (Morgan, 2005). This is a common flaw and arguably only analytical methods using tools that fit the problem will solve difficult complex social systems problems (Green, 2013). Systems thinkers are in agreement regarding the idea of holism, which is based upon the principle that wholes are greater than the sum of the parts (Jackson, 2003; Flood, 2010). There is general concurrence amongst systems thinkers that this means the properties of each part are dependent upon the context of the part within the whole in which they operate (Gilbert & Sarkar, 2001; Flood, 2010). A system is always more than the sum of its parts. According to Weinberg (1975) a system‘s emergent properties are those that do not exist in the parts but are found in the whole. A system forms part of a larger whole or system. Systems thinking shifts away from the approach whereby the parts are broken down and isolated during the process of investigation. The other idea closely related to holism is the concept emergence (Banathy, 1997). Banathy (1997) in his understanding of systems believes the joined and integrated matrix of relationships between parts creates emergent properties of the whole. The dilemma is that it is difficult to see the properties of the whole by means of looking at the parts.

Many systems scholars concur that systems thinking is an epistemology and a way of viewing systems from a broad perspective including seeing interrelationships between components of the system and their relationship to the broader environment (Togo & Lotz-Sisitka, 2013; Beerel, 2009; Togo, 2009; Krasny & Tidball, 2008; Reed, 2006; Webster, 2004; Sterling, 2003). In this way the fragmentary and piecemeal approaches to school development cannot accomplish the envisaged systemic reforms that are incumbent to develop the whole education system. The next paragraph focuses on the justification for the use of systems thinking in this study.

3.4 The justification for use of systems thinking

The present study is underpinned by the systems thinking approach as the theoretical framework. The soft systems perspective facilitates social learning processes among different stakeholders and people (Senge, 2006; Checkland, 1988, 1999; 2000; Roling 1988; Engel & Salmon, 1997; Salomon & Engel, 1997a; Engel, 1995). The systems perspective takes into consideration the dynamics within the systems (Engel, 1997; Roling, 1988). Systems thinkers use a different lens when it comes to issues where there seems to be obvious attributes of cause and effect. This study examines the use of systems thinking in school development; therefore an understanding of the human activity system and concepts is key to the achievement of the goals of the research. The systems thinking approach serves as a guide to and key strategic link between macro and micro levels of dealing and handling problematic issues. The systems thinking approach allows the stakeholders to engage in debating issues with the aim of understanding the different perspectives.

It serves as a theoretical framework that guides the understanding of social organisations. When stakeholders are engaged in school development they have an opportunity to share ideas and experiences and be in a position to consult others on issues that need to be resolved. Knowledge is shared amongst the key role players and other significant stakeholders on school issues. These relevant stakeholders manifest in different kinds of associations that are established for purposes of learning such as the Professional Learning Communities (PLCs). In a study by Walker, Steinfort & Maqsood, (2014) stakeholders are depicted in the rich pictures during the process of analysis in SSM. A South African study conducted by Mchunu

(2006) also used the rich pictures during the facilitation of school development with principals of schools whilst implementing IQMS.

Morgan (2005) does not consider a linear input output approach to be ideal. Rather, it limits the understanding of the complexity of systems. Systems theory holds the view that cause and effect are separated in time and space, which is what makes it different from the positivist thinking implicit in the hard systems (Morgan, 2005). There is a strong view in systems theory that the small causes have direct influence on the larger elements and vice versa (Morgan, 2005). Systems thinkers discourage a linear and mechanical approach to explaining issues in systems. It is the argument of this study that the existing approach to school development is shackled in the old paradigm. The vast number of system interrelationships leads to unpredictable patterns of disorder and instability (Morgan, 2005). Systems thinkers are made aware that no single factor can produce desired outcomes with any certainty or even a high probability (Morgan, 2005). The researchers in systems thinking understand that all outcomes can best be understood in terms of probabilities that are themselves subject to change. Systems theory shies away from totally focussing on outcomes. It considers that other opinions need to be explored before any decision making process. The challenge in systems thinking is to try and make possible desired outcomes more probable (Morgan, 2005).

The approach used by systems thinkers is to put less faith in planned, predetermined solutions as it normally happens in positivist approaches. Soft systems is not upfront in predetermined detailed design, as is the practice in hard systems. Systems are seen as having a dynamic of their own that is only marginally open to management and direction. Systems thinkers know that systems evolve over time (Morgan, 2005). Therefore, they focus and also emphasize on evolution, discovery and emergence (Morgan, 2005). A systems theorist also focus more on the dynamics of human behaviour and gives less attention to technical issues as a contributor to improved capacity and performance (Morgan, 2005). Frenk (2008) considers it an advantage that in systems thinking a variety of actions can be avoided and creative interventions can be crafted for implementation.

The systems thinkers approach is a radical shift from positivist thinking in the interpretation of reality. In this perspective reality is interpreted in its context. In systems thinking the belief is that nothing is objective and independent of its context (Morgan, 2005). The reality of a system and its behaviour depends on the nature of its relationships and the eye of the beholder. It accommodates a multiplicity of interpretations. It is expected as normal to use different frames and analytical disciplines in systems thinking. Systems theory accommodates diverse views as part of the learning process to gain a sense of the whole. It is accommodative and allows debate over issues about the objectives, interests, boundaries and ideologies. A plethora of studies affirm that systems thinking accommodates different methodologies in arriving at conclusions and findings on problematic issues (Green, 2013; Cabrera, 2006; Morgan, 2005).

School development focuses on institutional actors and renders a holistic and inclusive character that simulates discussion and learning amongst the participants. The systems approach eliminates the differences among those working towards achieving similar goals. Engel and Salomon (1997) believe that the approach is underpinned by the assumption that knowledge is socially constructed and recognises the value of social interaction. In the next paragraph I will discuss the use of systems thinking as it relates to the study.

3.5 The practice and theory of systems thinking

For purposes of this study it is critically significant to understand the application of systems thinking. The main purpose of this study is to examine how principals have applied systems thinking approaches in school development initiatives. According to Churchman (1968) problematic situation in a system needs to be clarified explicitly. The environment determines in part how a system performs its goals and functions (Ackoff, 1971). Thirdly, the resources are the means used to achieve the objectives of the system (Jackson & Keys, 1984). The management of a system has to deal with the generation of plans for the system. These will off-course include setting the overall goals for the system, defining the environment, the utilisation of resources and the division of the system into components (Churchman, 1968). The thinking that prevailed during the era of Churchman (1968) has been challenged, as new ideas emerged regarding the complexity of systems. Kay and Foster (1999) consider the

specific structures and processes that connect the whole system into a hierarchy of systems and way these need to be analysed. With the emergence of new thinking regarding how complex system is, the simplistic and linear approaches to systems have been critiqued.

The unique characteristic that systems are intertwined is the main motivation for using a systems approach to problematic situations. Ackoff (1974) argues that the previous reductionist way of thinking fostered an analysis which favoured the breaking apart of the problematic issues. Bertalanffy (1968) shifted the thinking towards integration and the promotion of an interdisciplinary approach amongst the disciplines. Midgley (2000) in his in-depth study summarised the evolution in systems thinking to the first and second wave. In this analysis Midgely (2000) was showing how the thinking shifted from the first wave which focussed on modelling reality, hence its criticism for its failure to bring the subjective element of reality. With the second wave, the thinking shifted towards considering the role of human activity, with emphasis on dialogue, mutual appreciation of and inter-subjective construction of reality (Midgely, 2000). With these developments, there also emerged different systems of methodologies which were applied across a wide spectrum of disciplines.

The application of systems thinking to other disciplines and fields is very broad. Churchman (1968) and Ackoff (1974) shifted the boundaries in terms of the application of systems approaches to a diverse problematic social issue. The wide acceptance of systems thinking across disciplines shows how systems thinkers attribute to it the empowerment to tackle multifaceted problems (Haines, 2000). The successful application of systems thinking as a generic approach has been evident through its application in various fields and disciplines. Amongst the fields in which it is applied are environmental conflict management (Elias, 2008), community development (Midgley & Ochoa-Arias, 2004), business (Bashiri & Tabrizi, 2010), health (Lee, 2009), agricultural production systems (Wilson, 2004), education (Hung, 2008), decision making (Maani & Maharraj, 2004), human resource management (Quatro, Waldman & Galvin, 2007), innovation (Galanakis, 2006), social theory and management (Mingers, 2006), in construction industry (Maqsood & Finegan, 2009), food security and population policy (Keegan & Nguyen, 2011). Davis (2009) used the soft systems methodology to develop lean supply in construction projects.

This perspective enables the systems thinkers to bridge the gap between theory and practice. Practitioners are overwhelmed by the complex task of working in their complex fields and find an alternative to approaching problematic situations. The systems thinking lens holds the promise for cutting through this complexity that they might more effectively manage the systems that lead to better disciplines (Jackson, 2003; Senge, 2014). The practitioners come to realise the root causes in the way people think about problems and in turn develop solutions that create unintended consequences (Beer & Eisenstat, 2000). The abundance of literatures attests to the faith that has been put on systems thinking to offer hope to the underlying cause of many of the problems in different disciplines and fields. The approach can be applied to a number of systems methodologies, disciplines, sciences, fields and theories to mention a few (Flood & Carson, 2013). Literature notes that there are disciplines and fields which can be considered as early adopters. Observations in the literatures show that the health field is far ahead as compared to education in terms of adopting systems thinking as a framework. It is observed in the education field that there are few scholars who have lately adopted the systems thinking as a theoretical framework (Green, 2013; Mntambo, 2009; Togo; 2009; Mchunu, 2006). The above cited studies have been using systems thinking as a framework to research diverse focus areas in the education and school system. There is an observed steady growth which shows that systems thinking is used as conceptual framework in various studies in education and determine the set of methodologies, approaches and theories (Barnard, 2013; Prestige, 2013; Green, 2013; Mpungose, 2011; Mntambo, 2009; Togo; 2009; Cabrera et al., 2008; Mchunu, 2006; Sterling, 2003).

Two decades ago Ramo and St. Clair (1998) proposed that the systems approach needs to be developed fully, to be applied widely, to be effective in pointing the way toward action, to assist in clarifying goals, and to guide us to organisational modifications in our social structure so as to make full use of the powers of science and common sense. Ackoff (1993) believed that systems thinking had a practical value and was being used increasingly to look at the systemic nature of work. James and Connolly (2000) consider one of the benefits of systems thinking is to provide a useful lens through which it looks at the institution as a whole. Furthermore, James and Connolly (2000) contend that systems thinking provides a useful framework upon which to base management action.

The above cited studies have been using systems thinking as a framework to improve organisations, corporates and education systems and schools. Mcllvain (1999) used the framework of systems thinking to study one elementary school in the context of the emerging learning community. Taylor (1999) employed Senge's (2000) disciplines of systems thinking and shared leadership to examine staff development at a public school district.

There is also increasing interest in South African Universities to systems thinking as evidenced by the dissertations and thesis conducted from a systems theory and systems thinking perspective (Keller, 2000; Andrew, 2001; Banathy, 2001; Sterling, 2003; Mchunu, 2006; Snow, 2008; Mntambo, 2009; Togo, 2009; Dzirikure, 2012; Green, 2013). Systems theory and systems thinking provides a conceptual framework for a number of studies that have been conducted in the field of education as well as other fields which were considered to be areas with complexity and human activity (Flood & Carson, 2013). Systems thinking has become an influential mode of thinking that remains the commonly held view of what systems has to offer in different complex fields. Studies began to argue from a systems perspective how complex issues can be approached from this perspective (Andrew, 2001; Banathy, 2001;Keller, 2003; Sterling, 2003; Mchunu, 2006; Snow, 2008; Mntambo, 2009; Togo, 2009; Dzirikure, 2012; Green, 2013). Soft systems thinking provides the conceptual framework in studies conducted by means of methodologies relevant to action research (Mchunu, 2006; Mntambo; 2009). Prestige (2013) used the systems thinking tools to argue for school improvement. Systems thinking offers a new perspective and specialised language of engagement and a set of tools to examine the root causes to problems in an insightful and informative manner (Mchunu, 2006; Mntambo, 2009; Green, 2013). Studies conducted from this perspective are shaped by the use of various methodologies and tools in order to investigate the unit of analysis (Togo, 2009; Joseph, 2010; Dzirikure, 2012; Green, 2013). Steele (2014) emphasised the importance of systems thinking, or a systems approach, which was used as to promote Literacy Collaborative and improve literacy instruction and reading, writing and language skills at primary to secondary school level by means of professional learning communities.

Jones, Bosch, Drack, Horiuchi & Ramage (2009) in their paper propose a tool called Systems Education Matrix (SEM) for use in informing the work of developers of systems-oriented

curricula at colleges and universities around the world. Flood (2010) in his paper investigates the relationship between systems thinking to action research by reviewing the main developments in systems thinking and relating these to action research.

There is value in the work that is done at the centres that promote systems thinking and also the journals that are written from this perspective. The centres are established and funded for research purposes and also to keep the ideas of systems thinkers and scholars who contribute invaluably to the research in this discipline. The Centres play a pivotal role in giving the platform for the systems thinkers to nurture and raise other systems thinkers and also to serve as a global network. The conferences accommodate the debates and contributions of scholars who deliver papers in Systems Thinking Conferences, thus maturing the research in this field. Think Works was founded by Derek Cabrera as an organisation dedicated to teaching thinking skills to children, adults and corporations (Cabrera, Colossi & Lobdell, 2008). A paper was written for purposes of teaching practitioners to teach systems thinking and associated capacity building for a team of professionals and managers from Vietnam. In another paper the co-authors presented the key elements of the programme included group learning and the commitment by senior managers in support of the application of systems approaches in the workplace (Nguyen, Graham, Ross, Maani & Bosch, 2011). In the light of the study we will also summarily look at the different forms of systems thinking, which is important for this study as the principals were introduced to one of the strands, which is soft systems methodology.

3.6 Different strands of systems thinking

Four decades ago it was Ludwig von Bertalanffy (1968) who caused the rest of the scientific world to take notice of the systems concept. He firmly believed that science was broken up in too many specialisation fields, each with too narrow a scope and therefore advocated interdisciplinary thought. Two decades later, Checkland (1981) stressed that the aim of systems thinking was to tackle problems of irreducible complexity by thinking in wholes, rather than overthrowing the tradition of science.

According to (Daellenbach, 2002) systems thinking approaches are catergorised into functionalist, interpretive and critical systems. For purposes of this study we discuss those considered to be falling under the interpretive and emancipatory paradigm. Soft systems are considered to be interpretive due to the way the systems thinkers perceive reality. The emancipatory paradigm differs from both the functionalist and interpretive approach in terms of the way critical systems thinkers perceive problematic issues. According to Daellenbach (2000) the soft systems approaches were developed through action research, as compared to the functional mechanistic approaches of hard systems. Systems thinking as discussed in this study takes a variety of forms including the four schools of systems thought that are prominent in the literature. In the latter part of the study we will discuss more about one particular approach which is soft systems methodology, as a technique for approaching school development. For purposes of this study we cannot discuss all the variations under the banner of systems thinking. This study considers the following categories for their incorporation in a framework to be developed for school development. The discussion will centre on the following four variations which are, viz.:

- Complex adaptive systems
- Soft systems methodology
- Systems dynamics
- Chaos and complexity theory
- Critical Systems Thinking (CST)

From the above theories I will consider their key areas which have will be incorporated into holistic and multi-methodological framework for school development. In the next section I will briefly discuss the salient areas that give us an understanding of each of these approaches within the broad framework of systems thinking. These different categories will not be discussed due to the limited scope of this study, however I will mention soft systems methodology and systems dynamics due to its nature and relation to the study.

3.6.1 Soft Systems Methodology (SSM)

SSM is important for this study as it provides the tools required of the systems thinker to work in a complex human activity system. Soft systems emerged as an organised way of

exploring human problem situations. For almost four decades Checkland (1988; 1999; 2000) has been working on improving the model on Soft Systems Methodology. The model provides a structured process of dealing with soft problems. SSM is a system of inquiry and action for improving unstructured problem situations where issues of concern are vaguely but not clearly defined (Luckett & Grossenbacher, 2003). It provides structure for making sense of difficult problems. SSM is iterative, involving a seven stage process with phases for analysis. SSM is a seven-stage process in which users, analysts and designers incrementally define the problem, generate and evaluate alternatives, and choose an acceptable solution (Presley & Meade, 2002; Banathy, 2013). The stages comprise 1) problem situation unstructured; 2) problem situation expressed; 3) root definitions of relevant systems; 4) conceptual models; 5) comparison of conceptual models with the real world; 6) feasible, desirable changes; and 7) action to improve (.Checkland, 1984; Baskerville, Pries-Heje, & Venable, 2009). Stages 1, 2, 5, 6 and 7 can be regarded as "real world" phases, while stages 3 and 4 are considered to be systems thinking, or abstract phases, about the real world **(see Figure 3. 1).**

In the soft systems paradigm, causes of a problem in a situation are not easily identifiable. This opens the discussion to diverse views around the possible solutions sponsored by stakeholders. This is in line with this study which recognises that systemic leaders work with multiple stakeholders.

SSM as an approach and methodology works towards achieving three objectives viz.:

i) to identify opportunities to improve a system
ii) to create awareness amongst stakeholders
iii) to identify actors and potential actors (Checkland & Scholes, 1990).

SSM is a systems approach that is widely used by several scholars for analysis and problem solving in complex and messy situations (Eden & Ackermann, 2006; Mingers, 2000b; Mingers & Taylor, 1992). Scholars combine Action Research which accommodates iterative cycles for purposes of learning and reflection and also multiple perspectives (Maqsood, Finegan & Walker, 2003; Sankaran, Tay & Orr, 2009; Checkland & Poulter, 2010). Systems thinkers find SSM to be appropriately suitable for application where there are complex and messy issues (Maqsood, Finegan & Walker, 2001; Maqsood, Finegan &

Walker, 2009; Ackermann, 2012). In such instances, SSM assists by accommodating multiple stakeholder views. This approach is applicable to many domains; including change management, planning for health and medical systems (Atun, 2012), information systems planning, human resource management, analysis of logistics systems, expert systems development and education (Mchunu, 2006; Mntambo, 2009). SSM is being used in research associated with knowledge management, project management, and engineering and construction management (Maqsood, Finegan & Walker, 2007).

SSM employs systems notions primarily to structure logical debate and increase common understanding among an inclusive group of participants about how their situation should be characterized and what should be done about it. It focuses on questions of culture and cultural feasibility rather than on structure and information flow, and it focuses on viewpoints of people rather than on technical aspects of a problem. Technical aspects may be chosen and implemented as a result of agreements made during the SSM process, however, they should not drive the process.

Figure 3.1 is the seven stage model formulated by Checkland.

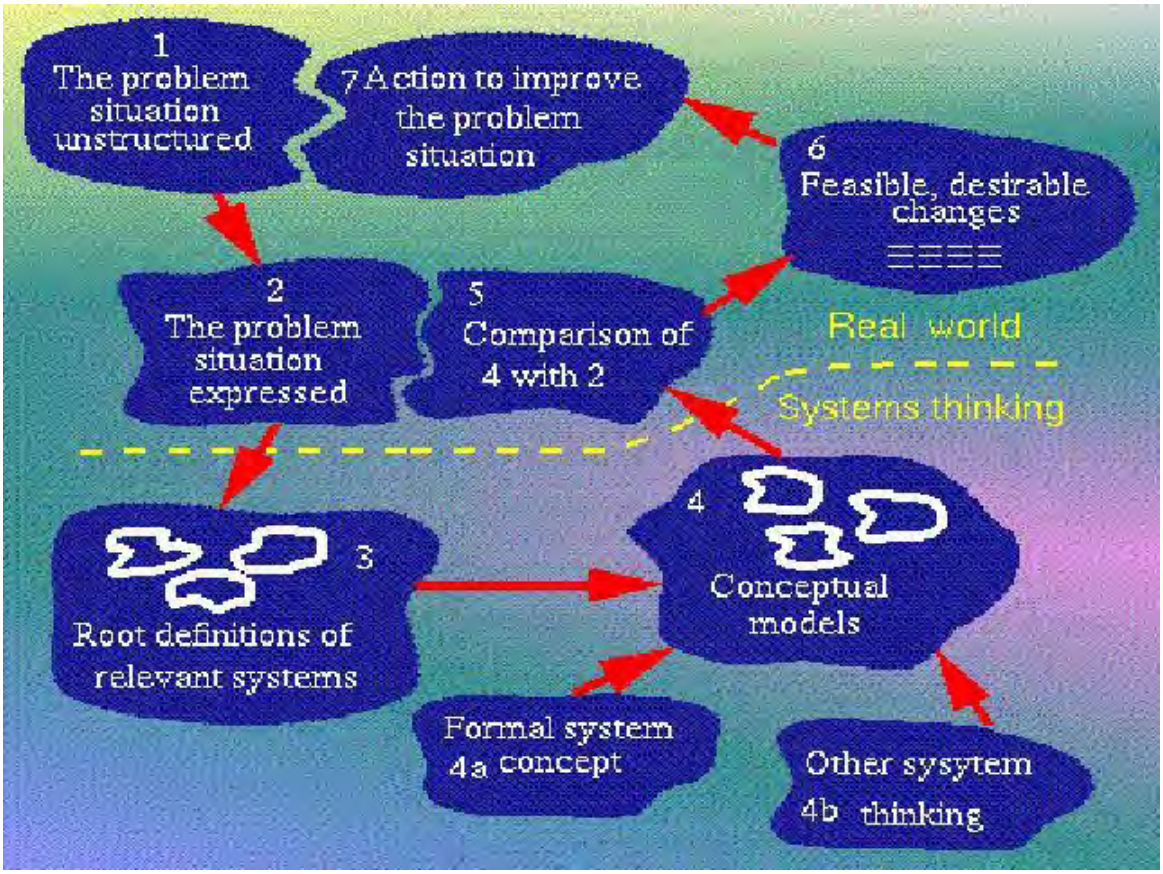


Figure 3. 1 Soft Systems Methodology concept map

(Source Shaw & Gaines, 1998).

The Application of SSM in organisations

Use of SSM begins with the decision that a problem situation exists that could be approached from a different angle than the conventional way (Checkland, 2000; Basden & Wood-Harper, 2006). Checkland (1989) defines a problem as a condition characterized by a state of mismatch that eludes precise definition and may be expressed simply as a state of unease. Participants are recruited to bring together as diverse a group of stakeholders as possible to consider the situation in a systemic way. The SSM seven-stage process will be clarified below for our understanding of how it functions and what it entails in detail when it is applied. The stages do not need to be taken in any particular order.

(1) Looking at the Unstructured Problem. During this stage there is a lot that can be learned about the unstructured problem situation. This stage involves discussion amongst the

stakeholders, with the intention of accommodating all the views. For study purposes, information is gathered by means of formal interviews, direct observation, surveys and study of relevant background materials (Checkland, 1999; Checkland & Scholes, 1999).

(2) Structuring a Problem Statement. Stakeholders come to an agreement about how to express the problem, blending the insights of different participants and the results of their interactions and discussion. Stage two involves the examination of the structural issues, the difficult issues, their processes and changing elements including the prevalent culture in the organisation. Data is expressed by using rich pictures. This sequence completes the discovery of information. The difficulty in this stage is to avoid structuring the problem too quickly or too neatly (Checkland, 1999; Checkland & Scholes, 1999; Bell & Morse, 2013).

(3) Formulating Root Definitions. This is the portrayal of all the activities envisaged for transforming the situation. Informal and formal activities are included in the rich picture. Root definitions encapsulate all the aspects of the CATWOE (Checkland, 1999; Checkland & Scholes, 1999; Bell & Morse, 2013).

• Customers. Stakeholders or those on the receiving end of the actions, who are not necessarily only those whose usage the group wishes to facilitate;

• Actors. Those responsible for bringing transformation;

• Transformations. Process involving activities for the transformation;

• Weltanschauung. These are the mental models which include the way people perceive the world;

• Owners. People who are in control and are decision- makers in the organisation;

• Environment. Encompasses the barriers, hindrances, and whatever constraints progress in the system (Checkland, 1999; Checkland & Scholes, 1999; Bell & Morse, 2013).

All the envisaged activities are outlined in line with the CATWOE elements. Multiple root definitions, which stretch the imagination, may be used to explore the same part of the situation from different perspectives or at different levels of generality (Checkland, 1999; Checkland & Scholes, 1999; Bell & Morse, 2013; Emes, Bryant, Wilkinson, King, James & Arnold, 2012). One of the most stimulating sources of root definitions is the view held by the organisation's most severe critics.

(4) Building Conceptual Models. At this stage the critical activities of the organisation are formulated in a sequential manner. At this point the activities are time consuming and

debated. The facilitation requires that activities be expressed by using action verbs. A series of activities are lined out to indicate how events will unfold. As these activities are outlined, they are explicated in order to come up with a root definition. Stakeholders continuously engage in discussions in order to come up with the required set of activities. The end product needs to be a different kind of model that is explored for purposes of bringing new changes to the system (Checkland, 1999; Checkland & Scholes, 1999; Bell & Morse, 2013; Emes, Bryant, Wilkinson, King, James & Arnold, 2012).

Stages Four A and Four B involves the two models that are tested against each other using the systems language (A) and other systems thinking tools (B). Stage Four A describes in sequential way the root definition in terms of nine elements that are considered as the formal system. They are: (1) its purpose or mission, (2) the measure(s) of its performance, (3) its decision-taking process (not the individuals), (4) its subsystems, (5) the interaction of its components, (6) the wider system with which it interacts, (7) the boundaries of its decision-taking process, (8) the resources at the disposal of the decision taker, and (9) the expression of its continuity.

Stage Four B differs from Stage Four A in the sense that the facilitator and stakeholders bring other models in trying to explore some or all the parts of the root definition and the conceptual model. This exercise may be conducted from the perspective of System Dynamics, Socio-technical Systems Theory, the Viable System Model, Critical Systems Heuristics to mention a few in terms of their relevance (Checkland, 1999; Checkland & Scholes, 1999; Bell & Morse, 2013; Emes, Bryant, Wilkinson, King, James & Arnold, 2012).

(5) Comparing Models and "Reality." At this stage the questions to be raised are based on a comparison is conducted between the conceptual models and reality. The ensuing rigorous debate centers on ways and means of handling the problem situation. The focus of the debate and discussion may take different levels. The discussion may be around cultural and value issues in the system. Within this discussion, others may look at how the organisation functions. The discussion will also make a comparison between the exiting and the ideal envisaged model. These processes may result in a variety of approaches to gap analysis, wherein the idealised picture is compared with the current picture to see what needs to be accomplished or understood for transition to an improved state of affairs (Checkland, 1999; Checkland & Scholes, 1999; Bell & Morse, 2013).

(6) Defining Changes. At this point an evaluation is conducted based on the suggestions presented during the comparison of the conceptual model and what exists in reality. The ensuing rigorous debate ensures that these proposals will be able to pass the test of systems logic and group culture (Checkland, 1999; Checkland & Scholes, 1999; Bell & Morse, 2013). (7) Taking Action. At the end of the day, the outcome of activities will be pronounced to be culturally desirable and also feasible to meet the envisaged needs for implementation (Pruyt, 1994; Lane & Oliva, 1998).

SSM is relevant for this study which examines how principals use systems thinking in conducting school development. SSM serves as a source of reference and empowerment tool for leadership in handling stakeholders who have conflicting views within the organisation. There are elements from this seven stage model which will be considered in the formulation of holistic multi-methodological framework for school development.

3.6. 2 Systems Dynamics

Systems dynamics provides a peculiar dimension that will be considered for the formulation of a holistic multi-methodological framework for school development. Gregory (2009b) captures it simply when he says Systems Dynamics (SD) is an approach that involves building a model that captures the dynamic nature of the systems with the object of identifying the underlying structure of social systems. In a different vein Harris and Williams (2005) consider SD as a methodology for studying and managing complex feedback systems such as social systems. Additional to what has already been said above, Fredericks, Deegan and Carman (2008) say that SD is also considered in some circles as an evaluation tool. Forrester (1975) used causal loop diagramming to illustrate and explain the dynamic complexity of organisational behaviour. The above ideas are further supported by other systems dynamics thinkers. Burns and Musa (2001) further added that causal loop diagrams are used for purposes of capturing the dynamic cycles of influence that show where the point of leverage is in systems.

Several scholars are generally classified in terms of their contributions to the field of systems dynamics (Senge, 1999; Lane & Oliva, 1998; Anderson & Johnson, 1997; O‘Connor, 1997;

Sterman, 2000; Sherwood, 2002; Brynteson, 2006; Meadows, 2008; Maani & Cavana, 2007). Systems thinkers within the field of systems dynamics there is a strong belief that the behaviour exhibited in a system is a replica of the way people are influenced by actions which also replicate to affect the behaviour of others (Checkland, 1999; Hawe, Shiell, & Riley, 2009). One of the advertised benefits of systems thinking is its greater ability to help people deal with two interrelated phenomenon: complexity and uncertainty (Langdon Winner, 2010).

a) The phenomenon of emergence

Morgan (2005) considers emergence to be a critical element of systems theory. The kind of changes in systems result in emergence of new behaviours in the system. Unknown behaviour and untended consequences are some of the characters in systems. Morgan (2005) proposes that changes need not be imposed from outside as these will back fire in the system. The form in which emergent properties can take may differ as the situation spells out. It may be some may be very slow, whereas in other instances they may reach a critical mass. This point can direct the system in a new direction as well as in the way it performs (Morgan, 2005). Systems thinking is thus always struggling to balance mystery and mastery, between failing to understand anything of significance and claiming to understand everything (Morgan, 2005).

b) The need to learn and experiment

Systems thinking principles point to the importance of learning as a way to improve systems capacity and performance (Senge, 1999; 2000; Morgan, 2005). Senge (1999) observed certain behaviours in human systems which need to be understood. He strongly believes that the problematic issues in which they are involved in are part of human survival. According to Senge (199) human beings manage change by checking what works. Communication becomes a key systems function as individual actors engage in mutual adjustment. Connected to the issue of learning is the idea and practice of feedback, another concept central to systems thinking (Morgan, 2005). Systems gain energy from information and new understanding. Idea of continuous learning is critical in organisations in order to prevent a situation whereby the organisation reaches a state of entropy and the gradual decline of systems functioning (Morgan, 2005). The relationship in a learning organisation and

organisational learning is interactive, particularly when leadership takes the initiative to steer the organisations towards lifelong learning (Marquardt, 2011; Huber, 2008). Ongoing learning within the organisation ensures that there is empowerment of human resource, which takes the organisation towards survival (Denton & Vloeberghs, 2003; Pemberton & Stonehouse, 2000). A systems perspective is a requirement to ensure effective learning, which is needed to guarantee the systems survival. Each action that participants take must be partly instrumental and partly an effort at learning. In the process of learning there are no guarantees, things can end up messy. At times the process will indicate elements of being redundant, fuzzy, overlapping, experimentation and trial and error. It is better to allow the situation to unfold and avoid over-controlling the process.

The actors in the system may have quite different learning styles and may wish to learn about quite different things. Different types of learning must take place at different levels in the system to be effective. Peter Senge (2006) espouses that personal mastery be accepted at both the individual and organisational levels. Organisational learning as a capability is a constant topic in systems thinking field. Different people and groups may come to quite different conclusions on the basis of similar experiences. Understandings have to be constantly negotiated.

An in-depth study on the usage of illustrations and models is contained in books that are written to underpin systems theory (Ziegler, 2014; Zeigler, Praehofer & Kim, 2000). Jackson (2000) clearly points out the main objective for SD, when he says SD enables us to gain more knowledge about systems, by examining the interactions. These can be illustrated in diagrammatical representations, as will be further demonstrated in Chapter Five. The systems models provide better insight into the relationships within the system, by identifying the causal loops, and the dynamic nature of systems (Green, 2013).

In the context of this study, SD is used to provide context, explain and illustrate by modelling and simulating some of the abstract concepts (Green, 2013). The study considers the value of modelling and illustrating some of the concepts that underpin systems dynamics. These will be more clearly illustrated in Chapter Five, where models will be used to simplify some of the concepts that pertain to hierarchical structures, interdependencies and feedback loops

from the system. In the context of this study models are used to enhance thinking around links between sub-systems, thus simplifying the idea of understanding the boundary of environmental factors impacting on school development (Green, 2013). School development is an open system which needs to be portrayed in the context of the other sub-systems that have a bearing on it. In the literature chapter the boundary in terms of areas of school development have been indicated for purposes of answering the research questions. Systems dynamics provides ideas that are considered important for the formulation of a holistic multi-methodological framework for school development.

3.6.3 The Viable Systems Model (VSM)

Viable systems model has elements that are considered suitable for a proposed holistic multi-methodological framework for school development. Stafford Beer developed the Viable Systems Model (VSM) over a period of over thirty years as an aid to the practical process of diagnosing problems in human organisations, and helping to improve their functioning (Hilder, 1995). Stafford Beer (1989) believes that effective organisations should maximise the freedom of their participants, within the practical constraints of the requirement for those organisations to fulfil their purpose. It is handy tool for the analysis and the interpretation of data. The VSM provides a useful framework for an understanding of how to overcome problematic situations. As a methodology it empowers practitioners to identify systems defects. Viable system refers to a way of understanding complex organisations such as the school system. It is a useful tool for framing insightful questions to check the effectiveness of systems. Self-organising systems have many purposes and aspire to remain viable. They share the aim of continuing to exist, at least until the time when their purpose has been achieved. In VSM the focus of interest is on the elements that keep the system viable. The VSM claims to reveal the underlying structures necessary for a system to meet this criterion of viability (Beer, 1989; Espejo, 2004). Self-organising systems are required to maintain a balance of variety in order to remain purposive (Beer, 1989; Espejo, 2004). Viable systems consistently contain a number of Operations, each of which has an associated Management function, and operates in its own Environment (Fidler, 1995). The most fundamental part of the organisation is what is referred to as System 1 or implementation.

In the education sector the operation of the three tier system consisting of schools, district and province is increasingly getting complex and requires a deep understanding of the intricate interactions between these systems. The demand made on the all these systems to perform comes from all angles of accountability. The pressure to conform to the demands of the stakeholders requires leaders to work beyond their capacity and set boundaries.

Viable systems science consists of principles and laws that explain the communications and controls a complex organisation needs to run effectively (Flood & Carson, 2013). Complex organisations like schools, districts and province need to have a balance concerning planning for the future and meeting the contingent demands of the clients. The complex demand for quality education provided by schools and supported by efficient district and provincial system requires serious contemplation. The demanding requirements for schools to cope with change results in leaders adopting short term and quick to fix solutions. Such decisions put pressure on the system to come with new programs and projects, which may not necessarily alleviate the identified gaps. The Viable systems model has elements that are considered applicable in working with schools, circuits, districts and province as systems that are working towards improving the quality of education in schools.

3.6.4 Critical Systems Thinking (CST)

In school development there are elements that are not addressed with the tools being used, which indicates the need to consider some elements from a critical systems perspective. Critical systems are considered to be in line with emancipatory orientation. These approaches focus identifying the marginalised and neglected as a way of alleviating their plight. The intention is to deal robustly with issues of inequalities and marginalisation and radically change the system (Daellenbach, 2002). This approach works in community Operational Research practices where there are issues of inequality of power relations that need to be considered. The critical systems approach is well suited for use in dealing with issues such as injustice, poverty, health care, and the environment, to mention a few (Daellenbach, 2001; Daellenbach, 2002). Critical systems thinkers believe that the world is not fundamentally harmonious (Geode & de Villiers, 2003; Smith, 1999). Therefore, to understand, explain and make possible changes, one must think in terms of contradictions (Geode & de Villiers, 2003;

Smith, 1999). Different perceptions can be seen as expressions of irreconcilable conflict and power struggle between management and workers, or systems developers and users (Flood & Jackson, 1991a). Intervention is central to practising critical systems. Midgley (2000) described this approach as Critical Systems Thinking (CST). It is founded on the work of Jackson and Keys (1984) methodological pluralism and Ulrich (1993) social theory and systems methodology. According to Midgley (2000) critical systems thinking is underpinned by the philosophy of Habermas, whose beliefs are that all human beings have three fundamental interests. These interests are the technical, practical and emancipatory interests. By the technical interests is meant the power to predict and control our natural and social environment (Stablein, & Nord, 1985). By practical interests is meant the power to pursue mutual understanding, and lastly, emancipatory interest in freeing ourselves from constraints imposed by power relations (Oliga, 2007). Critical systems theory is expanding as a field and has a growing number of researchers who are adding value to it. Reynolds and Holwell (2010) sight the limitations in both the hard and soft systems, which he considers to be the lack of addressing the issue of power relations. CST attempts to foster a systemic debate on power relations and on the relationships and complementarity between various systems approaches (Ulrich, 1988, 1998, 2003). According to Jackson (1991) critical systems thinking is focussed on human emancipation and seeks to achieve for all individuals the maximum development of their potential. The approach in achieving this outcome is by raining the quality of work and life in the organisation and society in which individuals participate.

Jackson (1991) categorises five distinct features which include what CST aims to achieve. CST in the first place is aimed at seeking to demonstrate critical awareness, which involves checking ones assumptions and values regarding a system. CST illuminates social awareness, which means it provides a way of viewing the theoretical underpinnings of available systems in terms of their strengths and weaknesses. The other focus area is human emancipation, by which the focus is on the maximal development of the individual, by means of quality work and life in the organisation and society where they feature. CST is multidimensional in approach, as it seeks to develop all the different fields of systems thinking (Cao, 2007). Lastly, CST is focussed on the complementary and informed use of the systems methodologies in practice (Banathy & Jenlink, 2003). All of the above features are

considered as significant for the formulation of an inclusive framework for school development that is proposed for this study.

Critical systems perspective is needed to add value to a proposed framework for school development that has to go beyond the current approach which neglects issues of power relations and intervention, to mention a few. This approach has elements that are required to supplement the other approaches for use in complex human activity systems such as schools.

3.6.5 Complexity theory

School development is not isolated from the environment which is increasingly becoming unpredictable and complex. According to Keene (2000), the conventional way of looking at organisations remains stuck in principles of scientific management, which emphasize control, order, predictability and the deterministic world of cause and effect. Complexity theory has emerged a way of perceiving the organisations with an understanding that change is neither linear nor rational. Dent (1999, p5) describes complexity science as ~~"a~~n approach to research that makes the philosophical assumptions of the emerging worldview". This worldview can be contrasted with the scientific management view, which assumes linear causality and encourages reductionist approaches to management (Smith & Humphries, 2004). Complexity theory emphasises a causal, holistic interpretations. Smith and Humphries (2004) argue that the main reason for the survival of the complexity theory to be accommodated in management circles is perhaps the way it provides an understanding regarding the unpredictable behaviour, outcomes and uncertainties. In their critique, Smith and Humphries (2004) consider complexity theory as rather a metaphor rather than a conceptual framework. For Smith and Humphries (2004) complexity theory needs to consigned to metaphor for explaining unexpected tendencies and unpredictability that is inherent in organisations. In appraising complexity theory I support Smith and Humphries (2004) that it offers managers the ability to think differently out of the box and innovate, rather than be fixated in cause and effect rationality. Complexity thinking suggests that we need to be cautious of linear outcomes and deterministic approaches, which may result in complacency attitude in organisations. Goldberg and Markoczy (2000) caution us against taking complexity theory as if it is the only theory that unique in pointing at emergent phenomena.

For this study, an understanding of schools as complex organisations brings the element needed to suggest other ways of looking at school development. This approach is in line with the thinking of formulating a holistic multi-dimensional framework to school development.

3.7 Operational implications of systems thinking

There are questions about the way the systems operate and the implications thereof. There are wide epistemological and methodological systemic implications for opting for use of systems thinking as a theoretical framework. The question is what could these implications mean for school development? Systems theory attaches a multitude of issues with systems thinking. These include order, control, growth, synergy, identity, structure, information, planning, prediction, adaptation and stability to mention a few (Meadows, 2008; Morgan, 2005; Senge, 2006; Midgley, 2000; Checkland; 1981). As systems theory evolves there are new concepts and issues associated with systems thinking, which cannot be explored in this limited study. Systems theorists concur that some of these interconnected issues are those considered in order for systemic awareness as will be illustrated in the discussion below (Aragon & Macedo, 2010; Midgely, 2000; Morgan, 2005; Senge, 1999; Checkland, 1981, 1986, 2012). Systems theorists consider that as part of their work in organisations there need to be what is regarded as the systems identification, mapping and assessment.

Morgan (2005) clarifies systems boundaries as the critical element in systems. He illustrates by elaborating on a series of questions which are considered to be of a critical nature. Scholars concur that one of the main contributions of systems thinking should be to help people gain systems appreciation, both of the systems of which they are a part and of the interrelationships that shape their own role and work (Aragon & Macedo, 2010; Morgan, 2005). Systems thinking tries in practice to get people to see the big picture (Senge, 2006; Meadows, 2008; Flood, 2000). According to Meadows (2008) systems thinking allows system thinkers to think differently about the complex, messy and interconnected world. In doing so, it works to combat systems blindness which works in such a way that people are unaware of the bigger picture (Senge, 1999; Meadows, 2008; Aragon & Macedo, 2010).

McQuillan (2008) applied complexity theory as a lens to analyse the small schools and recommended it as a dynamic non-linear approach.

3.8 The application of the laws of systems thinking

The systems thinking principles are applied across a number of disciplines, education being no exception. The proposed principles need to be understood in line with what happens during the process of school development which is a human activity system. There are laws which are applicable to problematic situations for purposes of analysis. Senge (1990; 2000) has identified these patterns and formulated these laws for purposes of understanding the issues. The discipline of identifying these patterns is called systems thinking. Senge (1990; 2000) calls these reoccurring patterns the laws of systems thinking. The demand is for leadership to understand and internalise these as techniques for use in resolving problems and for building workable solutions facing our institutions. The way we think needs to shift in order to be able to acquire these as skills for analysis.

Senge (2000) formulated a number of laws in order for us to understand the social dynamics that are at play in organisations. These laws are also applicable to schools as learning organisations. A number of studies also applied Senge‘s laws and archetypes in different contextual areas and fields (O'Callaghan Jr, 2004; Reigeluth, 2004).

No 1 Law – Today‘s problems come from yesterday‘s solutions.

There are issues that plague us which are part of problems that were provided as solutions in the past.

No 2 Law – The harder you push, the harder the system pushes back.

Some problems result in us putting a lot of effort trying to resolve, but to no avail. The situation does not get better.

No 3 Law – Behaviour grows better before it grows worse.

Some of the interventions provided in our effort to improve do not last, they serve as temporary stop gaps. If we intervene to improve things, we succeed, but only in the short term.

No 4 Law – The easy way out usually leads back in.

The situations we find ourselves make us to rely on using the beaten track, which gives us comfort. The ―hammer" approach is normally used when there is no compliance, we try to enforce the law, but we fail to get the intended results.

No 5 Law – The cure can be worse than the disease.

The normal solutions fail to assist, but rather exacerbate the situation.

No 6 Law – Faster is slower.

Organisations experience slow growth than we expect as the desirable.

No 7 Law – Cause and effect are not closely related in time and space.

In our thinking we believe that cause and effect are closely related. There is a need to rethink the way we perceive cause and effect. We are good at identifying causes which may not necessarily be related to the root issues at play.

No 8 Law – Small change can produce big results, but the areas of highest leverage are often the least obvious.

The idea of finding the point where less effort can be put is called leverage. The changes that are effected may not necessarily put at the right place.

No 9 Law – You can have your cake and eat it too, but not all at once.

The way we perceive issues may be based on snapshot view, whereas we need a process mode of thinking. Sometimes knotty dilemmas, from a systems point of view, are not dilemmas at all.

No 10 Law – Dividing an elephant in half does not produce two small elephants.

The way organisations are made is no simplistic as we think when we plot our strategy. The above laws need to be understood particularly in any area of leadership for the organisation to grow. Education is no exception, to these instances where we need teaching on how we need to think differently.

No 11 Law- There is no blame. The idea of pointing fingers at whatever and to whosoever is common practice in organisations (O'Callaghan Jr, 2004; Reigeluth, 2004; Bardoel, & Haslett, 2006; Senge, 2000).

Scholars echo the same regarding the value interdependence and interrelationships in systems (Morgan, 2005; Senge, 1999). Systems work in networks as they are entangled in relationships. This leads systems thinking to pay less attention to the conventional categories of tasks, functions and hierarchies. It looks more at the patterns of relationships and the

structures that might facilitate them. These principles need to be understood by principals as leaders in schools as learning organisations. Systemic leadership of principals is critical in taking school development to the next level, with an understanding of all the above laws that are applicable to any complex organisation. The above principles need to be considered as tools for examining how principals use systems thinking in conducting school development.

3.9 The contextual factors in school systems

School systems are open to conditions in their context and secondly are inclined to respond to internal and external conditions. A clear understanding of contextual issues matters both for internal and external actors. Schools as organisations exhibit a range of contexts both outside and within which positively and negatively influence development. Systems thinking requires that capacity for understanding these historical, political and socio-economic factors is improved in the organisation. The focus on bringing generic solutions by means of school development from other contexts does not fit, however it results in fixes that fail. The current understanding of school development and the expectations from the theory assumes that all schools have the same conditions.

There are obviously ranges of contextual influences in school systems. School development is at different stages across the school system. Systems thinking brings consideration of the non-linear patterns in the context of schools. Schools are affected by contextual forces such as vandalism, house breaking, violence and crime and a high dropout rate. School development is contextual and differs from one case to the other. The more complex the school system is, the more demanding the change process becomes, particularly for school development. School development is thus not just a matter of getting into the school and introducing the systems thinking. It is about negotiating entry considering the complex factors that prevail at each school. This study is examining the understanding, the efficacy of systems thinking, the benefits and challenges of the systems in differing school contexts.

3.10 Approaching school development from a systems perspective

The limited understanding of the system school development nullifies what can be of benefit to the school system. In the previous chapter scholars have narrowly defined and conceived school development (Moloi, 2006). Systems thinking brings a lens whereby school development can be seen from a different perspective beyond the location in sparsely populated schools. From the systems perspective school development is an aggregated, nested attribute that goes beyond the elements of the system and also goes beyond the logistical and the technical. The view that was held twenty and thirty years ago is limiting the understanding and nature of school development. Systems thinking is a radical shift from a reductionist, quantification, analytic and fragmented framework. The need for a systems view of school development has its own benefits for the suprasystem.

A systems description of school development is a system composed of a complex network of inputs, processes, outputs and feedbacks from the public, parents and learners; with constant changes in the external and internal environment (Moloi, 2006). Another embracive systems view is shared by Luneburg & Ornstein (2004) when they define it as a set of inter-related elements that function as a unit for a specific purpose. This systems view focuses on the interdependence of each of the elements affecting and influencing the school development. A systems thinking lens carries the benefits of widening and upscaling the scope beyond the locus of one school, to the interrelated network in the education system. This view empowers system thinkers, practitioners to meet the challenge of complexity, get a future insight in our thinking paradigms about the systemic reforms needed in the school system. It makes the systems thinkers to pose questions of this nature viz;

- What do principals understand about systems thinking?
- How do principals use systems thinking approach to school development?
- What are the benefits of using a systems thinking approach to school development
- What are the challenges of systems thinking to school development?
- How can we develop a framework for school development?

These are the issues that are being pursued in this study. Systems thinking provides a theoretical framework in terms of perceiving school development as a phenomenon. It serves as the philosophical framework that underpins the study. By means of using systems thinking lenses new avenues are explored for understanding school development. Systems thinking gives insight into understanding reality and context of school development. It guides the researcher insight in asking the right questions and serves a tool for problem solving in different complex contexts. Systems thinking is about school development being made of interrelated and interdependent parts that exist in a complex situation. It is about understanding school development in the reality of its environment. It is about tools for surfacing assumptions about school development. The focus of this study is to examine how systems thinking is understood, how principals use it in relation to school development, and to weigh the benefits and challenges that is carries.

The current practice in school development is characterised by a top-down strategic approach from senior management. The weakness in this stance is that the deterministic planned top down stifles spontaneous variety and carries the one size fit all mental models. The approach does not allow room for emergent properties, contextual and external factors which have a bearing on school development. The current strategies are out of touch with reality and the ongoing patterns in dysfunctional schools (Christie, 1998; Chisholm & Vally, 1994). Systems thinking believes in all systems that they can be assisted to work towards their purpose and become viable The studies conducted in IQMS by these scholars show the short-lived nature of providing incentives and accountability measures when the capacity and mental models of the people in the systems have not been transformed (Hlongwane, 2009; Prew, 2009; Mathews, 2010; Mbalati, 2010; Kershaw, 2012). Systems thinking focuses on transformational aspects of the school systems, the process and the systems dynamics. Structural and systemic changes that impede these processes act against the development of the school.

The point here is that the initiatives aimed at school development, in a systems context, can easily make things worse instead of better. A rethinking of the conceptualisation of school development is needed as an effort to consider all the shortcomings and challenges in the current approach. Systems leadership needs to foster the development of school from a

systems approach. There is a need to treat school development as a means and also as a process of understanding that development has its dynamics. Systems leadership needs to work with the whole system and help it to develop the school development concept as a system. Systems thinkers need a sense of optimism that can help the system deal with complexity, risk and uncertainty. The systems leadership needs to help the system maintain a coherent identity (Princhavudhi, 2009).

3.11 A systems view of education

According to Banathy (1992), a systems view of human activity systems provides a way of looking at ourselves, our environments, the systems around us and those that we belong to. He argued that a systems view helps in understanding education systems as ever-changing and open to their multiple environments. Banathy (1992) recommended three models that can be used in describing and analysing educational activity systems (institutions), that is, the system-environment model, the functions/structure model and the process model. He described models as mental images representing general systems concepts and principles which are then used as frames of reference to examine and talk about the system (Banathy, 1992; Togo & Lotz-Sisitka, 2013). Walton (2004) defined the focus of each of the levels as follows:

- Systems-environmental model – what is the system of interest?
- Functions/structure model – what is the system about?
- Process model – how does the system transform inputs to outputs?

3.11.1 The systems environment model

According to Banathy (1992), the systems-environment model is ~~"a~~ lens that projects a bird's-eye view of the landscape in which the system is embedded". With this model one is able to describe the system within the context of the community and the larger society (Mccartney, 1999). The concepts and principles of the model help in defining factors that guide the relationship and interaction between a system and its environment. The adequacy and the responsiveness of the educational activity systems to the environment, and that of the environment towards the system can be assessed. An example could be the relationship

between a school and the wider contextual factors that influence its character and its culture and sustainability challenges.

3.11.2 The functionalist and structural model

The functions/structure model articulates what the system of interest does (Walton, 2004). The model defines the image, purpose, functions, components and structure of the system.

Image – is defined through expectations and needs of the environment and/or from expectations of people within the system. Parents and the community place high expectations on leadership at school, which is a reason for sustainable school improvement. The negative manifestation of the systemic issues at schools forces parents and community members to lose confidence in school leadership. Leadership at school and the district needs to develop strategies for responding among other things to these factors that lead to schools being poorly perceived in the community.

Purpose – defining purpose helps to interpret the image of the system in more detail where elaboration is made of what the system is about through looking at generic purposes (common to human activity systems) as well as unique purposes (Banathy,1992).

Banathy (1992) outlined the basic guiding questions in defining purpose as follows:

- Who are the clients of the system? (e.g. learners and parents and local community).
- What services are offered to them? What characteristics do the services have?
- Where, when, and how are the services offered? (e.g. the curricula packages; curricula streams of subjects).
- What are the environmental constraints that the system has to consider?
- How do these constraints impact on the definition of the system?
- How do these potentially affect the functions of the system? (Environmental constraints can be in form of poor parental and community support, ~~u~~kuthwala", drug and alcohol abuse; Hiv/Aids and early teenage pregnancy; vandalism of the limited resources; which may end up negatively affecting the operations of the system).

Functions - entail what the system has to do in order to achieve the purpose (Banathy, 1992). According to Walton (2004), the functions are a description of the internal operations of the system which explains /elaborates how the system accomplishes its purpose. An example could be the systems for teaching and learning, the administration, leadership, assessment and examinations, the finances, governance and working of structures within the school and the support from the parent and community.

Components and structure – this stage defines the specific components that are responsible for fulfilling the functions of the system (Togo & Lotz-Sisitka, 2013; Walton, 2004). Secondly, it also reveals the interrelationship and interaction with each other. The pattern of interrelationships forms the structure of the system. In the case of this study, the structure of the system is defined in the context of sustainability issues only. The functions/structure model is rooted in structural functionalism. Structural functionalism regards social systems as systems of stratification which motivate and place people in their ~~"p~~roper" positions so as to fulfil the systemic requirements of these positions (Togo & Lotz-Sisitka, 2013; Ritzer & Goodman, 2004). The established system of positions and the requirements of these positions in structural functionalism are comparable to the systemic components and the functions forming the structure of the functions/structure model. However, unlike critical realism which emphasises context and historical contingency of structures, structural functionalism was critiqued for being based on the belief in a single theory or a set of conceptual frameworks.

Banathy (1992) added another dimension in understanding school organisations and interpreting the way they work using this framework. There are elements which resonate with the proposed holistic multi-dimensional framework for school development.

3.12 Systems thinking and sustainability

The study conducted by Sterling (2003) draws our attention to issues of sustainability of systems. The holistic approach by Sterling (2003) is suited to the school development in terms of what could be its benefits. Studies on whole school development approaches (Mathews, 2009) failed to yield the expected results inspite of this theoretical grounding. In

terms of the expectations from the whole systems thinking perspective, the desired end is synergy in the application of concepts, tools and methods to achieve the desired goal (Sterling, 2003). Scholars have been advocating for sustainability of education reform by positing systemic leadership as the solution (Banathy, 1992; Ackoff; 1999; Bertalanffy, 1974;

The idea of inclusion of sustainability in systems thinking has been explored by some scholars. Studies have been conducted regarding the infusion of sustainability in different fields with systems thinking (Sterling, 2003; Nguyen, Graham, Ross, Maani & Bosch, 2012; Porter & Córdoba, 2009; Fiksel, 2006; Sterling, 2003). Nguyen, et al. (2012) explored the application of sustainable management of biosphere at Cat Ba Biosphere Reserve using the systems thinking approach. Fiksel (2006) recommended the use of systems thinking in sustainability projects that need to cover issues of climate change and other policies impacting on ecological and human systems. Porter & Córdoba (2009) drew from the systems theories ways of applying sustainable features to education systems. In his definition of sustainability Sterling (2003) brings the idea of a system that is able to sustain itself in relation to its environment. He used the nesting systems model (related to Banathy's (1996) systems environment model) to explain the relations between education, society and the ecosphere. Systems deal with the complex organisation of a number of different connected elements (Checkland, 1999). A system can be defined as a collection of parts or elements that interact with one another to function as a whole, thus showing properties which are properties of the whole, rather than properties of the component parts (Kauffman, 1980, Checkland, 1999). According to Senge (2006), invisible fabrics of interrelated actions, which often take years to play out their effects on each other, bind systems of human endeavour. Because individuals are part of these seemingly distinct actions in systems of human endeavour, it is difficult for them to visualise the whole pattern of change. There is a tendency to focus on snapshots of isolated parts of the system, and consequently the deepest problems do not seem to get solved (Senge, 2006). It is not always possible to design a system that is necessarily appropriate or in fact desired. Unstructured or soft problems are manifest in a feeling of unease but which cannot be explicitly stated. Hjorth & Bagheri (2006) adds another dimension to the understanding of sustainability of organisations by employing the systems dynamics for analysis.

The complex problems in school development systems require different approaches and tools. These approaches and tools have been developed over a long period and fall within the systems thinking paradigm. Soft systems apply to unstructured situations where the 'problem' may be classified as wicked. Similar in concept to wicked problems, Checkland (1999) contends that in contrast to hard problems, soft problems often have obscure goals. Unstructured or soft problems are manifest in a feeling of unease but which cannot be explicitly stated. School, district and provincial systems have the elements of systems of human endeavour or human activity systems. The idea of looking at holistic systems as Sterling (2003) posits is resonates well with the idea of a proposed holistic multi-dimensional framework for school development.

3.13 Schools as a learning organisations

There has been a shift in terms of thinking about schools as centres of continuous learning. The debate has been taken further in a critique by Jim Grieves (2008) in terms of whether is there a need for learning organisations. The advocates of schools as learning organisations present compelling arguments for such ideas to underpin the schooling system (Silins, Zarins & Mulford, 2002; Giesecke & McNeil, 2004; Seddon & O'Donovan, 2010; Hiatt-Michael, Som, Saludi, Shuib, Keling, Ajis & Nam, 2010; Retna & Pak Tee, 2006; Retna, 2010). The concept of a learning organisation functions as the guiding vision for an organisation as a living organism with an open, powerful learning environment which inspires, facilitates, and empowers the learning of its members to enhance its capacity to change (Sun, Creemers & De Jong, 2007). When looking at schools from the perspective of a learning organisation, they are open systems dependent on the external environment with boundaries that differentiates them from one another (Hanna, 1997). The focus in this theory is both individual and organisational learning on a wide scale.

Senge (2006) explicated on five critical disciplines which are also associated with learning organisations. These disciplines are namely, personal mastery, shared vision, mental models, team learning and systems thinking (Senge, 2006). By personal mastery is meant embarking on personal development and learning through constantly clarifying the big picture (vision) and seeing more clearly what current reality is. Mental models involve surfacing, testing and

improving internal pictures of how the world works so that assumptions will not remain unexamined and unchanged. Marlar (2015) conducted a study based on the mental models of principals to distributed leadership. Johnson and Johnson (2004) explicated further on mental models and categorised them in terms of how they affect organisations. Reflection as a skill needs to be developed whilst engaging in the surfacing of mental models (Maynard, 2009). Leadership and structural changes need to embrace shared vison in order to realise their potential (Kruger, 2003).

On the other side team learning involves the following aspects, namely; to think insightfully about complex issues through tapping the minds of many, to ensure innovative, coordinated action based on operational trust, and to foster learning teams through participation. The concept of a learning organisation functions as the guiding vision for an organisation as a living organism with an open, powerful learning environment which inspires, facilitates, and empowers the learning of its members to enhance its capacity to change (Sun et al., 2007). The advantage it enables openness to shortcomings in the way we see things through mental models; it assists in developing the skills to see the larger picture through team learning; and it promotes the personal motivation to continually learn through personal mastery.

The main aspect about learning organisations is the focus on interdependence on the world. Senge (2006) suggests that the other aspect of it seeing problems as caused by others to seeing how our own actions cause problems. Systems thinking enables people to continually discover how they create their reality. Leaders in learning organisations are responsible for learning and are viewed as designers, stewards and teachers, with responsibility for having the vision, communicating it to others and instructing organisational members in the five disciplines (Mathews, 2010).

The research on schools as learning organisations has been expanded into different horizons. Silins et al. (2002) in research conducted in South Australia and Tasmania on secondary schools identified trusting and collaborative climate taking initiative and risks shared and monitored mission and professional development as the four pillars. Bowen et al. (2007) describe learning organisation as associated with a core set of conditions and processes that

support the ability of an organisation to value, acquire, and use information and tacit knowledge.

The thinking on school development needs to shift towards perceiving schools as centres of continuous learning. Sun et al. (2007) argue that the learning organisation concept functions as the guiding vision for an organisation as a living organism with an open, powerful learning environment which inspires, facilitates, and empowers the learning of its members to enhance its capacity to change. System theory enables our understanding of the need for schools to have the ability to change and to engage in continuous learning and enhance learner learning and achievement through the use data and measures (Mathew, 2010).

3.14 The use of systems thinking for school development

Systems thinking encompasses a range of methodologies that seek to understand why organisations are the way they are and also how to intervene in an attempt to make organisations make for the people that work in them and those that benefit or rely on them. The main reason for this is that the issues at the centre of this study are 'soft' and involve a range of stakeholders who are involved with the practice of the identified activity. Systems thinking as a methodology has been used since its inception in order to critically explore other perspectives on school development from other stakeholders. Bhola (2002) comments that _systems thinking provided applicable ideas regarding relationship between parts and the whole; interdependence among systems sub-systems and super-systems; configuration of systems it overlaps, intersections and hierarchies and emergence of qualities when the whole is more than the sum of its parts. Parts came together to make wholes which were then not reducible to earlier states. A holistic approach (Bell, 1999) amongst others contends that systems thinking is an ideal tool to deal with human systems.

School development is a very complex phenomenon with a growing field of perspectives on its understanding. It involves a complexity of human activities and perceptions regarding what is perceived as school development. Systems Methodology offers a rational intervention in managing and organising complex human situations. Human systems are dynamic, uncontrollable and can be examined from a multiple of perspectives (Flood, 1998;

Stacy, 2003; Robson, 1995; Senge, 1999). Ackoff (1999) further emphasizes that a socially-systemically conceptualised enterprise has development as its principal objective: its own development that of its parts, and of the larger systems of which it is a part. The examination of the efficacy of systems thinking approach to school development determines the eclectic perspectives on the phenomenon. This is supported by other studies that support the idea of approaching schools from a systems perspective (Banathy, 1999; Sterling, 2001; Lang, 2004; Mchunu, 2006; Smyth, 2005; Mchunu, 2006; Mntambo, 2009, Xulu, 2009; Green, 2013). Since a school is a system created by people, Jackson (2002) urges that they must be centrally involved in an attempt to change and improve the school making it more effective in producing better student outcomes. The discussion below shifts to systems tools which are part of the application of systems thinking.

3.15 Systems tools

In systems theory, the systems thinker develops a systems mindset. With this kind of systems mindset, there are systems tools that enable the systems thinker to work with diverse systems. Senge (2006) describes mental models in terms of the way we think, which is influenced by our assumptions, generalisations and the kind pictures and images that influence how we understand the world and how we act based on the above mentioned factors. For this study we have cited a few of the systems tools. Buckle Henning, Wilmhurst & Yearworth (2012) argue that systems thinking focuses on the use of systems tools and assigns the name of systems thinker to the person that uses such tools. There are a variety of systems tools as the discipline grows.

a) Leverage point

According to Meadows (1999) leverage points are places within a complex system (e.g. a corporation, an economy, a living body, a city, and an ecosystem) _where a small shift in one thing can produce big changes in everything. These are places where power is exerted in order to leverage the system. Senge (2006) pointed out that leverage points are the _right places in a system where small, well-focused actions can sometimes produce significant, enduring improvements‘ (p.64) . Systems scholars also agree with Meadows and Senge and

they cite the above definitions, as they write on leverage points (Trinh, Ha, Bosch & Nguyen, 2015; Fiscus, 2013; Nguyen, Bosch, Nguyen, & Nguyen, 2013; Greyson, 2007; Hjorth, & Bagheri, 2006).

Systems scholars adopted the idea of leverage points and applied it in different fields and contexts (Fiscus, 2013; Nguyen, Bosch, Nguyen, & Nguyen, 2013; Greyson, 2007; Hjorth, & Bagheri, 2006; Stroh, 2009). According to Hargreaves (2001), school leadership has a responsibility of identifying and applying high leverage strategies for school improvement.

Soft systems approaches has sought to readdress this by understanding that people are an integral part of organisations and that these people each bring to the organisation their own worldviews, interests and motivations (Barton, Flood, Selsky & Wolstenholme, 2004; Burns, 2007). Furthermore, soft systems approaches understands the difficulties involved in the predictability of human behaviour. Soft systems techniques invariably employ a researcher whose role it is to ensure the study group contains key stakeholders; to act as a facilitator of the process; to orchestrate discussions; and be seen as open, independent and fair (Heyer, 2004). Soft systems methods seek to help key stakeholders understand the problems they face; the views held by other stakeholders; negotiate the action to take; and agree to a consensus on a course, or courses, of action to be taken (Heyer, 2004; Daellenbach, 2002). Based on the developed Systems School Development Framework are identified potential points for systemic intervention as illustrated in **Figure 6.5 and Table 6.4** in Chapter Six.

b) Decision Trees

A decision tree is a tool for helping a decision maker to choose between several courses of action. Decision trees provide a highly effective structure within which decision makers can lay out options and investigate the possible outcomes of choosing those options. They also help to form a balanced picture of the risks and rewards associated with each possible course of action (Carter & Price, 2001).

c) Influence Diagram

Most scholars concur with the definition sponsored by Howard and Matheson (1981) that an influence diagram is a simple visual representation of a decision problem. It provides an intuitive way to identify and display the essential elements, including decisions, uncertainties, and objectives and how they influence each other (Howard & Matheson, 1981; Heyer, 2004; Bez, Flores, Fonseca, Maroni, Barros & Vicari, 2012). There is general agreement that the purpose for the development of influence diagram was formulate a tool that will be appropriate to solving real world problems (Howard & Matheson, 1981). Scholars from different fields employ this tool for purposes of measuring risk in organisations (Heyer, 2004; Bez, et al., 2012). This is the common application of both decision trees and influence diagrams in Operations Research (OR), and comes under the guise of hard OR as they then become problem solving (rather than purely problem structuring) methods.

d) Iceberg Tool

The iceberg model is a systems thinking tool designed to help an individual or group discover the patterns of behaviour, supporting structures, and mental models that underlie a particular event. It can be viewed in terms of the different ways of seeing the world. The world can be viewed as events, patterns, structures, mental models and containers. At the event level we look at routine. We tend to perceive the world at the event level and our solutions are reactive. The pattern level looks at what is observed as repeated events. At this level we can anticipate, plan and forecast. It allows us to adapt to problems so we can react more effectively to them. Scholars in different fields are employing this tool as a way of understanding the systemic issues that prevail in the organisation (Testa & Sipe, 2006; Stroh, 2009; Maani, 2013).

The tool is utilised for questioning at the different levels. At the structure level, a question would inquire about what is the cause of what is being observed. Different questions are formulated for purposes of getting into the bottom of the matter regarding the existing patterns. The ultimate aim at this stage is to reveal what is embedded as the existing mental models. These are what people hold at their attitudes, beliefs, morals, ethics, expectations, values and experiences. By this thinking tool, we get into the deeper issues that in the minds

of people. The mental model is a powerful thinking tool which enables us to understand what is beyond the naked eye.

Figure 3.1 portrays the Iceberg tool that is used to depict the level of thinking in organisations.

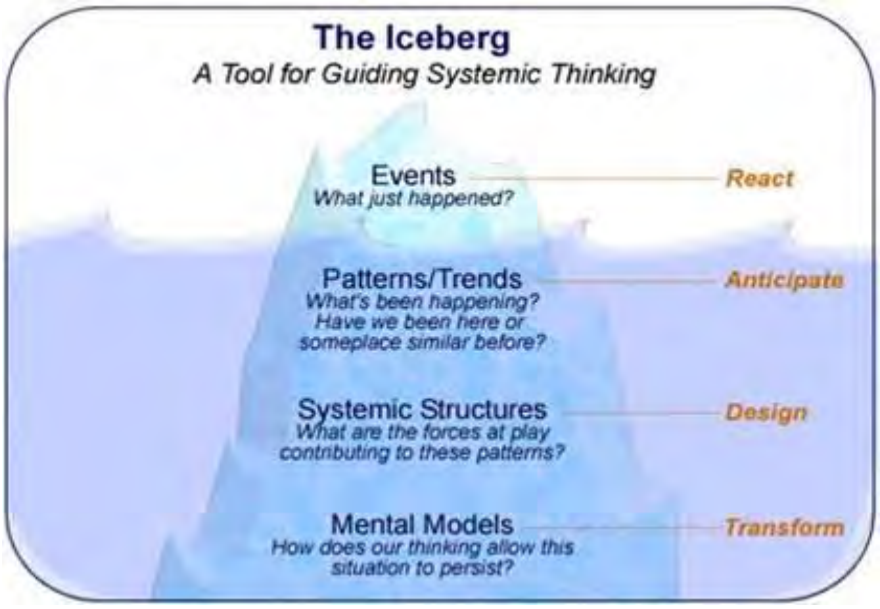


Figure 3.2: Iceberg Tool

(Source: Rethmeier, K.A, 2010)

d) Multi-cause diagram

Multiple-cause diagrams portray the interconnectedness between the elements in a complex system. In doing this they try to depict the multiple-causes within the system. These elements are drawn is such a way that they need to show where is the root of cause and effect and how do these multiple effects affect each other. This is one way of attempting to see beyond the linear chain of causation. Fleyfel (2010) conducted a study which illustrates the multiple causes of the waste of water at Lebanon. He illustrated these by drawing a multi-cause diagram to illustrate how each variable is linked to others.

As part of the systems theoretical framework, I will summarily clarify the systemic leadership, in order to link it with the study which examines principals and their use of systems thinking in school development practice.

3.15 Systemic leadership

Systems thinking is a framework for school development, which covers a variety of concepts which is inclusive of systemic leadership. A systems mindset is needed of the leadership in this 21st century, with the capability of dealing with complex school issues. Traditional leadership approaches are incapable of handling the ever-changing nature of the school system. The shift in thinking in terms of leadership that is focussed on these traditional models, is not in sync with what system thinkers are expected to do. System thinkers in action are practitioners who operate at all the three levels of the schooling system (Hargreaves, 2001; Depress, 2005). Systemic leadership requires people who think beyond the confines of the school system, as a boundary. These are thinkers who are needed at all levels in order to proliferate the organisation with a new mindset regarding their role. In order to transform the system on a wider scale, than what happens currently, systemic leadership demands knowing how to influence the system across the organisation as a whole. The systems leadership presupposes leaders working across and producing other leaders linked to different parts and levels of the schooling system. Systems thinkers don‘t need immediate quick fixes to keep them safe. They understand that cause and effect is not necessarily immediate nor linear (Checkland, 1981; Geller, 2000; Senge, 2006).

According to Taylor (2013) by systemic leadership is meant to be highly connected to the organisation and focussing on meaning making, facilitating the flow of energy, learning new ways of relating ad influencing organisational learning and developing the capacities across the organisation. Systemic leadership involves fundamental shifts and the ability to respond to complex school issues. It focuses on new realities a system is facilitated with. Realities affect stakeholders groups differently. Systemic leadership identifies the value tensions that each stakeholder group faces. Systems leadership helps the system reality test value tensions that various stakeholder groups are experiencing. Systemic leadership assists people that are adept at holding people‘s feet to the fire to do their adaptive work. It promotes the establishment of clustered networks of both local, district and provincial schools for purposes of professional development (Elgart, 2009). The involvement requires volunteering time and resources which need to benefit the bigger group (Connolly & Dunning, (2005). Leadership

is critical during the critical times when organisations are faced with issues of survival and need to emerge out of such situations (Fragouli, & Ibidapo, 2015). The following discussion looks at the shortcomings in systems theory.

3.16 Critique of systems theory

The criticism levelled against systems theories is of using models to represent reality which simplifies the complex nature of the objects of social study (Ward, 2002). According to Ward (2002), this reduces "complex emotional beings" to "quantifiable variables". Ward (2002) also argued that focussing on systems thinking tools may result in ignoring the complexity (in terms of depth ontology and causality) and historical contingency of the world around us. Both these weaknesses were addressed in the study through use of concepts of critical realism.

Graham (2003) in his paper he proposed an approach that simplifies the seven stage model by Checkland (1999; Checkland& Poulter, 2000). Another pointed weakness in SSM is the poor application in the evaluation of soft systems methodology (SSM) as an approach to organisational development (OD). Other studies find that there are issues when the principles of SSM are applied into organisations (Ledington & Donaldson 1997; Mingers & Taylor, 1992). Furthermore, others pointed out that SSM is complicated process, which cannot be easily applied by ordinary people (Patching, 1990). Other scholars indicate that the practitioners of SSM tended to take it for granted that SSM can be easily applied (Salner, 1999). Howell (2000) in his opinion discovered that some of the SSM projects were not applied to the letter. SSM is presented as an iterative and participatory approach to complex issues in organisational development (Checkland & Scholes, 1999). This thesis will incorporate the strengths of SSM as a system of enquiry and action learning by presenting a SSDT model. The model allows the principles of SSM to be provided to an organisation in a systematic, cyclical process in order to develop, or make improvements to the organisation. Fitzgerald (1999) in his paper defended systems thinking, by adding the complexity theories in identified gaps of the paradigm. Another critical shortcoming in systems thinking is that non-academic people find it difficult to cope with to understand some of the theory. This

requires a simplistic manner of communicating the knowledge to the level of understanding of those who are non-systems thinkers.

According to Osifo & Omeregbe (2011) systems theory is criticised for giving little direct guidance as to which aspects of the systems of interest should be manipulated to achieve policy objectives. This is concurred by Stewart and Ayres, (2001) who argue that systems theory does not appear to provide a way forward when constituents of the system are in conflict with each other and/or are very ill matched in terms of power and resources. Philips describes one of the shortcomings of systems theory as the failure to specify precisely what is meant by a system; the vagueness over what is to be included within systems theory; and the weakness of the charges brought against the analytic or mechanistic methods (Shrode &Vioch, 1974). The systems concept assumes that the boundaries between the organisation and its environment are distinct (Fioretti & Visser, 2004). Clipperger (1999) casts doubts on the ability of the approach in providing guidelines and answers on how organisations need to address complex situations. Systems model are considered to fall short when it comes to specifying time and process of collaboration between organisations (Yoon & Kuchinke, 2005). Other critics argue that it gives little direct guidance as to which aspects of the systems of interest should be manipulated to achieve policy objectives (Amagoh, 2008). Based on these criticisms, it seems necessary to consider a multi-methodological framework for school development derived from a systemic approach that draws insights from a number of other lenses.

3.17 Conclusion

The systems thinking perspective and the strands that form part of this theoretical framework are summarised in the above discussion. The point made in this review is showing the understanding of the concept entailed in these approaches. The discussion focused on understanding the meaning of systems, the systems thinking and the use of such in school development. There are diverse approaches in systems theory as indicated in the above discussion, in as much as there are also different types of systems. The theory upon the systems thinking approach has also been clarified as well as the prospects for its use in education. The discussion also reviewed the relationship between systems and the use of

tools for analysis. A critique of the systems theory was also included as part of the review of literature. In the next chapter the reader will be introduced to the research design and methodology that was chosen to be appropriate for this study.

CHAPTER FOUR
RESEARCH DESIGN AND METHODOLOGY

4.1 Introduction

In the previous chapter the theoretical framework was explicated. An in-depth discussion covering areas relevant to the study was presented, particularly those answering the research questions. In that regard the chapter discussed amongst others, the meaning and understanding of systems. Furthermore, a detailed explanation was also presented on systems thinking and its justification as the theoretical framework for school development purposes. A brief discussion on systems tools and their use as a basis for interventions was presented. Lastly, a critique on systems thinking to indicate the challenges on working from that lens was explicated.

In this chapter I will discuss at length the different aspects of the research design and methodology. Included is also a discussion on the selected research paradigms that are relevant to this study. Initially, I will declare my positionality and bias, justification for choosing the interpretive paradigm. This chapter also explicates on the choice of case study approach, the selected research tools, which are semi-structured interviews, focus discussion groups, reflective journals /diaries. Furthermore, it will indicate how ethical issues were handled.

Conceptually a research design is a description of the order; structure or plan the researcher adopts for a research study and may be subject to change (Mouton, 2001; MacMillan &Schumacher, 2001; Henning, 2004). A research design elucidates how the research will be conducted and how will the data be elicited as sound evidence in answering the research questions (Mouton, 2001; MacMillan & Schumacher, 2001; Silverman, 2010). This study asks the critical question: *How can the systems thinking approach be utilised to bring about school development?* In the quest to answer this question and how to determine the principal‘s understanding of systems thinking and its use thereof in school development, this chapter presents how the research design and plan for this study unfolds.

Subsequent to the opening section on positionality and bias, the chapter begins with a presentation of a brief discussion of the key question and subsequent questions to be answered during the study. This is followed by a depth discussion revolving around the adopted paradigm, style and approach taken to research supplying the study's framework and design. In this chapter the outline of the design and the methodology are described in detail.

A case is put for the rationale underlining the selection of participants involved in the focus group. The way of dealing with ethical issues and the sequence of events in handling these ethical issues are discussed in the chapter. I will elaborate on the types of questions presented, the themes explored and data to be presented. The strategies used to gather data are recorded and the approach taken to analyse the data is described. The section, finally gives details of the limitations of the research.

4.2 Research positionality and bias

In social science research positionality is used to explain amongst others the narrative placement, the context of the study, the power structures and social identities of the researcher, the transparency in terms of perspective, place and position in scholarship of the field or discipline (Muhammad, Wallerstein, Sussman, Avilla, Belone, & Duran, 2014; Merriman, Johnson-Bailey, Lee, Kee, Ntseane, & Muhamad, 2001). Gilson, Hanson, Sheikh, Agyepong, Ssengooba, & Bennett (2011) argue that bias can be kept minimal by the researcher reflexivity by declaring upfront the assumptions that may influence the interpretation and by testing them in analysis. It is from this reality that reflexivity takes its importance, and I will state my known prejudices and orientations in the positionality (Mantzoukas, 2005). As a researcher in this study it is expedient that I declare my positionality and bias. Therefore I declare upfront my close proximity and insider opportunity in understanding subjective truths and perceptions that may or may not exist for interpretation and meaning. In the Chapter One I indicated how I have worked with principals as a Circuit Manager using the systems thinking approach, which yielded a study based on the implementation thereof in IQMS. I selected sample of principals was part of the group I was working with as Circuit Manager from 2003 to 2012 at the Vulindlela West

Ward. The selected sample was considered to be representative of the clusters, which were used for ease of access to the different geographical corners of the circuit.

The study was conducted in the Umgungundlovu District in KwaZulu-Natal. Five schools will be purposively selected to participate in this study. These principals had demonstrated their strong desire to be further exposed and trained in systems thinking approach so that they could continue utilising it in their schools. These principals and their schools are unique in terms of location, size, backgrounds and academic performance. Earlier I indicated that as a Circuit Manager I had previously worked with these principals when I introduced the systems thinking approach to the whole circuit for purposes of school development. The principals expressed further interest to be part of the research in order to further advance their knowledge of systems thinking approach and application thereof in school development.

Inspite of the above every effort has been made to reduce bias and create a relaxed objective atmosphere for purposes of this study during the gathering of data. I used the recording devices, transcripts and focus discussion groups and reflective journals /diaries as means of alleviating bias. I followed all protocol in ensuring that sound ethical codes were followed including confidentiality and voluntary participation. Precisely, this case study is relevant in examining the use of systems thinking by principals in school development activities. This case strategically is not meant to effect change at the identified sites, rather to examine and understand thinking and practice for its empirical value. The theoretical perspective that informs this study is systems thinking. Its fundamental ontological assumptions is that schools are open human activity systems which operate in complex contexts which have a bearing on the school development. From an epistemological position, the systems thinking perspective is subjectivist because it enables the researcher to provide a rich description of the principal‘s reflections on their understanding of systems, their use of systems thinking in school development activities.

4.3 Research aims and questions

As indicated in Chapter One the quest to answer the research questions emanates out of the purpose of this study (Boudah, 2011; Creswell, 2007). Good research questions direct and focus a study, thereby providing a clear epistemologically and theoretically justified layer for

operationalising the study (Maree, 2010). There is no research that has been conducted to date, in relation to the examination of the use of school development from a systems thinking perspective in South African schools. Other studies, have focused on different aspects of school improvement most of them in overseas countries.

This case study conducted asks the following key research question: *How can the systems thinking approach be utilised to bring about school development?* With a view to adding to the knowledge base and deepening our understanding of the use of the systems thinking approach in school development, it examines critical questions and also deploys research tools that are considered appropriate to achieve this outcome. In addressing the major benefits, contributions, complexities and challenges to be understood within this key question, this study is a case study. This case examines and describes the principal's understandings of systems thinking as a conceptual framework. The first question provides a critical theoretical bedrock, context and trajectory for this study. This question is addressed in Chapter Three. The other key questions for this case study are *what are the benefits of using systems thinking in school development?* In addressing this question it is covered in Chapter Two (see Literature Review). The last question is *what are the challenges of using systems thinking in school development*? For further exploration of this question see Chapter Three (Systems thinking perspective). In Chapter Five, (see Findings and Discussion) emanating out of the data gathered from this sample.

The study was conducted to gain insight and reflections on the use of systems thinking in school development which can be further explored in the schools, the district and the education system as well as the research community. The research goals derive from the theoretical framework outlined in the previous Chapter Three on system thinking and the reviewed literatures in Chapter Two on school development. The theoretical framework is enriched with a depth of concepts. Among these concepts that merit investigation are school development, systems thinking and systems tools, to mention a few. Other concepts which also emerged from these themes included the role of systems thinking in conducting school development and the significance of stakeholder views on school development working with systems. Arising from the theoretical framework are these four fundamental questions viz.: what is the understanding of systems thinking by principals, how systems thinking is used in school development, what are the benefits of using systems thinking in school development

and what are the challenges of using systems thinking in school development. These serve as the main questions from which the research unfolds. In seeking answers to these questions, the study applied a combination of inductive, reflective and analytic judgment on the efficacy of systems thinking to school development. In the following discussion the design of the study will be outlined.

4.4 Research paradigms

Scholars hold the diverse regarding their understanding of paradigms as ways in which we make assumptions about reality. Research paradigms, according to Babbie and Mouton (2001) posit a functionalist understanding of paradigms as frameworks and models that shape how we derive meaning of the phenomena. Bailey (2007) sees paradigms as mental windows by means of which researchers view the world. Maree (2010) concurs with the above views and considers paradigms a set of assumptions or beliefs about fundamental aspects of reality which gives rise to a particular world view. Denzin and Guba (2011) in a depth discussion consider paradigms to be the net contains the researcher‘s epistemological, ontological, and methodological premises. The paradigm becomes more applicable in complimenting the nature of the research question to the study.

Ontological and epistemological elements of the research are concerned with the way the researcher views reality. In the choice of research approaches, particular assumptions are made with regard to the way we question reality. These philosophical assumptions consist of a position that we take as far as the nature of reality (ontology) is concerned. Furthermore, this also involves the consideration of how the researcher knows what he or she knows (epistemology) and the methods used in the process (methodology) (Creswell, 2007). In order to find out about the principal‘s use of systems thinking in conducting school development activities, it was critical to explain and also understand what in systems thinking. It is well known that the research philosophy that one adopts bears underlying assumptions about the way in which researchers view the world (Saunders, Lewis & Thornhill, 2012**).**

The purpose of the paradigms is to serve as organising principles by which reality is interpreted. Literature is rife with different kinds of paradigms of which there is no

concurrence in terms of the way they are categorised (Creswell, 2003; Mackenzie & Knipe, 2006; Maree, 2010). For purpose of this study we will not endeavour to get into the philosophical debate regarding the different historical roots of the plethora of paradigms.

In the discussion below we will summarily point out some of the paradigms, as they are regarded as key for this study. Scholars categorise paradigms into several groups. The discussion below will focus on two paradigms, namely, the critical and interpretive/constructive paradigm.

4.4.1 Critical paradigm

The critical paradigm focuses on the reality of human action and seeks to address issues of social justice and marginalism (Crotty, 2003; Scotland, 2012). What counts as knowledge is determined by the social and positional power of the advocates of knowledge. The research embraces the emancipatory character in which knowledge is embraced by the participants as critical stakeholders. The knowledge that is generated is derived from the culture, history and is influenced by the way people think. The critical paradigm asks the axiological question: what is intrinsically worthwhile? The critical paradigm is normative and takes into consideration how things ought to be and how reality is judged (Scotland, 2012). The approach in critical methodology is that data needs to be critically engaged with. This means that the researcher has to focus on critically interrogating values, and assumptions, exposing beliefs and also challenging the status quo by engaging in social action (Crotty, 2003). Scholars concur that within this paradigm, research is considered to be influenced by a various factors which include values embedded in social reality (Maxwell, 2012; Bailey, 2007; Pring, 2000). Scholars hold similar opinions that the point of departure for the critical researcher is continuous reflective practice based on the awareness of the situation and how to influence change (Carr & Kemmis, 2003; Byrne & Sahay, 2007). In this emergent and recursive process Talmy (2010) adds that the researcher aligns theory, data and research questions and interpretation of the findings.

What is characteristic of critical research approach is the collaboration between the researcher and participants by means of continuous discussion based on how reality is critically analysed and also con-constructed (Frere, 1970). Added to that Creswell (2009) brings the mechanism of how this dialogue works, by suggesting that is data generated by means of semi-structured interviews, focus group discussion, reflection on journals and diaries and document review. The other recommended tools for critical approach include critical discourse analysis, critical ethnography and action research. The critical paradigm seeks to emancipate by means of engaging with the issues with the intention to bring about changes.

For this study I have proposed the adoption of the interpretive / constructive paradigm as the appropriate lens in examining the efficacy of systems thinking to school development. Further justification for choosing this paradigm will be explicated in the following discussion.

4.4.2 Interpretive /constructive paradigm

These are closely related paradigms with few nuances. According to (Roling & Wagemakers, 1998) the term –econstructionism" describes an epistemology that supports learning processes and guides the thinking around whole systems. The belief within the field of the interpretive /constructive paradigm, is that the researcher relies on the participant's views of the situation being studied (Creswell, 2007). As far as the interpretivist /constructivist lens is concerned, the researcher relies more on the qualitative data gathering methods and analysis. Social constructivism was described as one of a group of approaches that have been referred to as interpretive methods. Amongst the primary objectives of social constructivism is that the researcher seeks to understand the social construction of the world of individuals (Creswell, 2007). Furthermore, Sey (2006) considers that research that is conducted from a constructionist approach belongs to the postmodernist school of thought. Lincoln and Guba, (2013) are of the opinion that it is difficult to categorise there paradigms during this era because they complement each other.

Social constructivism is a paradigm also associated with qualitative approaches based on understanding phenomena (Creswell & Clark, 2007). There is strong held assumption by constructivists that socially constructed knowledge is preferred over individually acquired knowledge (Kelly & Durrheim, 2006; Lincoln, Lynham & Guba, 2011; Lincoln & Guba, 2013). In the social constructivist paradigm language features prominently as a tool for constructing reality during the course of dialogue and discourse (Holland, 2006; Denzin & Lincoln, 2009; Gerring & Skaaning, 2013). Language also features prominently during the course of includes data generation, construction of discussions and findings. Similar sentiments are shared that the community plays a critical role in determining the purpose and use of meaning in context (Lincoln & Guba, 2013). In a different vein Holland (2006) reiterated that constructivism refers to the mental process and conversions of knowledge. Schunk (2008) shifts the emphasis away from the previous beliefs by placing the learner‘s skills at the centre stage as well as the contexts in which they construct knowledge (Gephart, 1999).

Constructivism asserts that we cannot discover meaning objectively, but rather that we construct them as we interact with the world. Another view is that we create meanings independently of experience, that is subjectively, and impose them on reality. Constructivism is based on the ontological assumptions that reality is neither orderly nor fixed, but in perpetual and continuous emergence. From an epistemological lens, knowledge is individually and socially constructed as a way of viewing the world (Sheppard, 2004; Gephart, 1999). As part of the research design from a constructivist perspective, it accommodates reflection and conversation techniques for data gathering. There is a strong belief held by social constructivists that reality is a product of people‘s minds and is subjective (Sheppard, 2004; Gephart, 1999). Constructivist methods are qualitative and interpretive in their nature as they are centred on meaning. The focus in lately in research stage is the description of an individual‘s perception of meaning of an event or the art of understanding the perceptions and perspectives of participants and views of social reality of specific situations (Patton, 2002; Leedy & Ormond, 2005). Added to that is also the dimension that describes phenomenology as the principle of understanding in context the meaning of experiences of individuals in different contexts (Terre Blanche, Kelly & Durrheim, 2006).

As a compliment to constructivism, Snape & Spencer (2003) describe interpretivism as the philosophy that focuses on interpretation and observation. The view held within this paradigm is that the primary aim of the interpretive paradigm is to interpret the actions of individuals (Cohen, Manion & Morrison, 2007; Lincoln & Guba, 2013). There is agreement amongst scholars that in terms of this paradigm, the aim is to understand the interpretations of the world by placing people in their social contexts (Lincoln & Guba, 2013; Kraus, 2005; Gephart, 1999). Interpretivist researchers seek to understand the definitions of the situation of members as well as to examine how objective realities are produced (Lincoln & Guba, 2103; Kraus, 2005; Denzin, & Lincoln, 2009). Denzin & Lincoln, (2009) argued that the search for patterns of meanings is the key focus of the interpretive paradigm. The co-authors emphasized trustworthiness and authenticity to be the criteria for assessing research to be. Judging from the above discussion, it is clear that interpretive constructivism offers ways to understand the theories of the world and the meanings of individuals. The criticism levelled against the interpretive approach is that it does not utilise methods which are based on scientific procedures which are objective and focused on people‘s perceptions (Cohen, Manion & Morrison, 2007). One of the limitations, identified with the constructivist paradigm, is the cost in terms of time and resources required to conduct the research and gather data. The other related shortcoming is in the analysis and interpretation of larger amounts of gathered data (Easterby-Smith, Thorpe & Lowe, 2002). Denzin and Lincoln (2009) defended the interpretive paradigm against the critiques that were levelled against it, based on the gains that have been acquired by means of this paradigm.

The study is based on the interpretive/constructivist paradigm which supports the belief that knowledge is socially constructed (Lincoln & Guba, 2103) and influenced by power relations within society (Cohen et al., 2011). The study of systems thinking and its influence on school development will be conducted in different sites in which the participants experience different social backgrounds. This study proposes the systems thinking approach which seems to be an alternative to the reductionist and piecemeal models to school development. The aim of the study is to examine the use of systems thinking to school development. Furthermore, it examines the understanding of systems thinking, and also focuses on the benefits and challenges of employing systems thinking towards school development. Within

this approach the school is considered as a complex human activity system with different stakeholders, bearing a certain influence on the school issues.

In support of this paradigm, Mackenzie and Mouton (2006) posit that its strength lies on the gathering of data. I view this paradigm as key based on its epistemological and ontological strength and the nature of this study. The study uses the qualitative research paradigm with a view to applying some of the soft systems approaches, interpretation and making of meaning of data.

4.5 Research design

Several authors define research designs for our understanding of this key aspect of the research (Dawson, 2002; Van den Akker, Gravemeijer, McKenney & Nieveen, 2006;Maree, 2010; Maxwell, 2012; Creswell, 2012; 2013) to mention a few. The scholars share more or less similar views on what is understood as the research design (Kellinger, 1986; Babbie & Mouton, 2001; Dawson, 2002). Based on this understanding, this section will discuss the plan, structure and the strategy utilised in this study to examine the use of systems thinking approach in school development.

Scholars categorise research into different fields for different purposes (Kumar, 2012; McNeill & Chapman, 2005). This study is too limited to engage into the different kinds of categories elucidated by the scholars. Suffice is to mention that the authors describe amongst others the exploratory, causal, descriptive research (Kumar, 2012; McNeill & Chapman, 2005).

4.5.1 Research methods

Some scholars further distinguish between different kinds of research methods, which may include quantitative, qualitative and mixed methods (Bless, Higson-Smith & Sithole, 2013; Harwell, 2011; Gomm, 2008; McCaslin & Scott, 2003). There is a vast difference between the qualitative and quantitative research methods, which cannot be elaborated upon due to the limited nature of this study. Suffice is to mention that the discussion below further clarifies

qualitative research methods as the preferred one based on the theoretical framework of this study.

4.5.2 Qualitative research methods

According to Harwell (2011) qualitative methods focus on discovering and understanding. Scholars concur that in qualitative studies, the emphasis is on words as compared to numbers in the gathering of data and analysis (Bryman & Bell, 2007; Bless, Gomm, 2008; Silverman, 2010; Harwell, 2011; Higson-Smith & Sithole, 2013). The qualitative research methodology was selected as the appropriate for this study. Amongst the key elements of a qualitative research is the inclusion of investigation and inclusivity as the key elements that underpin qualitative research (Key, 1997). Scholars and researchers use qualitative research methods across a wide field of disciplines (Key, 1997; Key, 2000; Terre Blanche, Kelly & Durrheim, 2006). Amongst the disciplines which embrace qualitative research are namely, ethnography, anthropology and field or practitioner observer research to mention a few. The centre of focus in qualitative approaches is on the observation of how the variables feature themselves in the context of the study under investigation. Another distinguishing feature of qualitative research is that it involves a lot of depth and comprehensive information during the quest for a broader understanding of issues (Key, 2000; Creswell, 2003; Terre Blanche, et al., 2006).

In the discussion above I justified the use of the interpretivist /constructivist paradigm as the preferred one in terms of the theoretical framework of this study. It was earlier indicated that the interpretive /constructive paradigm places this research problem at the centre in order to understand it. There are a number of reasons which can be cited to justify the selection of this method.

Firstly, as a qualitative study it takes place in a natural setting to develop an understanding of the context and the experiences of the participants. Qualitative studies allow the element of emergence, whereby there is no predetermined path to follow. It is also interpretive, as the researcher will be interpreting the data, describing settings and drawing conclusions from the emerging themes (Rossman & Rallis, 1998, Creswell, 2003). This study is also primarily concerned with generating and analysing qualitative data. What distinguishes qualitative

research methods is their value in trying to describe and interpret the feelings and experiences of people in human terms, as opposed to the use of numbers and measurement (De Vos, 2002; Creswell, 2003; Terre Blanche, et al., 2006).

Secondly, as a qualitative research it is embedded in the social situation whereas quantitative research tends to distance the researcher from the social and cultural context of the research. In qualitative research there is a great tendency towards bringing elements of biasness and assumptions which are due to the influence of the researcher‘s social, political and cultural background (Muhammad, et al., 2014, Rose, 1997; Merriman, et al., 2001). In Chapter One I elaborated upfront my positionality in this study. As it is a qualitative study, I acknowledged upfront that there will exist elements of subjectivity based on my beliefs and assumptions. Scholars concur that qualitative studies allow the reader to understand the personal and social realities with empathy (Terre Blanche, et al., 2006; De Vos, 2002).

In this study the belief is that there will be an understanding of the use of systems thinking in school development. To address the research questions, three different but complimentary methods and sources of gathering research data were adopted and combined in a holistic manner. These were semi-structured interviews, focus group discussion and reflective journal practice. In this research study, three qualitative research instruments were used; a) semi-structured interview guide administered to the principals, and b) a focus group discussion with semi structured interview questions administered to principals, and reflection on journals and diaries for data gathering. I did not present the questions in the same sequence and manner as he conducted interviews with the other respondents. This was due the engagement in trying to get to the depth of the issues (De Vos, 2002; Polit & Hungler, 2004). With this method I had the flexibility to probe further as the situation allowed. I allowed the respondents to respond freely without any interference. Furthermore, I probed on areas where there was a need to elicit more information.

The principals provided their personal responses to the questions, based on the understanding, the use, the benefits and challenges of systems thinking to school development. Due to the probing, some of the sub-questions did not fall into the above categories. The focus discussion group was based on the main questions and on the sub-questions which were semi-structured. I probed this issue in-depth in order to seek more

clarity. This approach to the study sought to generate rich data and also to triangulate and cross examine the data on the phenomena under examination. This approach was adopted in order to get an in depth understanding of the use, the benefits and challenges of systems thinking to school development from these sources of information and to give credence to the conclusions of the study.

Apart from the semi–structured formal interviews, further information about the environment and context of the cases was elicited from the respondents in their own context. As will be indicated in the next chapter and in the appendix, the questions were not logically presented to each principal.

One way of finding out much about the views of respondents, was to engage in the process of qualitative data generation through the use of semi-structured interviews. The use of qualitative research enables the views of a variety of participants to be gathered within a short time. Notwithstanding this, the purpose of the study was to probe deeply into a small number of important and complex aspects of practice and to specifically examine the current use of systems thinking approach in school development. In order to examine the concepts in depth and to deepen the understanding of the complexity of issues involved, the research was undertaken from a qualitative perspective. Stake (2005) clarifies the value of taking into account a variety of experiences and contexts in qualitative research which optimises understanding. This was done in order to understand the different contexts in which these participants operate from. The review of literature enhances the value of systems thinking in working with complex human activity systems such as school development.

According to Breen (2006), the critical question in qualitative research is to find out what the study will bring to the table. Breen (2006) believes that focus groups are better placed to enable the respondents to engage in sharing issues, comparing their experiences on the use of systems thinking to school development, developing and generating ideas and exploring the benefits and challenges of using system thinking. In order to gain a deeper understanding of the use of system thinking perspective, the participants were required to be interviewed through the use of semi-structured questions.

Scholars agree on the justification for the use of the focus group in the study is also based on the limited time frame for gathering data, useful for making decisions that have implications for further studies on school development (Cohen, Manion & Morrison, 2011; Robson, 2002; Morgan, 1996). The key characteristics of focus groups is that they consist of people who have particular characteristics who provide qualitative data; who collaboratively discuss issues of interest in a focused manner (Kreuger & Casey, 2009). I indicated earlier that these participants were purposively selected due to their interest in this study. For this study, I prepared a schedule of questions for the focus discussion groups as one of the research techniques for gathering data by means of group interactions on selected topics (Morgan, 1996). By means of this approach, there are three aspects that are I covered viz., the gathering of data, the facilitation of discussion between participants as way of data collection and my role as the facilitator of the discussion. I facilitated the discussion in relation to the critical questions aligned to understanding systems, the use of systems thinking to school development, the benefits of suing a systems thinking approach and the challenges thereof. The combined use of semi-structured interviews, focus group discussion and reflective journal techniques strengthens the value of the study by means of employing collaborative techniques (Morgan, 1996). For this study, the combined use of the above mentioned methods for the gathering data strengthens the depth of the study.

At the beginning of the interview session I outlined the agenda for members of the focus group (Newby, 2010). I also afforded the participants of the focus discussion group ample time to interact with the main issues by engaging the discussion around key questions. All participants were afforded the opportunity, in order to avoid the dominance by one particular individual (Cohen, Manion & Morrison, 2012).

The following figure illustrates the flow of activities and the link between these elements that constitute the research design.

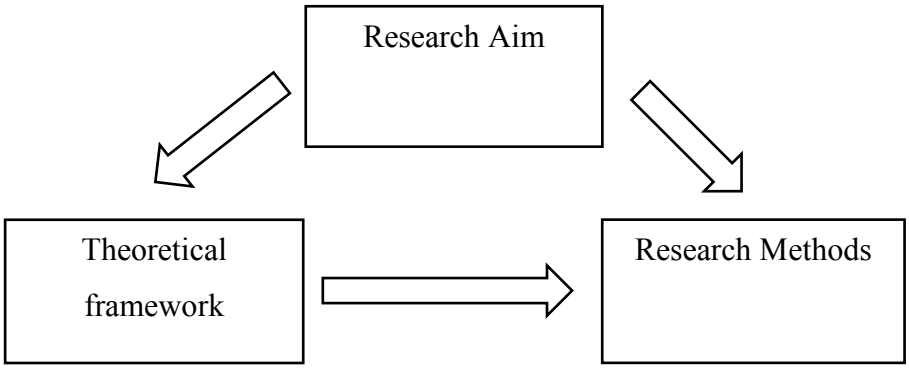


Figure 4.1: The Framework of Research

4.5. A Case study approach

There are multiple meanings attached to describe a unit of analysis or research method (Maree, 2010; Yin, 2013). I adopted a case study approach which focussed on the school as the unit of analysis. Case studies enable the researcher to gain a deeper insight into issues, a holistic examination of a person, a group, an episode, a process, community, society or even a unit of analysis, in this case the principals' use of systems thinking to school development (Guthrie, 2010). For purposes of this study, significance rather than frequency (Cohen, Manion & Morrison, 2001), is a hallmark of case studies and, as a researcher, I wanted to gain insight into the real dynamics of the school situation and its participants. The five principals are located in five different schools which have different issues, cultural backgrounds and are working in situations which are not the same in terms of size, academic performance and location. This makes these schools to be different cases in the sense that the five principals work in different contexts. The experiences that the five participants will share will not be same, hence a multi case study.

Case studies provide opportunities for intensive analysis of several specific details overlooked by other methods (Guthrie, 2010). A distinctive feature of a case study is the detailed presentation it makes of the phenomenon in its real context (Yin, 2013; Kumar, 2005; Maree, 2010; Johnson & Christensen, 2012; Hofstee, 2009; Henning et al., 2004). In this case the novel phenomenon of understanding the principal's use of systems thinking in school development is inherent in the context of rural schools, and needs to be investigated

for its singular understanding and meaning not necessarily generalizability nor for transferability. It needs to be understood in its context as a unique case.

It needs to be mentioned that case studies involve researching an issue within a bounded setting and context (Creswell, 2007; Henning, 2010, Maree, 2007). This case study is bounded by the following parameters:

1. Understanding of systems thinking
2. Examination of the utilisation, benefits and challenges of systems thinking approach to school development.
3. Context found within rural primary and secondary school in Umgungundlovu District.
4. A time frame of 2013 to 2015.
5. A personal and professional experiences and expertise of professionally qualified principals of primary and secondary schools.

The historical and contextual background of the principals in terms of their lives experiences and dynamics of which this case study emanates is on multi sites, where a concerted attempt at understanding the efficacy of systems thinking to school development, makes a noteworthy case for investigation. In this endeavour, the study aims to examine how the principals understand and use systems thinking approach in school development activities. With that in mind this case is not purported as if it is artificially generated solely for research purposes, but is something that already exists. In the words of Denscombe (2007) it is a naturally occurring phenomena that existed prior to the research project.

Justifiably so, this case is a spotlight on this one instance of singularity investigating the principal‘s use of systems thinking approach to school development.

Gomm, Hammersely & Foster (2000) argue that in case studies the experiences, unique situations and individuals in a cultural context are allowed. According to Stake (2005), a multiple or collective case study is when there is even less interest in one particular case, a number of cases may be studied jointly in order to investigate a phenomenon, population, or general condition. A multiple case study is a form of instrumental case study (Cooper & Schindler, 2008). Schwandt (2001) calls it a ―eross-case analysis", placing the emphasis on the comparison that is done between the cases. In this case, the five principals met as a focus

group and were questioned on the key focus questions based on the study. As individuals they were reflecting on their experiences in using the systems thinking approach in their contexts. As a focus group, the participants were also telling their stories about the use of systems thinking to school development, as well the benefits and challenges of using such in school development.

4.6 Selection of participants

A purposeful sampling technique was used in identifying the participants in the case study. Literatures cite different kinds of sampling techniques for use due to the main goals of the study (Henning, Van Rensburg & Smit, 2004; Cohen, Manion & Morrison, 2007; 2011). Scholars and researchers justify the selection of various kinds of sampling techniques as will be further clarified in volumes of research books (Henning, Van Rensburg & Smit, 2004; Creswell, 2009; Cohen, Manion & Morrison, 2007, 2011; Babie & Mouton, 2012; Gerring, 2012; Goertz & Mahoney, 2012). A group of five principals who were previously exposed to system thinking were selected. They have indicated their willingness to be further exposed to the use of systems thinking in school development. These five principals were purposively selected in terms of the size, location, academic performance and where the schools are clustered. These principals are part of the Systems Thinking Approach and School Development (STADE) project and they have been exposed to the systems thinking. As a result, these principals possess firsthand information on how they implement the systems approach, what benefits it hopefully has on school development and what challenges are there in the process of implementation. This shows that the principals are in a position to be taken deeper into an understanding of the systems approach to school development. Since this is a qualitative research, there should be no talk of population representation. Approval to conduct the study in these cases was sought from the participants, and their supervisors. This is attached as appendices to this project.

A decade ago Baker (1988) stated that a sample is a selected set of elements or units drawn from a larger whole of all the elements of the population. Purposive sampling has been used in the selection of the five principals as a means of seeking the particular characteristics,

according to the needs of developing analysis and emerging theory (Lewis–Beck et al., 2004).

4.7 Data generation methods

Scholars cite several primary methods of eliciting data. For purposes of this study in relation to the epistemological and ontological positions considered and the research questions, I deployed semi-structured interviews, focus group discussion and reflective journals as research tools. A detailed discussion is herewith provided below on each of these research methods as sources of eliciting data.

4.7.1 Semi-structured interview

Scholars concur that interviews are amongst the primary sources of case study information (Lincoln & Guba, 1985; Hictchcock & Hudges, 1989; Le Compte & Preissle, 1993; Bogdan & Biklen, 1992; Kvale, 1996; De Vos, 2002; Henning, Van Rensburg & Smit, 2004; Stylianaou, 2008; Yin, 2009; Cohen, Manion & Morrison, 2007; 2011). Due to the limited nature of this study, the researcher will not delve into different kinds of interviews. Suffice to indicate that interviews take different forms as outlined in literatures (Le Compte & Preissle, 1993; Lincoln & Guba, 1985; Bogdan & Biklen, 1992; Kvale, 1996; Henning, Van Rensburg & Smit, 2004; Cohen, Manion & Morrison, 2007; 2011). The key features of this type of interview are that it is interactive, and it uses a range of probes and techniques to achieve depth in soliciting the answers. The process of interviewing is generative as new knowledge is created. The interviews are conducted face to face with interviewees. Different types of questions are used to achieve the purpose of getting in depth information. The types of questions may include content mapping, dimension and perspective widening questions. As the interview process unfolded, it became iterative (Ritchie & Lewis, 2003). The structure is provided by the interview schedule with a list of issues to be covered (Thomas, 2011). The second part of the research was a semi-structured interview with the school principals concerning the use, benefits and challenges of systems thinking in school development. The responses of the participants were recorded using a dictaphone and transcribed. The open coding system was used (Strauss & Corbin, 1999).

For empirical data, primary data were collected. According to Cooper and Schindler (2008), primary data entails the opinions of participants on what they know, believe and experience and such data used for the closeness to the topic. For the gathering of primary data, I decided on starting with semi-structured interviews. At each of the case study schools, the principal was the research participant who was interviewed. The other method that I used to gather the data from the participant, were the focus discussion groups and use of diaries and journals for reflection.

The semi-structured interview questions were designed to allow the participants to settle and open up the dialogue and trust the researcher. I gathered data by means of interviews using the prepared schedule of questions. These semi-structured interviews also allowed me to engage the participant by probing for more information to seek more data and also to seek further clarifications on some issues. The wording of the questions allowed the participants to provide answers based on their understanding of the questions and also consideration of the context and the unique experiences of the respondents. The questions were deliberately phrased to allow the participant to flow in reflecting on the questions being posed. The questions were also phrased differently with the consideration of the context and milieu of the participant. Participants were interviewed in their school contexts in order to allow for freedom of expression and reflection of the environment from which they operate.

I asked the respondents by probing further some issues for clarity and elaboration (Taylor & Bogdan, 1998; Hitchcock& Hughes, 1989).The interview guides were not followed to the latter as the interviewer noted that some of the issues were covered in by the responses. Blanche and Durrheim (1999) argue that naturalistic inquiry is non-manipulative, unobtrusive and a non-controlling form of qualitative research that is open to whatever emerges in the research setting. The co-authors believe that this approach in qualitative research is holistic, with the aim of investigating the complex system of interrelationships that develops in particular situations.

The questions required participants to provide factual responses regarding their work in school development, how they used the systems thinking approach in their schools, the

unique experiences of participants in approaching school development and the unique achievements of participants in school development. Participants were required to describe their understanding of systems thinking, describe in their unique ways, their use of the approach in school development and the benefits and achievements attributed to school development. This approach, in many ways, guided the participants on the understanding, use, benefits, and challenges of systems thinking to school development and could be identified with the functionalist and interpretive paradigmatic orientations to systems thinking. Within the interview guide the participants also generated the meaning of systems thinking, which can be attributed to the constructivist paradigm.

4.7.2 Focus groups discussions

This approach allows the people to be formally and informally interviewed in a group discussion sort of setting (Neuman, 2006). In this case these are respondents whom are known to have more or less similar experiences that need to be shared (Maura, 2008). In this setting a particular topic is discussed under the facilitation of the researcher with the intended outcome of eliciting data (Cohen, et al., 2007). There is a strong belief that participants feel more empowered to share in focus discussion groups (Neuman, 2006). Another benefit is that more data tends to be generated, as compared to individual interviews (Babbie, 2004; Leedy & Ormond, 2005; Smithson, 2008). In other areas where there are less knowledgeable participants, the latter also learn from the more informed team members (Grenier, 1998).

With active facilitation of the discussion there is much ease of ending up with large volumes of data in an economical way (Kreuger, 1998; Langhill, 1999; Marshal & Rossman, 1999; Punch, 2004). The identified weakness is when the facilitator finds difficulty in controlling infighting within the group. In some circles there may be dominant individuals who hog the discussion, which may negatively impact on the output of the discussion (Krueger, 1998; Bryman, 2004; Welman, Kruger & Mitchell, 2005). The other dynamics which may be at play could be the cultural, language, social, gender and religious barriers hindering the free flow of the discussion.

There is a strong view that the size needs to be able to allow participation by all the members without compromising reasonable representation and active participation (Morgan & Scannell, 1998; Cohen, Manion & Morrison, 2011; Maura, 2008). The focus group, as a special qualitative research technique, is a selection of a small group of people which can comprise 4-12 people. The data eliciting tool used in this study was a focus group which can be defined as ~~"a~~ way of collecting qualitative data, which-essentially-involves engaging a small number of people in an informal group discussion (or discussions), "focused' around a particular topic or set of issues" (Abedinia, et al., 2012). In the focus group, the participants believed that, in addition to class and group discussions, writing reflective journals was also an opportunity for dialogue with the teacher since he would carefully comment on their ideas and invite them to continue the dialogue through written comments.

The group is gathered to discuss a few issues in sessions which can be 45-90 minutes long. The moderator of the group needs to be non-directive and in a position to facilitate free, open discussion. He or she does not dominate the discussion (Neuman, 2009). The five principals met as a focus group in one session were questioned on the understanding, the use of systems thinking to school development and the challenges thereof. The focus group members told their stories on their experiences as principals who were working in different school contexts on how the benefits and challenges of using systems thinking to school development. The principals expressed their feelings, experiences much better than a focus group than in one on one interviews.

The questions that were posed during the interview sessions were of varied nature as listed in Table 4.1 of Chapter Four. The participants were probed on this theme, regarding the use of systems thinking. The researcher spent two sessions with each participant as part of the probing on this research and in order to gather thick data on this aspect. The documents were checked for purposes of analysis and triangulation. The documents that are listed in Table 5.4 of Chapter Five are those which were checked in order to verify the claims that were made by the participants regarding the use of systems thinking in school development.

4.7.3 Reflective journals / diaries

Reflection may be conducted for purposes of professional development by using diaries and journals. The engagement in professional development programmes becomes a process of reflection and reflective learning in which journals and diaries are used as a media of reflective writing (Rudge & Howe, 2009; Degago, 2007; Chirema, 2007; Tang, 2002; Conner-Greene, 2000; Woodward, 1998). Studies support the idea that reflective journal writing enhances reflection, critical thinking, integration of theory with practice, and promotes professional growth (Farrah, 2012; Faizah, 2008; Tangen & Mercer, 2012; Lee, 2007; Jacelon & Imperio, 2005; Eyler, Giles, Stenson, Gray, 2001). However, other studies indicate a number of challenges that are encountered in the process of engaging in reflective practice (Greiman & Covington, 2007). Studies demonstrate that diaries can be used as tools for data collection in qualitative research (Hewitt, 2015; Chirema, 2007; Jacelon & Imperio, 2005).

As a critical and interpretive study, reflective exercises will be conducted with principals in order to track progress, keep record in terms of the process, benefits and challenges on the use of systems thinking (Hopkins, Beresford & West, 1998). Reflective exercises promote dialogue amongst participants and explore the hidden assumptions, intentions and mental models in order to encourage a shift and transformation and reorientation of the way participants will think about school development (Hopkins (2002). Studies have highlighted both positive and negative findings on the use reflective journal. Tangen and Mercer (2012) observed their student teachers moving from merely responding, to prompts to reconstructing and reasoning, for example, through including theoretical supports. Reflective diary writing functions as a platform for learners to express their feelings towards certain assignments which indirectly encourages them to practice writing in a non-threatening environment.

It involves solving skills, higher order reasoning, integrative thinking, goal-setting Eyler, Giles, Stenson, & Gray, (2001) for course instructors and learners (Rudge & Howe, 2009). Different studies have shown that student teachers sometimes find it difficult to write journals without clear guidelines. Some of the participants in Greiman and Covington‘s (2007) study believed they should have been given more specific instructions and strategies for writing

reflections. Teachers in Martin‘s (2005) research also considered structured support for writing reflective journals at early stages useful.

The process of recording data commenced immediately the interview started. I also took notes of summary notes of responses as the interview progressed. The large portion of the data was recorded, as I could not cope with note taking at the same time, whilst listening attentively to the responses. Editing is not necessarily a linear process, it iterative. It involved a number of steps to ensure that data gathered is analysed accordingly (Verd, 2004). The construction of reality began at the level of listening and wring up the recorded responses verbatim (Flick, 1998).

The whole process of data management encapsulated data gathering by means of the instruments, storage, and retrieval to ensure high quality accessible data. After processing the recorded data, I repeatedly listened and transcribed the responses. Thenafter, I carefully read the transcriptions and spent time listening and re-reading the transcriptions. This process was followed by the search for emerging themes or patterns until I got a sense and understanding of the whole data (Huberman & Miles, 1998; Taylor & Bogman, 1998). A list of topics emerged as a pattern from the transcriptions. Themes were further broken down into categories and labeled and coded for their peculiarity and uniqueness (Creswell, 1998). The data belonging to various sub-categories was subsequently assembled and descriptions made of it. The goal was to reduce the data to make it manageable for interpretation, and to summarise it into themes in order to get a greater clarity and unambiguity (Flick, 1998; Bloor et al., 2001). The process is neither a linear and mechanical process, rather an inductive process of trying to make sense of the data.

4.8 Data analysis

Data analysis sought to establish the use of systems thinking to school development and to examine the benefits and challenges of using systems thinking to school development. Data analysis entails quantitative or qualitative measurement that involves assigning numbers or labels to phenomenon being investigated and transformation of information (data) into a response to the original question (Creswell, 2003).

In this study, data was analysed qualitatively from the semi-structured interviews, focus group discussion, reflective diaries and document review seeking to examine the use of systems thinking to school development. The use information from different sources of data served as way of triangulation function (Denzin, 2006; Jackson, 2003) of a sociological nature to provide a deeper and balanced understanding of the situation (Altrichter, Posch & Somekh, 2006). It also served to identify irregularities (O, Donoghue& Punch, 2003) as well as confirming known tradition, reducing subjectivity and bias, and increasing trustworthiness of data to instill confidence and conclusions of the study.

The ―objects" (Blanche & Durheim, 1999; Andrews, et al., 2009) or units of analysis (Babbie, 1989) and _basic orientation' (Mouton &Marais, 1990), for this study can be distinguished at different levels:

a) Individuals - through the semi structured interviews with respondents, the study established the understanding, use, benefits and challenges of systems thinking to school development. Subjective influence on the analysis and interpretation of data, on my part, was reduced through my responding to the interview schedule.

b) Organisations - the primary sources of data were the interviews with principals, literature and journal reflections.

c) Theories and ideas - through deduction, the study derived explanation and meaning for the use of theories and literature on systems thinking and school development with reference to reputed scholars and particular context in South Africa. To some extent, the theory provided a contextual framework for systems thinking and the lens for the research study influencing observations, experiences, interpretation and analysis of data, and conclusions and recommendations of the study. Theory facilitated the identification of explanatory relationships within the entire data set, between systems thinking and school development.

4.8.1 Process of analysing data

Here, there was no categorical measurement scale used for data analysis. Interpretive and constructivist techniques were used instead for processing data. As the researcher, I served as the main instrument for categorising, analysing, interpreting, and ascribing meaning to data, guided by the research questions (Flick, 1998; Patton, 2001). The editing and analysis

began immediately after each interview was conducted to avoid lapse of time and recollection (Verd, 2004). Analysis began during the data collection process, for example, to determine which phrases or statements by the participants were captured. This was later used in the write up of the thesis in order to ensure that the respondents own language was used to capture the essence of the responses. Data analysis was informed by simultaneous deduction [using research data to test existing literature and theory, and induction - extraction from data, ideas and recommendations relevant to the research questions (Glaser & Strauss, 1967). Responses were organised into emerging patterns and themes and analysed and interpreted qualitatively to respond to the research questions. This took into account that the ‗validity' is not defined in terms of the extent to which the operational definition corresponds with the construct definition but by the degree to which the researcher can produce observations that are believable for her or himself, the subjects being studied and the eventual readers of the study (Blanche & Durrheim, 1999, p. 46). These preliminary codes guided me to reduce the data and to establish initial emerging patterns. Inductive reasoning allowed me to construct new codes and thereafter to combine some codes to form new categories. Berg (2001) clarifies this step elaborately and it assisted me in gaining insight to conducting the task. Data analysis starts by coding each incident into as many categories as possible and as the analysis continues, the data is placed into categories (Seale, Gobo, Silverman, 2004; Marshall & Rossman, 1999). These categories were modified and new categories emerged. Through the interpretive approach, I explored the meanings and interpretations which the respondents presented on their reflection on the subject. This enabled me to describe and explain the principals' understanding of the use of systems thinking approach to school development. I ascertained an in-depth understanding of the scope and depth of the principals' reflection of the use of systems thinking in school development.

Responses were considered to be key if they consistently emerged across two or more of the sources of data namely, a) semi-structured interviews, b) focus discussion group c) reflective journals and diaries d) document analysis /review

Some themes specific to the understanding, the efficacy, the benefits and challenges of systems thinking were prioritised particularly those that contrasted the views of the participants and those not commonly identified in the reviewed literature. Inconsistencies

between the different sources of data and those with known literature and theory also drew attention.

The process of analysis comprised of reviewing, grouping, and categorisation of every statement or expression or remark that constituted responses to each question for every participant, allowing for themes to emerge naturally. This began with grouping together statements with similar meanings into similar headings for example –networks, cluster, professional development, strategic planning" which led to the next level of grouping of more than such related statements into categories such as achievements; efficacy of Systems Thinking to School Development. The categories were further grouped into themes which would be interpreted to mean a holistic approach to school development. Each interview lasted about one hour. In order to _bring meaning' to the responses of the semi-structured interview and focus group discussion transcripts, the researchers adopted Krueger's _framework analysis' as adapted by Rabiee (2004) and this entailed identifying a thematic framework; indexing; charting; and mapping and interpretation. Familiarisation entailed the repeated listening to the audio-taped responses, and the repeated reading of all transcribed interview responses. Secondly, identifying a thematic framework involved the writing of short phrases, ideas or concepts in the margins that arose from the reading of the texts. Thirdly, indexing comprised sifting the data and highlighting and sorting out verbatim quotes. Fourthly, charting involved lifting the verbatim quotes and re-arranging them under the newly-developed themes. Lastly, mapping and interpretation entailed being creative and analytical in order to discern the relationship between the verbatim quotes and the links between the data as a whole.

Theory emerged as the _supra meaning' – a product of synthesis or what is referred to in this study as –whole reflection" on the collective of themes derived from different pieces of data. The –whole reflection" entailed a systematic process of connecting the patterns of causal relationships of different themes and identifying those that are offered as explanation and options that addressed the main research question which was: –What is the use of systems thinking to school development?"

In order to gain an in-depth understanding of the principals‘ reflection on their use of the systems thinking, I divided the secondary question into sub-questions and also allowed a lot of probing in order to derive rich data on the subject concerned.

The table below illustrates the pseudonyms that were allocated to each school and principal in order to prepare the reader to follow the discussion in the next chapter where data is presented.

Table 4.1: The Pseudonyms of Schools and Principals

School	**Principal**
Lungani Primary	Mrs Godide
Gateway Secondary	Mrs Denison
Thokozwayo Primary	Mr Jokozela
Mbongwa Secondary	Mr Ndonga
Bramley Primary	Mr Goldstone

The following table summarises the following emerging themes, viz.: the understanding of systems thinking, use of systems thinking to School Development, strategic planning, process of school development planning, curriculum development, teaching and learning, cluster c-ordination and networks, partnerships for school development, handling of social ills, continuous professional development, the functionality of the structures, the value of journaling and challenges of working with systems thinking.

Table 4.2: Themes of questions for participants

No	Theme	How the questions were asked
1.	Principal's Understanding of System Thinking	What is your understanding of systems thinking?
2.	The Use of Systems Thinking to School Development	What are the benefits of using a System Thinking Approach to school development? Can you relate what you consider as some of the highlights and achievements in terms of developing your school?
3.	Strategic Planning	How do you go about conducting strategic planning for school development?
4.	Process of School Development Planning	What sort of processes do you engage in terms of arriving the developing the school improvement plan
5.	Curriculum Development	How have been involved in curriculum development as part of engagement in systems thinking to school development?
6.	Teaching and Learning	What are the benefits of using a System Thinking Approach to school development?
7.	Cluster Co-ordination and Networks	Drawing from experience as principal working from Systems perspective thinking for approaching school development what can you tell us about the use of system thinking in school development? In your involvement at circuit and cluster level what can you share as your experience and engagement in systems thinking and its use in school development?
8.	Partnerships for School development	What are the areas of whole school that you have developed?
9.	Handling Social Ills	What can you attribute as some of your school development achievements?
10.	Continuous Professional Development	How do you consider as the working systems that contribute school development?
11.	The Functionality of the Structures	Share your experiences in working with school communities in school development? What sort of structures or committees do you work with to show are consulted in school development planning?

12.	The Value of Journaling	What are the new things you are doing that contribute to school development?
13.	Challenges of Working with Systems Thinking	What are some of the challenges of using a System Thinking Approach to school development?

4.9 Qualitative research

The set criteria which have been developed for qualitative research are different from those of the positivist paradigm. Qualitative studies are interpretivist in nature Lincoln and Guba (1985). The concepts that will be discussed below are in line with the interpretive /constructivist paradigm. The discussion below will focus on measures for attaining trustworthiness.

4.9.1 Trustworthiness

As a researcher I am fully aware of the issues of trustworthiness which include credibility, dependability, transferability and confirmability. Scholars suggest various strategies for dealing with these issues and also on how to work on them. Lincoln and Guba (1985) suggested four criteria for working four criteria for establishing trustworthiness, viz., credibility, transferability, dependability and confirmability. In qualitative research trustworthiness is the concept used to measure the quality of the research. By means of which the scholars mean the extent to which the data that has been gathered and analysed is believable and trustworthy (Guba & Lincoln, 1985; Krefting, 1991; Cresswell, 1998; Rolfe, 2006). Morse, Barrett, Mayan, Olson, & Spiers, (2008) argue for the use of rigour in attaining the required level of trustworthiness and credibility.

4.9.2 Credibility

In addressing credibility in qualitative research, researchers attempt to demonstrate that a true picture of the phenomenon under investigation is being presented. Scholars concur that

credibility is understood to be a focus on the extent to which the data and data analysis are believable and trustworthy (Guba & Lincoln, 1989; Maxwell, 2004; Shenton, 2004; Richards & Morse, 2012). According to the philosophy underlying qualitative research, reality is relative to meaning that people construct within social contexts. Qualitative research is valid to the researcher and not necessarily to others due to the possibility of multiple realities. It is upon the reader to judge the extent of its credibility based on his/her on understanding of the study. Most rationalists would propose that there is not a single reality to be discovered, but that each individual constructs a personal reality (Gergen, 2009; Burr, 2015). Thus, from an interpretive perspective, understanding is co-created and there is no objective truth or reality to which the results of a study can be compared. I ensured that participants receive feedback after the transcriptions were done, for them to check on their responses. After finishing with all the semi-structured interviews with all the participants, I set up another session where the participants met as a focus group to discuss the schedule of questions I had prepared. Thirdly, I also collected the other information from their pictures to confirm some of the incidents they cited. Furthermore the respondents showed me their diaries and journals where they kept some notes on other incidents and events. I have also stated upfront my positionality which addresses the issue of the researcher being the major instrument of gathering data (Patton, 1990) I followed the protocol and procedures required in terms of ethical clearance as will be attached as appendices. I have used the words of respondents as part of the data presentation, to ensure they form part of the thick descriptions of data (Shenton, 2004).

4.9.3 Transferability

Scholars concur that by transferability is understood the extent to which the findings can be applied to other areas (Lincoln & Guba, 1998; Merriman, 1985; Maxwell, 2002). Research findings are transferable or generalisable only if they fit into new contexts outside the actual study context. There are contrasting views on this issue, since findings of a case study are specific to a small scale of participants, within a particular context (Erlandson & Edwards, 1993).

Stake (1998) and Denscombe (1998) offer a contrasting view on this issue, and argue in favour of the uniqueness of each case, yet be representing a broader group. They argue that

the issue of transferability need not be rejected outright, but be considered on the basis of the merits of each case presented. On the contrary, Gomm, Hammersley & Foster (2000) argue that contextual factors need not be undermined by this argument. Lincoln and Guba (1985) and Firestone (1993) further suggest that it is incumbent upon the researcher to ensure enough contextual information about the fieldwork sites is provided to enable the reader to make such a transfer. Qualitative researchers suggest that readers need to check the described background and research report in terms of its context before they can determine how far they can be confident in transfer the findings and conclusions to other situations (Shenton, 2004; Cohen, et al., 2000; Seale 1999). The pitfall by many researchers is to stop short of what Denscombe (1998) suggests in terms of providing the background information, contextual data and the case study location for comparison with other environments. Another angle of looking at this issue is the significance attached to conveying to the reader the boundary of the study (Cole & Gardiner, 1979; Marchionini & Teague, 1987). The suggestion is that this additional information needs to be recognised before any attempts at transference are made. I have indicated in this study my positionality, the context in which the schools are located, but this was not a suggesting that this study can be transferred.

I have also indicated that a study of this nature is unique in terms of the theoretical framework that was deployed, particularly in the education. I support the argument posited by Borgman (1986) and Pitts (1994) that the understanding of a phenomena is gained gradually as other studies are also conducted, not necessarily on the basis of one major study conducted in isolation. I declared upfront that this is a case study which cannot necessarily be generalised, however the inferential generalisations are based on the unique contexts outlined (Ritchie & Lewis, 2003). In this chapter I have discussed in detail the research design and the methodology in order to acquaint the reader with all the processes involved for him or her to make an opinion about the study (Seale, 1999; Cohen, Manion and Morrison, 2000).

4.9.4 Dependability

Scholars agree that by dependability is understood the extent to which research findings can be replicated with similar subjects in a similar context (Merriman, 1985; Lincoln & Guba, 1998). An assertion is made by Lincoln & Guba (1985) of the close affinity between credibility and dependability. A different argument is held by qualitative researchers that due to the changing nature of the phenomenon under investigation, it is problematic to expect similar findings as the positivists would argue within their paradigm. Lincoln and Guba (1998) advance their argument on the basis of inclusive approach in the study which details the research design and its implementation and operational detail of data gathering and reflective appraisal of the study (Shenton, 2014). An argument to the contrary is made by Florio- Ruane (1991) that the researcher‘s observations are tied to situational context of the study, and the ―published descriptions are static and frozen in the ―ethnographic present‘ ”.
I have made an attempt to detail the description of the research design and methodology in order for the reader to ascertain what was happening during this research enterprise.

4.9.5 Confirmability

There is broad agreement amongst scholars that by confirmability is meant the degree to which the results of the study can be confirmed or corroborated by other researchers (Lincoln & Guba, 1985; Guba, 1981; Baxter & Eyles, 1997). Tobin and Begley (2004) reiterate that this refers to the issue of confirming that the data is not from the researcher‘s imagination, but rather from the respondents. Scholars concur of this issue that several strategies are deployed to affirm and confirm the data and findings. However, different strategies are suggested such as conducting an audit trial, reflexive journal and triangulation (Bowen, 2009; Koch, 2006; Lincoln &Guba, 1985). By conducting an audit trial Bowen (2009) argues that it ensures that the process and the product of the study does not originate from the imagination of the researcher. Another strategy used is the reflexive journal which is kept by the researcher during the course of the study, for purposes of recording the incidents, events and all that happened during fieldwork (Wallendorf & Belk, 1989; Koch, 2006). According to Krefting (1991) by reflexivity is meant how the researcher guarded against the influence of

his/her background, perceptions, and interests on the qualitative research process. I have indicated upfront that I have stated my positionality and bias as a matter of fact. The basis for that was to ensure that I minimize my personal biases and perceptions that may interfere with the findings and conclusions of the study.

4.10 Ethical issues

Ethical planning will be conducted in order to protect the welfare and the rights of the research participants. The consent of the participants was acquired by means of written letters for permission to conduct the research. Permission to undertake the study was given by the management of both the University of KwaZulu-Natal and the Kwazulu-Natal Department of Education. Whilst the above was being attended to, principals were approached in writing to get more information regarding the nature of the study. The written requests for permission to conducting the study were initially outlined. The envisaged instruments to be used during the course of the study were tabled also. The idea of the use of reflective diaries for research purposes was explained also. The principals were fully informed about the purpose of the study, the anonymous analysis of the journal, the semi-structured interviews, the focus discussion groups and the way the results would be reported. The principals were free to object to the use of the issued journals. None of the principals objected. The journals were subsequently handed to all of them after the clarification of their use for study purposes. At the end of the study, I checked all the journals for the anonymous status. All names and references to third parties were removed from the journals. This procedure guaranteed that the researcher involved, in data analysis, rendered the material anonymous.

The letter of consent to the District Director was written in order to gain access to these principals. The interviews to be conducted with participants will be made with minimum risk of undue psychological stress and legal liabilities, to mention a few. The participants will be given pseudonyms and the same for the names of schools. The participants and their schools were requested to give consent to the recording of interviews, and the transcripts which will also serve to ensure reliability of the findings (Cohen & Manion, 1989). Consent was sought from the University of Kwazulu-Natal Research Ethics Committee (Human and Social Sciences) to conduct the study. Participants were aware that they could withdraw from the

study at any point if they wished to. The real names of participants were neither required no used in order to protect the privacy of participants for research (Creswell, 2003). No judgmental or sympathetic comments were made during the interviews. Each participant's responses was regarded as unique and individualistic. The purpose of the study was clarified to the participants to avoid "deception bias" which normally occurs when participants understand one purpose for a study but the researcher has different purpose in mind (Creswell, 2003). No promises of personal benefits to participants were made.

Completed research instruments have been kept safely and will not be discarded for at least a year after formal acceptance of this thesis by the University of KwaZulu-Natal.

4.11 Appropriateness of methodology to the study

The study sought to examine the use of systems thinking to school development with regard to cases in Umgungundlovu District. This is a case study which requires the generation of rich data from each case. The mix of complementary data collection methods in particular, semi structured interviews, focus group interviews and reflective journaling served to gather comprehensive data and a constructivist approach.

The review of diaries provided an understanding of the use of the systems ideas integrated with professional development as part of school development. This thesis is a product of negotiation between (a) the truth as experienced and reflected by principals (b) deduction on theory, as it represented the wealth of academic and professional work of philosophical ideas, (c) inductive preferences informed by professional experiences documented as the reflections of participants. The research design facilitated reflection of the systems thinking approach from the perspectives of principals.

The study generated meaning about systems thinking from the responses of participants in their natural settings at school, using semi structured interviews and focus group discussions. It can be argued that the study is not free from subjectivity, I used induction to arrange research data into meaningful patterns of themes and conclusions relevant to responding to research questions that were of my own design. The study adds to the literature on systems thinking approach to school development processes and research, and generated many new

themes on the subject. The data generated allowed for multi-case studies on systems thinking, school development issues and ideas in the analysis and conclusions of the study.

4.12 Conclusion

The main purpose of the study was to examine the use of the systems thinking to school development especially in Umgungundlovu District. Guided by this purpose, the research design adopted a qualitative methodological approach. The research methods for gathering data from the five cases were clarified in terms of how they employed in the research enterprise. These tools were the semi-structured interviews, focus discussion groups and reflective journals and diaries. The themes emerging from the data gathered was presented in the table format. The findings from one method could be used to validate the findings from another method. The different research tools were designed to appeal to the professional reflective experiences of the principals. In the next chapter I will present an in detail the data based on the responses of the principals gathered during the interviews and focus group sessions and the reflective use of journals and diaries.

CHAPTER FIVE
PRESENTATION OF DATA AND DISCUSSION

5.1 Introduction

In the previous chapter I outlined the research design and methodology that was employed in this study. This included the explication on the paradigms, and the justification for choosing a qualitative, interpretive and case study approach. I briefly discussed the justification for opting for a case study, and the research tools that were deployed thereof for gathering data. I discussed the manner in which I gathered data, and the processes involved in the analysis of data.

The main purpose of this chapter is, therefore, to present data that was gathered as it was explained in detail in the previous chapter. In the presentation of data I will infuse the voices of the participants in order to ensure the authenticity of their voices (Henning, Van Rensburg & Smit, 2004; Creswell, 2007; 2008; Maree, 2007; De Vos, Strydom, Fouche & Delport, 2011). I will also discuss the presented data by integrating the reviewed literature and the theoretical framework which was discussed in detail in Chapter Two and Chapter Three respectively. By reviewing the literature (Chapter Two) and the theoretical framework (Chapter Three), interviewing the five principals, conducting focus group discussions and reflective journal reviews, I established a preliminary set of codes for the initial inductive analysis phase. These preliminary codes guided me to reduce the data and to establish initial emerging patterns. Inductive reasoning allowed me to construct new codes and thereafter to combine some codes to form new categories. These steps have been elaborately clarified in the previous chapter how it guided and assisted me in gaining insight to conducting this task (Bruce & Berg, 2001).

To gain an in-depth understanding of the principals‘ reflection on their understanding and use of systems thinking in school development, I divided the main question into different sub-questions. Furthermore, I allowed the probing in order to get rich data on the responses to the questions which were considered relevant to the study and also to the situation prevailing in each case. In this chapter I present the data guided by the main questions, the sub-questions and the gathering of data by means of semi-structured interviews, focus discussion group,

journals and diaries reflections that captured the school activities focusing on school development. In presenting the data I combined the use of models and tables to illustrate, emphasise, represent data and the concepts, which is informed by a systems perspective (Ziegler, 2014; Zeigler, Praehofer & Kim, 2000).

5.2 Settings of research and school profiles

The literature in Section **3.2** of Chapter Three clarifies different kinds of reflection. As the basis of this study, the principals reflected on their engagements with the researcher, who used to be a circuit manager from June 2003 to June 2012. This is also attested by an action study conducted in 2006 on the implementation of IQMS using a soft systems thinking approach (Mchunu, 2006). It is in that context that I declared my positionality in Chapter One as part of the orientation and background to the study. I also reiterated my positionality from the axiological perspective in Section **4.2** of Chapter Four. As part of expanding on the setting and context of the cases, pseudonyms assigned to the five schools are presented in **Table 4.1** of Chapter Four.

In the section below I present the research settings and tables which present data on the school profiles.

5.2.1 Lungani Primary School

The school was established in 1985. It is located at Mpande area near Sweetwaters. The school offers classes from Grade R to Grade 4. It has 6 Gr R practitioners and 16 educators. The school has 13 classrooms and 1 computer. The SMT is comprised of Principal and 2 HoDs. The school was allocated section 21 status with Quintile 3 ranking. The school has an increasing enrollment due to the quality education offered at the school.

5.2. 2 Gateway Secondary

The school was established in 1986, with Grades 8-10. It is located at the Mpande village. Its first principal retired in 2008. In 2012 the school introduced Science stream which also

included Geography. Fromm 2011 the enrollment dropped from 329 to 255 in 2015. In 2004 it was allocated Section 21 status with Quintile 3 and it is a no fee school. In 2013 the first Grade 12 results was 58%. In 2013 the results improved to 100% in 2012, with a sharp drop to 50% in 2014.

5.2.3 Thokozwayo Primary

The school was named after Mgwagwa Zondi after being established in 1951. The school is located in a rural area at KwaMgwagwa village. The classes were built by the school committees that existed during that era, and parents paid school fees towards the establishment of the buildings. The school moved from the control of the Methodist church to then Department of education in 1952. It is a no fee school, which was assigned Section 21 in status in 2004 and falls under Quintile 3. The grades offered are Grade R to Grade 7.

5.2.4 Mbongwa Secondary

The school was established in 1984 as a junior Secondary school, offering classes from Gr 8-10. It first operated at the premises of Zwartkop Primary. In 1985 it was moved to new premises where there were 4 classrooms. It was upgraded into a high school in 1990 and presented its first Matric in in 1991, which obtained 58%. It is a no fee school, which was assigned Section 21 status and falls under Quintile 3. The enrollment increased after its strategic planning and partnership with St Annes, whereby the school grew its infrastructure with 4 additional classrooms, administration block, computer laboratory, science laboratory, and media centre. It has a staff of 33 and its highest pass rate was 96% in 2013.

5.2.5 Bramley Primary

The school was established in 1957, with 48 learners. In 1958 the enrolment increased to 144. It has a long history of vandalism, which was abated after a caretaker was introduced into the school premises in 2003. In 2004 the school was assigned Section 21 status, with Quintile 3 status. In 2013 the school enrollment increased to 459. The number of classrooms increased to 15.

Table 5.1 shows the profile of principals with regard to their experience in working as principals. It also compares their professional qualifications which they have acquired as they engaged with their studies prior to embarking on their careers and also whilst they were engaged in their professional development. The table shows the basic qualifications that the principals acquired whilst they were being prepared at college and university before starting on their teaching career.

Table 5.1: The Profile of Schools and Principals

School	Principal	No Years principal & experience	Qualifications	CPTD progress
Lungani Primary	Mrs Godide	2003 to date	JPTD ; FDE (Management) ;Bed	Work on file ; updating
Gateway Secondary	Mrs Denison	2001 to June 2015	STD; Bed; HR Management; Computer; Ace Leadership programme; FDE (Management programme)	Work on file ; updating
Thokozwayo Primary	Mr Jokozela	2007 to date	STD; HDE; Ace Leadership Programme	Work on file ; updating
Mbongwa Secondary	Mr Ndonga	2001 to date	BPed; Bed; PMDP programme	Work on file ; updating
Bramley Primary	Mr Goldstone	1998 to date	Std; Ace Leadership Programme; Bed Hons; B.Theology	Work on file ; updating

The **Table 5.2** indicates the profiles of schools. The profiles show the context in which the schools operate in. It outlines the background regarding the statistical information and the quintile rankings of the school. The quintiles are determined in terms of the background of the school, the number of learners, the poverty index of the parents, the location of the school and the infrastructure of the school. The quintile rankings range from 1-5. The poorest of the

poorest school are Quintiles 1 and 2 and the best schools are ranked as Quintile 5. The Post Provisioning Norm (PPN) is a tool used for allocating staff members to schools. The model is based on the number of learners and the subjects taught in the schools. The PPN in a secondary school is calculated on the basis of the number of learners and the weightings of the subjects in secondary schools. The schools are divided into section 21 and 20 in terms of the allocated functions that they are supposed to perform as guided by South African Schools Act (SASA). Schools which are allocated section 21 status are able to utilise their allocated funds and procure services on their own.

Table 5.2 School Profiles

School	**Enrolment**	**PPN**	**Quintile**	**Fees**	**Section**	**Cluster**	**2011**	**2012**	**2013**	**2014**	**2015**
Lungani Primary	723	16	3	No fee School	21	1	652	651	678	711	725
Gateway Secondary	255	11	3	No fee School	21	1	329	354	330	299	255
Thokozwayo Primary	275	6	3	No fee School	21	2	216	229	228	259	275
Mbongwa Secondary	1066	33	3	No fee School	21	3	986	1020	980	1040	1066
Bramley Primary	509	11	3	No fee School	21	4	410	398	454	468	509

Table 5.3 enlists the research questions that were used during the interviews and focus discussion groups to elicit responses from principals. The Table lists the different kinds of questions that were used for purposes of gathering data from the respondents.

Table 5.3: Themes of questions for participants

No	Theme	Questions asked
1.	Principal's Understanding of System Thinking	What is your understanding of systems thinking?
2.	The Use of Systems Thinking to School Development	What are the benefits of using a System Thinking Approach to school development? Can you relate what you consider as some of the highlights and achievements in terms of developing your school?
3.	Strategic Planning	How do you go about conducting strategic planning for school development?
4.	Process of School Development Planning	What sort of processes do you engage in terms of arriving the developing the school improvement plan
5.	Curriculum Development	How have been involved in curriculum development as part of engagement in systems thinking to school development?
6.	Teaching and Learning	How is teaching and learning improved utilising a System Thinking Approach to school development?
7.	Cluster Co-ordination and Networks	Drawing from experience as principal working from Systems perspective thinking for approaching school development what can you tell us about the use of system thinking in school development? In your involvement at circuit and cluster level what can you share as your experience and engagement in systems thinking and its use in school development?

8	The Integration of systems WSE and IQMS	How did you work on integrating the two systems, WSE and IQMS for purposes of school development?
9.	Partnerships for School development	What are the areas of whole school that you have developed? What partnerships have you developed and how have they developed the school?
10.	Handling Social Ills	What can you attribute as some of your school development achievements? Share your experience handling social issues coming from the environment that affect the school system?
11.	Continuous Professional Development	In what way have you developed professionally and which programmes are you engaged in for professional development?
12.	The Functionality of the Structures	Share your experiences in working with the school community in school development? What sort of structures or committees do you work with to that are critical for school development?
13.	Infrastructure development	In what way has the school developed in infrastructure?
14.	The Value of Journaling	Can you show me any of your of records, journals, diaries, pictures, that reflect and support what is considered as school development activities? What are the new things you are doing that contribute to school development?
15.	Challenges of Working with Systems Thinking	What are some of the challenges of using a System Thinking Approach to school development?

5.3 Discussion of themes emerging from data

The data gathered by means of the semi-structured interviews and focus discussion group was grouped into themes and sub-themes as subtopics to the main critical question (Briggs &

Coleman; 2007; Maree; 2007; Cohen et al, 2011). The findings of the empirical investigation are based on the main categories of themes that emerged from the data that was gathered during the semi-structured interviews, focus group discussion and reflective journal diary document study. The themes that emerged from the analysis are presented as follows; conceptualisation of systems thinking; strategic planning; curriculum development, infrastructure development; networking; professional development; partnerships; cluster system; interrelationship between leadership and management and governance.

In presenting the common themes across the schools in the study, it is important to emphasise that the presentation is not a checklist of a combination of statements from one school to the other (Christie & Potterton, 1997). The data, presented below, shows the unique character of each case discussed and also multi-cases, due to the unique nature and context of each case. Secondly, it also features an understanding of schools as open, complex, dynamic and integrated systems where development is understood as an ongoing process requiring different strategies at different times. The research conducted suggests that school development is unique in each school as they are separate entities. There are however, some common themes and patterns featured which show how they work with systems thinking in school development. These are based on the assumptions, beliefs which form what Senge (1990) calls mental models of the principals.

The discussion below emanates from the themes that emerged from the principals responses and the data gathered from the five sites.

5.3.1 Principal's understanding of system thinking

The understanding of the systems thinking as the conceptual framework in this study is critical, given its value when used for purposes of school development. Systems thinking is a concept that is elusive to define, there are however common features that need to be understood about it even from the lay man's perspective. In the literature review (Chapter Three), an in-depth discussion was given about this concept by different systems thinkers from their perspectives (Bertalanffy, 1968; Weinberg, 1975; Ossimitz, 1997; Ackoff, 1999; Lucket, 2004). The idea of understanding the concept "systems thinking" shows the value of

aligning one‘s thinking from that perspective, which serves to be central to this study (Flood, 1998; Senge, 1999). One of the objectives of this study is to examine what the principals understand is the meaning of systems thinking. The key features of a system as well as the main ideas of systems thinking indicate the unique perspective that systems thinking entails when compared to other conceptual frameworks (Checkland & Scholes, 1999; Midgely, 2000; Gharajedaghi, 2011; Morgan, 2005; Meadows, 2008). Scholars concur that an approach that is systems thinking oriented is aligned with the idea of interconnections, the interdependence and holistic lens in dealing with complex and dynamic issues that are at interplay in the system (Bertalanffy, 1968; Checkland, 1999; Haines, 1999; Gharajedaghi, 2011). Scholars concur that systems recognise the hierarchical connection between other sub-systems, and considers the prevalence of emerging properties which form part of the feedback in systems (Bertalanffy, 1968; Senge. 1999; Ackoff, 1999; Beerel, 2009).

The critical question regarding the understanding of systems was posed during the individual semi-structured interviews and the focus group discussion. The question was based on the principal‘s understanding of systems thinking. All the participating school principals were required to express, in their own way, what they understood of systems thinking. There are different responses which indicate the uniqueness of the principals‘ understanding of systems thinking. These are consistent with the diverse views expressed in the vast literature review based on the meaning and definition of systems (Capra, 1996; Ossimitz, 1997; Banathy, 2001; Moloi, Grobler & Govett, 2002; Sterling, 2003; Lucket, 2004; Morgan, 2005; Ulrich, 2005; Cabrera, 2006; Togo, 2009). From the literature that has been reviewed there are different interpretations of meanings of systems.

The interpretations cited below show how the principals perceived systems thinking, each uniquely perceived systems thinking. The idea of complexity which is unique to organisations such as schools is concurred on by Mr Ndonga, principal of Mbongwa Secondary.

> *A system such as the school or any organisation is a complex organisation which cannot to be run by one person. Sub-systems must work interchangeably and we need to flatten the hierarchical order* **(Mr Ndonga).**

Scholars have influenced the thinking about organisations from the scientific management principles to use of the complexity lens (Peters, 1992; Kaufman, 1994, 1995; Keene, 2000; Dent, 1999; Marion & Bacon, 2000). Complexity theory is advanced as a way of interpreting management and organisational change and behavior (Kielhofner, 1995; Pepper, 2002). The idea of interpreting organisations from this perspective is supported by some scholars when the focus is on unexpected behaviour of the school (Fitzgerald, 2001). Complexity metaphors are employed as a way of illustrating the nature of behaviour exhibited by organisations at some stage (Daellenbach, 2002). As a construct it can also be used to explain the change management process, which is neither linear nor systematic (Styhre, 2002; Brown & Eisenhardt, 1997). The above theory supports the view held by Mr Ndonga in terms of what makes systems thinking peculiar regarding the acknowledgement of complexity. This is attested to as part of one of the sub-fields of systems thinking which is grounded on complexity theory. There are different views held about whether complexity is part of systems thinking or not, which is a debate that does not fit in this thesis. However, this is supported in numerous studies that have been grounded from complexity theory as a theoretical framework (Cabrera, 2006; Flood, 1999; Stacey, 2000). The point that needs to be addressed is that school development is situated in a complex system, which is the school. There are diverse issues that contribute to the systems being considered as complex. Amongst others is the complex relationships and hierarchical structures that need to be harnessed in organisations. Schools also as organisations manifest various elements, that prove how complex they are for any simplistic, linear and cause–effect approach (Flood & Jackson, 1991; Burrell & Morgan, 1979; Morgan, 2005).

Systems theory has matured for the past years in terms of the reasoning about systems which are explicated in a variety of studies. Systems thinking is a wide phenomenon to locate in a bounded way, hence the different strands that have evolved over a period. In general and particularly in the education field it is difficult to achieve accept the wide spectra of the various conceptions. This is what was indicated in Chapter Three as part of the theoretical framework, to broaden our understanding of how systems thinking is such a wide field that illustrates how we think (Baton, Emery, Flood & Wolstenholme, 2004). It is in line with that understanding that diverse views in terms of thinking are embraced in systems thinking. There can never be common ground amongst systems thinkers in understanding each other‘s

perspective, considering the different mental models and the professional experiences which inform their thinking (Baton, et al., 2004; Pollack, 2006; Jackson, 2003; Churchman, 1968).

In systems theory there is a different ways of expressing what we make of reality. The language that is commonly used in systems dynamics is metaphors. The purpose of using metaphors is to express how people think and perceive reality differently. The language used in systems theory is wide, as it has been indicated in Chapter Three which shows the different strands of systems thinking. The field of systems thinking has evolved over a long period. The shift in meaning in systems theory dates back to the hard systems approaches (Ackoff, 1968), soft systems (Checkland, 1990), systems dynamics (Senge, 1999), critical systems thinking (Jackson, 2001; Flood, 1990; Churchman, 1968) and complex systems theory (Midgley, 2003) to mention a few.

Mr Goldstone, the principal of Bramley primary used a metaphor to describe his functional version of system thinking. This also corresponds with the literature on the understanding of systems. Mr Goldstone's metaphor of systems thinking indicates the beliefs and assumptions that influence him.

> *Systems thinking is what I call your own security; it is like your protective glove because if the systems are there they will protect you. Systems Thinking is like your last line of defense; when things are not going your way* **(Mr Goldstone).**

This metaphor shows his understanding of systems thinking in terms of its utility in school development. Mrs Denison, the principal of Gateway Secondary considers school development as a journey. This idea was also echoed by Mr Goldstone who sees it as a journey fraught with many difficulties. The structural and functionalist approach to systems is attested to by the explanation given by Mrs Godide of Lungani Primary of how she understands systems. She looked at systems thinking from a structural perspective.

> *We are talking about how things work together and how they function in relation to each other. For example our bodies and the systems that are interacting in them, and we are talking about how they do different kinds of functions. How each functions is informed by its design. It means how it functions and we have systems that are in*

place; for instance learning systems we are talking about the teacher getting involved in the teaching of learners. New teaching approaches are introduced for the delivery of the curriculum. Without the clear systems we will not have clear results. We need to know how things are planned. Regarding what I understand with the system thinking by looking at the whole school, even our district; circuit office even our district office **(Mrs Godide).**

In the literature that has been reviewed there is consensus regarding the idea of systems playing the role of integrating the diverse activities that lead towards the positive outcomes in the system (Senge; 1999; Banathy, 1996). Mr Goldstone offered significant views on the way systems are used and their efficacy in providing coherence and alignment with other sub-systems.

Mr Goldstone expressed his views about system thinking in the following manner;

I think Systems Thinking is an integrated approach that is my view in achieving the set goals using different systems, systems like policies, systems like vision and mission, systems like strategic planning; all those systems are integrated, the core word is integration. If I was going to use a hypothesis it is an integrational approach **(Mr Goldstone).**

Mrs Denison, the principal of Gateway Secondary observed that systems are significant in terms of the set goals of the organisation, such as the school.

We use Systems Thinking to achieve the different goals, we use different systems so that the goals set will be easily achieved (**Mrs Denison).**

Comparatively speaking, Mrs Denison seemed to be the most vocal respondent when it comes to areas pertaining to systems thinking. The democratic principles that are practiced by the Principal of Mbongwa, Mr Ndonga in his leadership style shows the trust he has in the teachers. Mr Ndonga painted a picture of his understanding of systems thinking by relating a story of how it applies in practice.

There is something that I once read in a certain article. The title of that article was a school without a principal – when I first read it I thought it was laissez faire. I

thought it was situation where everybody did what he wanted, if he felt like coming late he must come late. But to my surprise it was the opposite. It taught us the teachers must know what is expected of him, he is principal in his own right and everybody. Let us flatten democracy; let us flatten the hierarchy. The teachers must know each other, the principal must know the role he plays. It is another scenario about systems thinking approach that the principal must not remind the people that I am the principal. The same can be said of the other teachers. We must be one body working towards quality teaching and learning **(Mr Ndonga).**

The above response demonstrates the transformational and distributive style of leadership that Mr Ndonga as principal expresses and lives in the above mentioned school. The idea of using tools for thinking has been one of the cornerstones of the systems thinking approach. The above response shows the collegial nature of the relationship that exists at Mbongwa Secondary. The explicative manner in which Mr Jokozela, principal of Thokozwayo primary clarified the activities attached to systems tells the story of what the practices are at his school.

The systems approach helps a lot whereby you take some of the concepts, then you break and you analyse them in a simplest way, whereby you engage everyone using tools in order to monitor the work that has been done, some where you monitor it quarterly and yearly. For that you are able to see where you are going as a school. It is the way of analysing the way we use tools for monitoring. The way the school is seen as a system. It assists us in understanding the concepts, analysing the implementation of school development **(Mr Jokozela).**

The above response shows the basic level of understanding that exists when it comes to articulating systems thinking, using its language at the theoretical level. This observation is understandable, considering that these principals were never exposed to courses on systems thinking. Their engagement with the researcher, was at the point of action research, whereby they were introduced to the school improvement workshops using soft systems methodology (Mchunu, 2006; Mntambo, 2009). Without necessarily making any comparison, the citations from the principals also hint at their levels of understanding of systems, as the conceptual basic level. Furthermore, Mr Jokozela referred to systems as;

They are tools to measure the success and the failure of the system. We use them to assess the effectiveness of the improvement in terms of what we are doing. We measure ourselves with the neighbouring countries the way we approach teaching and manage it **(Mr Jokozela).**

During the course of the interview there was an understanding that systems thinking has this element of looking at the whole and also the idea of analysing concepts in terms of their relationship to each other. This can be attested by one of the contributions made by one of the principals cited below. The principals of the above schools display the requisite skills for implementing school development, however they do not have an in-depth theoretical background for systems thinking to articulate it in their understanding. Senge (1990) considers that an understanding of systems thinking is the cornerstone of the other sub fields, which are shared vision, personal mastery, team learning and De Clercq (2010) contends that strong policy actors and leadership tend to work better with stakeholders in policy implementation. According to Schofield, (2004, in De Clercq, 2010) policies cannot be implemented if implementers are not knowledgeable and competent in translating them into operational strategies and actions. The principals of the schools display great influence in working with stakeholders and translating school development policies into actions. The respondents enriched our understanding of systems thinking in terms of the manner in which they responded to the question. The diverse responses on the understanding of systems thinking make us to think further about new ways of conceptualising systems.

Figure 5.1 shows the systems boundary of schools, circuit and district in relation to their interconnection. Literature in South Africa is critical that the weakest link in the education system is the district. Schools are found to be in a nested system with the district and province. Research identifies the key role that districts play in school improvement in terms of support for upscaling education reform (Burch & Spillane, 2004; Datnow & Castellano, 2003; Spillane, 1996). Scholars cited concur on this point of targeted support particularly for critical low performing schools (Rosenholz, 1991; Datnow & Castellano, 2003; Massell & Goertz, 1999). Studies support the shift in strategy thinking where the need warrants upscaling education reforms (Earl, Katz, Elgie, Ben-Jaffar & Foster, 2006). Scholars have long been advocating for change in thinking to harness the power of interconnectedness of schools within districts (Fullan, 2005; Hargreaves & Fink, 2006; McLaughlin & Talbert,

2003). In reviewed literature systemic leadership has been identified as the catalyst got upscaling reforms across the district system (Fullan, 2004; 2010). It is supported internationally by several scholars, on the basis of upscaling school development by widening the scope even to those schools which are known to be poorly performing (Chrispeels, 2004; Honing, 2004; Togneri & Anderson, 2003).

Figure 5.1 points to the systems boundary between district, circuit and school showing the interrelationship between the three levels in the hierarchy of the organisation. The principals responded by pointing to the significance of the working together of the three levels of the education system.

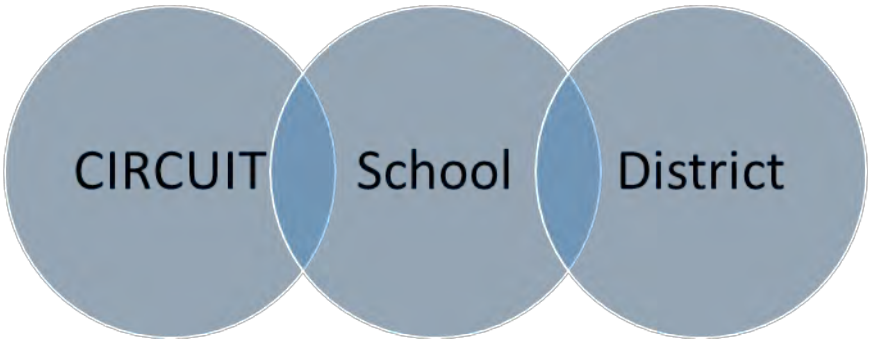


Figure 5.1: System boundary of schools, circuit and district

5.3.2 Strategic Planning

Scholars emphasize the role of leadership and management in strategic planning the decision makers in organisations (Bunning, 1992; Floyd & Woolridge, 1992; Floyd & Lane, 2000). Strategic planning can take the form of an annual ritual or consensus seeking approach, depending on the leadership that prevails in the institution (Bunning, 1997). As advocates of for strategic planning in education, Tsiakkiros and Pashiaridis (2002) made key contributions which can enhance it across the three tiers of the education system. Strategic planning is determined by those who hold the decisions and power in organisations (Bunning, 1992; Floyd & Woolridge, 1992; Floyd & Lane, 2000). Senge (1990) says tackling complex problems requires seeing the where the high leverage lies, a change which with minimum effort would lead to lasting significant improvement. Meadows (1989) explored the idea of

using leverage points in identifying areas of development. The process of strategic planning requires engagement by the stakeholders in identifying the areas of development. The use of systems tools during this process brings another dimension to the understanding of the problematic issues. The idea of engaging in strategic planning is considered as of value for all organisations in order to identify the areas that need to be developed. The character of strategic planning takes the shape of the leader and the uniqueness of the organisation in terms of its knowledge of this skill. The planning process needs to be iterative and continuous in order to accommodate the complexity of issues that are prevalent in each school system.

During the individual interviews the participants were afforded the opportunity to explain how they engage in planning for school development. During the focus group discussion this question could not be probed further due to the time constraints. The process of strategic planning is mentioned by all the principals. They may however, differ in explaining how they have been engaging in this process. It is expected that due to contextual factors existing in schools the approaches may not necessarily be the same. Further engagements also reveal that amongst these principals there are also other factors which show that their levels of understanding may not necessarily be the same. The manifested differences may also be due to the different cultural and professional factors prevailing at each school site. The engagement with the process of strategic planning seems to be the idea that cuts across all the schools. There are indications that there is a basic theoretical understanding of strategic planning process. I will make reference and quote some of the principals‘ responses verbatim to support these claims.

Mr Ndonga, the principal of Mbongwa Secondary who makes a powerful statement regarding the significance of establishing the systems.

> *If the systems are not in place, development cannot take place. We observed that we needed to revisit the mission and vision of the school. We noted that we just did it not knowing what is expected of us. We met a guy at Michaelmas who was former Board member of St Annes, who workshopped the whole staff members. After that we saw the need to from a strong a School Development Team, formed by PL 1s, union members, the teacher member of the SGB component. We formed other sub-*

committees after that, but this was the main committee that was the driving force behind strategic planning **(Mr Ndonga).**

From the above statement, it seems as if Mr Ndonga understands the language of systems in a simplistic manner, without elaborating further on it. The systems that are referred to were not elaborated for our clarification. However, upon a follow up engagement I checked on this statement. Mr Ndonga elaborated that he was referring to the administration policies, the structural systems such as committees that are supposed to exist at school level. The approach to systemic reform is ensuring that these sub-systems work and collaborate together. Scholars consulted confirm that strategic leadership and planning for school development requires critical skills that need to be develop in order to cope with the complexity of changes (Davies & Davies, 2004; Leithwood, Jantzi, Earl, Watson, Levin, & Fullan 2007; Morse, 2009; Senge, 2014).

A systems understanding of organisations acknowledges the hierarchical nature of linkages within the systems. Literature attests to the significant value that is attached to the linkage that is needed between the three tiers of the schooling system (Hopkins & Reynolds, 2001; Datnow & Castellano, 2003; Fullan, 2009; Fullan, 2010c; Harris, 2011; Hopkins, Harris, Stoll & Mackay, 2011; Harris, Adams, Jones & Muniandy, 2015). The school is at the centre of the two supra-systems which is the province and district offices. The provincial responsibilities are more on policy making, whereas the district plays a monitoring role to the school system. The other areas Mr Ndonga explicated on in terms of structures is the expected link and the interrelationship between the systems, in this particular case the department of education, the district and the school.

In the words of Mr Ndonga by the interrelationship between the three tiers this is what he meant;

We expect that schools need to be supported by the district and the head office for them to be able to survive and improve **(Mr Ndonga).**

In systems thinking there is a language that is used in order to express and illustrate the concepts used that form the theoretical framework (Ziegler, 2014; Zeigler, Praehofer & Kim,

2000). The models used in this chapter are in support of the idea that simplistic models are used to illustrate and demonstrate simplistic concepts.

Figure 5.2 portrays what is expressed by the principals that there is trilateral relationship between the school, district and province as the three levers of the education systems.

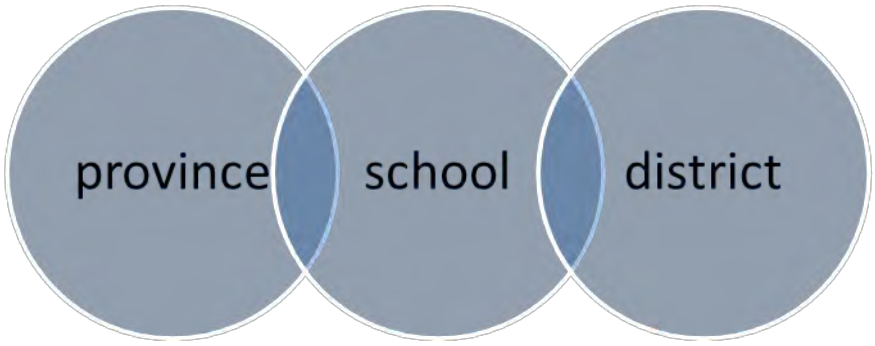


Figure 5.2: The Interrelationship between provincial, district and school systems

The systemic approach as exemplified in the provision of infrastructure shows how the department of education, the districts and the school work in synergy. There is a great outcry for these sub-systems to be seen to be working towards one goal. The tri level relationship that exists between these systems is needed for upscaling systemic reform (Fullan, 2004). The process of doing the SWOT Analysis with the stakeholders shows how popular this tool has been used by practitioners. This is also a confirmation of the kind of training that principals were exposed to during the advocacy campaigns for school development.

At Lungani Primary as explained by Mrs Godide the whole school development approach requires that work at the school be coordinated internally in order to identify the key areas of school development.

> *We do our strategic planning easily by focusing on the areas of development. We normally choose the people who are capable of doing that thing; draw year planner; monitor the implementation of plan. Strategic Planning conducted towards the end but we draw them at the end of the year. Infact we also do the SWOT analysis using the nine key areas of the school. We draw the strategic plan, it gives us the way of*

doing strategic planning. If there is something new we include it in our strategic planning. New improvements are included in the SIP **(Mrs Godide).**

There are many samples of deterministic and mechanical approaches to strategic planning which end up being ritualistic exercises (Beinhocker & Kaplan, 2002; Floyd & Lane, 2000; Bunning, 1992; Floyd & Woolridge, 1992). A closer look at the culture that prevails at the school headed by Mr Ndonga shows the level of distributed leadership (Harris, 2004; César, Cadurci, Contras, Macgavin, 2006; Hallinger & Lee, 2014; Hallinger & Heck 2010; Silins, 1994). The involvement of staff during the process of conducting situational analysis shows the collegial spirit that prevails in the school. According to Mrs Denison the school also utilises the questionnaires as part of conducting SWOT Analysis. Most of the mechanistic and total quality management approaches to strategic planning rely solely on SWOT as the tool for thinking. The single loop and unilear approach to strategic planning is prevalent in most institutions. In the systems dynamics approach to strategic planning, diverse systems tools are available for thinking differently about school development (Mchunu, 2006; Mntambo, 2009). The formulation of the school improvement is a drawn out process that starts with the subject improvement plans. The principal of Gateway Secondary of Mrs Denison indicated that;

In school development we work with people in all systems; when we talk of development first we need to analyse the school; in terms of looking at the strength of the school the weaknesses that will help in the SWOT; of the school to develop properly and to work with the strengths the focus area- how the school is functioning. When looking at the whole analysis the school analysis what does it do; it helps you in terms of where you are. I will recommend the issue around designing an interview questionnaire; the interview how the view the school; the outside people they are look at the school in a difference to way; how people view from outside, and formulate the proper systems; to ensure whatever has been a positive view is enhanced and whatever is negative view is the focus of development **(Mrs Denison).**

School development is in dire need of a new theoretical framework that considers the challenges faced by principals in the 21st century as have been articulated in literature (Kendal, 2015; Lovett, Dempster & Flückiger, 2015; Barr & Saltmarsh, 2014; Peurach,

2011; Kershaw, 2012; Dempster, Lovett & Fluckiger, 2011; Townsend, 2011; Duggart, 2008). The statements made by Mr Jokozela of Thokozwayo Primary show the consultative process and the elaboration that the school has to go through during the strategic planning process. Mr Jokozela, the principal of Thokozwayo Primary had this to say about the process of strategic planning;

> *For the purposes of school development what we have done, we have gathered the subject improvement plan for each teacher, as the school improvement plan we have highlighted some of the things that need special attention. For instance we have looked at how are we going to improve the pass percentage of the school, where we have highlighted some of the things that need special attention, how are we going to improve the pass percentage for each subject. As a matter of urgency we have to come up with plans whereby the principal has to come up with an intervention programme plan, whereby those burning issues concerning the time frame for each subject looking at each schedules then we have managed to catch up because the school had some challenges before* **(Mr Jokozela).**

Mr Goldstone of Bramley Primary emphasised the value of collaboration and also the establishment of functional structures to drive the process of school development. Mr Goldstone clarified the process as follows;

> *I think when someone reflects and talks about school development it is not a one man"s show. That is very important. All the systems must be in place, in order to develop the school. For example it has what is known as functionality, the structures the functionality should be there like the SGB and the SMT, like stakeholders outside the school. The most important component of this structure are the teachers themselves; without them nothing will ever happen* **(Mr Goldstone).**

Scholars cited support the value of collaborative work within the schools as organisations as one the key pillars and drivers of school development (Harris & Chrispeels, 2008; Pont, et al., 2008; Hargreaves & Shirley, 2009; Fullan, 2010a). According to Waters (2011), strategic thinking is a critical component that principals need to possess in order for the organisation to be able to generate innovative strategic approaches that will handle complex and ambiguous

strategic environment. Prestridge (2013) espouses the significance of the systems tools in the process of providing leadership and direction to stakeholders in schools. The systems tools empower the leaders with the skills for identifying the root causes and dealing with the assumptions that affect the decision-making. Research on the role of principals in school reform suggests that they have great influence in providing on ongoing leadership and support for school development (Blase & Blase, 1999; Blase & Kirby, 2000; McLaughin & Talbert, 2001; Kola & Selesho, 2012). The reductionist approaches to school development are inadequate to deal with the challenges and complex nature in which schools are located, particularly the South African school system which is divided into diverse categories due to inherited backlogs (Ono & Ferreira, 2010; Mathews & Jones, 2008). The following discussion is linked to the strategic planning, which is an activity that is performed by leadership of organisations collaboratively with stakeholders.

5.3.3 Process of school development planning

Depress and Gosling (2009) in their article also argue for systems thinker in action as the leadership model that can be a catalyst for school development. Fullan (2009) cited studies that were conducted in which the main focus was the role of principals as agents of school development. The challenges faced by schools in developing countries include shortage of resources and other hindering environmental and situational factors which negatively impact on school improvement. This poses a challenge to the manner in which local communities and society needs to be engaged in determining the needs of the school (Chetty, 1992; Prew, 2009).

The deterministic and linear approach to school development planning is based on the previous traditional models which need to be improved, considering the complex nature in which schools are located (Bernard, 2013; Schleicher, 2012; Duggart, 2008; Duffy, 2007). A new way of conceptualising school development needs to be infused by means of a lens that goes beyond the single loop learning (Senge, 1999). A critique of the way that literatures conceived school development shows how it came to be reduced to a ritualistic routine (Bunning, 1997; Beinhocker & Kaplan, 2002). School development guidelines are based on

the assumptions of a simplistic and linear approach (SDPI; 1999). School development planning is undertaken to give direction to the work of the whole school in order to ensure that learners receive quality education in terms of both their holistic development and their academic achievement (Broadhead & Cuckle, 2002; SDPI, 1999). The key activities in the process of school development planning are the audit of the development needs, the prioritisation of key performance areas, the setting of goals and plans for addressing the identified development key areas (McNamara & O'Hara, 2008).

The process of school development requires an understanding of the interconnections of the school as a system. With the use of the systems tools one can uniquely portray the influences between the different sub-systems and show how they link and connect with each other to illustrate their interdependence. The basic process of school development planning is presented in all the TESM manuals that were used to assist principals in conducting strategic planning. There were two documents that were used for training principals between the periods 2000 to 2006 as an era of school development. One of them was solely entitled _School Development Planning‘, which was issued to every school for reference during the training sessions conducted on IQMS and Whole School Evaluation. The other was the Towards Effective School Management (TESM) manual No 2 which was also focused on school development planning and its process.

During the process of engagement between the principals and the researcher the principals were also introduced to the Soft Systems Methods and the seven stage process as advocated by Checkland. During those sessions as indicated in the study by Mchunu (2006) and (Mntambo (2009), the principals were trained on the use of all the steps in the seven stage soft systems methodology. In soft systems methodology there are unique system tools that are used to identify the first stage of where the school is. These tools include the rich picture, the iceberg tool, the influence diagram, the CATWOE process and also all the stages of the soft systems methodology. The rich picture portrays what is happening in a problematic situation as presented by means of the views of stakeholders. The iceberg tool shows how we need to understand issues by taking a look at all the angles, considering the deep issues as compared to events on the surface. The influence diagram shows the value of looking at how different factors have a bearing influence on each other. The most popular and easy to use tool in strategic planning is SWOT Analysis (Strengths, Weaknesses, Opportunities and

Threats). The complexity of the school phenomena needs principals who are capacitated with an understanding to handle the interconnections, the involvement of the stakeholders in dealing with complex schooling issues and the messy human activity that prevails in such contexts (Senge, 1999).

The whole process of engaging in school development planning was presented by the principals of schools as they recalled how it benefitted the school. Mrs Denison is very explicit about the way the school needs to develop the curriculum as part of their identified priorities. The enrolment that the school has does not allow the school to broaden its curriculum by additional streams such as commerce. Nevertheless, the principal is positive about expanding the scope of the school to include such areas as commerce when the situation has changed. Mrs Denison goes to the extent of clarifying to the stakeholders, who are the parents the value of science stream. However they are keen to introduce the commercial discipline into the school, inspite of the difficulty of shortage on enrolment that justifies additional subjects.

> *The business of the school is conducted by analysing all aspects of the school. We clarify to the community the priorities and needs in order to develop the school systems. The curriculum is based on one stream which is science; we are keen on introducing Commercial studies in order to balance the curriculum. The SGB formulates the business plans which are for raising funding for a laboratory* **(Mrs Denison).**

In a different vein, Mr Jokozela, raised the issue of looking at the school as a system. He spells out the role of the systems thinkers in terms of analysing the concepts as part of the engagement in strategic planning.

> *The way the school is seen as a system. It assists us in understanding the concepts, analysing the implementation of school development. There are quarterly and yearly checks on how people are succeeding. It improves the functioning of all the stakeholders involved, and how to attract the donors outside to see how you are performing as a school. The system clearly clarifies where you want to be and to check whether you are in line with the vision* (**Mr Jokozela).**

Mr Goldstone emphasised the value of strategic planning and how in connects with the process of school development. In the process of strategic planning the gaps are identified and process unfolds further to formulate the school improvement plans.

Mr Goldstone indicated that;

> *That is another strategic plan; without a strategic plan nothing will happen. You have to know where you are taking the school to and also everyone should know what he is doing in terms, needs to do in terms of whole school development. That involves a lots of things once we did that then we made a school development plan. Again it is very important to prioritise. We made a school development plan where we prioritised and again it is very important to prioritise. As a school we prioritised the security of the school*
>
> **(Mr Goldstone).**

In the discussions with principals of school there is consensus in the fact that schools are engaged in strategic planning, however unique the school development plans may be to each individual school. The identified priorities may not be the same from one school to the other, due to the unique manner in which these schools find themselves. Mr Jokozela of also presented the strategies that are being used to identify the priorities that need to be funded by the school.

Mr Jokozela outlined the process of school development as;

> *To start off with we look at the needs of the school. If you look at the needs of the school you prioritise then those in which learning and teaching needs take place. You check whether they are not available, check the finances the funds the school has, if there are inadequate funds; the school has to devise a strategy whereby there is fundraising* **(Mr Jokozela).**

Mr Ndonga attests to the vast experience that the school has in its involvement in school development planning. Furthermore he explained the following regarding school development:

School development is a broad and wide concept what we have decided to do is to synergise all major components in order to help our school. Strategic Planning is based on reflection on what we identify as the needs. By SWOT analysis we check on the strengths we have, the weaknesses in the organisation, check what opportunities are there and the threats. We plan for the following year. We have been doing this for the past 5 years. Strategic planning comes with the year planner. So that by the first day, first minute of the year we start- teaching without any hassles **(Mr Ndonga).**

Mrs Denison strongly believes in the involvement of the stakeholders and she always puts emphasis on curriculum development, which has become the core function of the school development. This is due the fact that the school only introduced Grade 12 in 2012 as the first presentation of Matric results in that particular year.

Mrs Denison clarifies that school development in this manner;

As part of the school development what we are engaged in is trying to get more of stakeholder involvement in terms of supporting the school whereby the main issue is around funding especially in terms of the resources that we have. The school has developed in terms of the curriculum whereby our main focus area has been the science stream which is a little bit of a challenge. With this particular systems thinking it has helped to look at the nine key areas of the school from the whole school and looking at approach and also looking at the issue of IQMS **(Mrs Denison).**

Mrs Godide identifies the stages that are implicit in strategic planning and mentions all what they normally do and the timing in strategic planning. Mrs Godide explains the school development as;

We do our strategic planning easily by focusing on the areas of development. We normally chose the people who are capable of doing that thing; draw the year planner; monitor the implementation of plan. Strategic Planning conducted towards the end but we draw them at the end of the year. In fact we also do the SWOT analysis using the nine key areas of the school. We draw the strategic plan, it gives us the way

of doing strategic planning. If there is something new we include it in our strategic planning. New improvements are included in the SIP **(Mrs Godide).**

Mrs Denison highlighted the idea of interconnection between the existing policies Whole School Evaluation (WSE) and Integrated Quality Management Systems (IQMS) and the interrelationship that exists between these systems in order to establish in a holistic perspective to school development. The whole school development planning approach is based on the process of identifying the areas of development after considering the nine key areas of the school as prescribed in the Whole School Evaluation Policy documents. The role of school development, using a holistic approach, requires the translation of the identified weak areas into a school development plan. The combined use of all these tools for strategic planning involves using the WSE to evaluate the school from the nine key areas. Secondly, this also involves further identification of the activities that will be carried to address those identified areas of development. School development is a subject that is treated in many quarters from different angles, but the ultimate aim is to see the school improving in those aspects which are considered to be key for the functionality of the school. Whole School Development Planning should be based on the results of whole school evaluation in order to address the barriers in the school, such as infrastructure backlogs, poor teaching and learning and the culture of the school in order to improve the quality of teaching and learning (Davidoff & Lazarus, 2003).

Mrs Denison suggests nine key areas of school development and she prioritises those which they begin to work with in school development planning.

The engagement of stakeholders is the priority in fundraising for resources. We look at the nine key areas of the school from the whole school approach. We work on the IQMS systems and check the overall view of the school. The focus areas included basic functionality, curriculum, community involvement which spills over to the whole school **(Mrs Denison).**

Scholars agree that the key outcome of strategic planning is the formulation of the vision and mission and the strategic goals of the school (Wijesundera, 2002; Harris & Jones, 2010;

Hopkins, Harris, Stoll & Mackay, 2010). During the process of school development planning, one of the features is to formulate the school's vision and mission statements (Xaba, 2006).

> *We work on the development of the vision; mission in order to give direction to the school. By doing so we have ensured the involvement of the stakeholders in school development* **(Mrs Denison).**

There is a clear understanding that school development planning is a process, not an end in itself. Besides that it is a process that needs to be sustained from the school to keep on reaping the benefits of growing its strategies. In the process of planning, there is also ongoing monitoring of the programmes in terms of whether the school is achieving its goals. Mrs Denison outlined the strategies that are used for purposes of school development planning.

> *We start by looking at the needs of the school; prioritize those which will check the finances; if they are inadequate at the school. The learners need to attend extra classes; bring the teacher with vast knowledge. The newly appointed teacher and the merit in the curriculum delivery; help the school to perform. The strategic plan needs to have the vision; sell the vision to teachers and learners and the community at large, by using the assembly and gatherings. If all of those are put in place, the learners are motivated. The School development plan must be very simple to be understood (***Mrs Denison).**

Inclusive in the effort of school development, Mrs Denison integrated the two systems, Whole School Evaluation and IQMS. The focus on the nine key areas of the school is achievable when the practitioners use the systems approach because of its unique character of integrating systems. The systems thinking approach becomes a catalyst for activating the interrelated elements that form the whole school development.

> *As part of the school development what we are engaged in is trying to get more of stakeholder involvement in terms of supporting the school whereby the main issue is around funding especially in terms of the resources that we have. The school has developed in terms of the curriculum whereby our main focus area has been the science stream which is a little bit of a challenge. With this particular systems thinking it has helped to look at the nine key areas of the school from the whole*

school and looking at the approach and also looking at the issue of IQMS. When looking at these systems, they look and the ....We work on the IQMS systems and check the overall view of the school. When looking at these systems together, they help in the focus areas which include basic functionality, curriculum; and also looking at the outside part in terms of the community involvement in the school. When looking at this system if worked properly it spills very good fruit in terms of school development **(Mrs Denison).**

The core business of the school is curriculum development which seems to be the cornerstone of teaching and learning. As indicated in these discussions, the principals in these cases all concur about the significance of curriculum development, which is intricately linked with teaching and learning.

Mr Jokozela focuses on curricula areas of development viz.:

For the purposes of school development what we have done we have gathered the school improvement plan for each teacher, as the school improvement plan we have highlighted some of the things that need special attention. For instance we have looked at how we highlighted some of the things that need special attention, how are we going to improve the pass percentage for each subject **(Mr Jokozela).**

Furthermore Mr Jokozela added that these systems need to work together:

With the WSE we identify the nine key areas sothat it collaborates with IQMS. It shows the focuses more especially the class and what the performance is required. It makes the school functional. If one is lacking for example in the area of human and the physical resources, these need to be balanced in order to improve the school holistically. Surely the pass percentage will also improve **(Mr Jokozela).**

According to Mr Ndonga, school development is a process which involves a number of stages. The response by Mr Ndonga suggests that he has been working from a systems perspective in developing the school. The hard and technical aspects of systems are what Mr Ndonga is clarifying which show the interrelationship between the hard and soft systems approaches.

School development is a broad and wide concept. What we have decided to do is to synergise all major components in order to help our school. Systems synergising such sub-systems as development committee, which deals with infrastructure as well as a curriculum committee that looks after everything, at Physical structure including buildings, toilets, computer science Laboratory media and toilets as means of system effectively because without these we believe the school cannot function **(Mr Ndonga).**

The discussion above indicates that school development planning as a process is understood by the principals, although they were expressing their views in terms of the contexts in which they were working. What has been considered as the priority for the one school was not necessarily a priority in another school due to the local context. Mr Jokozela expresses that SWOT Analysis is the tool used with stakeholders. He goes further to say that stakeholders are involved in situational analysis. He also prioritises the value of engaging in teaching and learning and strategies for monitoring it thereof.

At first we do the SWOT analysis and understand each other clearly and taking into account the involvement of all stake holders. The networking with neighbouring schools has assisted us. We are checking the daily work, check and make a post mortem of the week and daily programs **(Mr Jokozela).**

Mr Jokozela further elaborated on how the SWOT tool is used :

The SWOT analysis helps us to know the strengths, weaknesses, opportunities and threats. That is why we identify the NGOs and we incorporate them in order to improve the school programmes. By this tool the unique strengths of each person is identified in terms of his strength to contribute to the others. We strive to work towards all the members being empowered. (**Mr Jokozela).**

The rich picture painted by Mr Goldstone about the state of the school fourteen years before his arrival shows all the signs of a dysfunctional school. He painted a bleak picture of what the school used to be during that was era. He embarked on a process of turning around the situation in stages as will be indicated in his responses. Mr Goldstone considers the school as one which was struggling in almost all areas. The picture he painted of Bramley primary is that of a school where there was a lot of vandalism, poor administration, lack of teaching and

learning and a lack of ownership by the parents and the community. However, due to the leadership of Mr Goldstone, the school embarked on a process of school development. Scholars agree that amongst the factors mentioned above there are those which show the level of dysfunctionality that prevails in schools.

Table 5.6 illustrates some of the areas that are covered in school development process and the outputs of that process.

Table 5.6: Process of school development planning

Area of development	Process	Output
1.Curriculum Development	School planning	Improvement in curriculum management
2.Governance	School planning	Improvement in functionality of SGB sub-committees
3.Infrastructure Development	NGO/Department	Improved buildings, additional classrooms; library ;laboratory; strongroom
4.Leadership & Management	ACE leadership &TESM manuals	Skills for leadership and management; problems solving ; financial management ; resource/assets; people management; team building; curriculum management; school improvement planning; governance; effective & functional Committees
5.Stragetic planning	TESM manual	Improved skills for strategic planning &SIPs
6.Social skills	NGO partnership	Reduction of social ills e.g. teenage pregnancy; drug abuse ; healthy ; lowers risk of Hiv/Aids

With this process the principals have expressed their views in terms of how they have embarked on this process. There is general consensus amongst the principals on the value attached to engaging with all the stages of conducting strategic planning.

Mrs Godide seems to be very clear in terms of what the process of strategic planning entails and the role of the SDT in facilitating that process. In a detailed explanation Mrs Godide outlined the process as follows:

As far as school development is concerned I do understand that you look at the whole sphere of the school; and look at the things that need to be fixed, as well as you prioritise what needs to be done first; you make a priority of those things that include curriculum; development of educators; the system of the school where there is a need and also the building; fixing of the school buildings; look at the curriculum whether the books for the leaners are sufficient work and all things. Then after looking at those spheres you start, then you sit down with the SDT and you draw the School Development Plan as a whole. Then you start with priorities the things that need to be done first. That is what I can regard as school development **(Mrs Godide).**

In a study conducted by Xaba (2006), there is concurrence with the ideas expressed by the principals regarding school development. Xaba (2006) concurs on the issue of interaction between the various stakeholders at the level of the school during the planning stages for development. Mbalathi (2010) expresses the view that SGBs are the key leaders in strategising and the purpose of the school development plan is to identify the weaknesses and challenges.

The context in which these schools are located has a lot to do with the infrastructure backlog which is depicted in the responses from the participants. The issue of infrastructure in South African schools, particularly those in the rural areas, tells the story of the past political system. From the interviews conducted, the issue of infrastructure development was the first priority in most schools. The backlogs that have been cited in infrastructure development stem from the past legacy of segregated education provision of resources. These can be cited from the responses of the principals. The worst scenario is painted by Mr Goldstone who found the school in a poor state where there were broken windows, doors and torn up fence. Bramley Primary is remarkable in the way they attended to the problem of burglaries. On the other hand the school headed by Mr Ndonga, addressed the issue of infrastructure differently as opposed to the other schools.

Scholars agree on the difficulties experienced by rural and township schools in carrying the curriculum due to the infrastructure barriers prevalent in most schools. There is a clear role that the Department of Basic Education needs to fulfill in addressing the infrastructure in

most of the schools. One cannot rule out the role of partnerships which bore fruit in terms of securing development for Mbongwa's school in particular. According to the report from Mr Ndonga, most of all the curricula resources, which the school has secured, were acquired by means of making requests to the private sector and other partners to solicit resources. The figure below shows how each school secured the infrastructural resources from different sources and partners. School development planning links with the bigger strategy of classroom practice, leaner improvement which inform school improvement plans (MacGilchrist & Mortimore, 1996; Leask, Terrell & Terrell, 2014). The integrated and holistic programmes that are supported from the schools need to inform all the nine key areas of Whole School Development (Hargreaves & Fullan, 1992; De Clercq, 2007; 1992; Mathews, 2010), as observed in the table below pertaining to infrastructure development.

5.3.4 Curriculum Development

Studies in different fields of school improvement attest to the positive attributes of incorporating the systems theory (Zazara, 1995; Flood, 2010). The cornerstone and key factor at the school is the curriculum which features a number of sub-systems such as teaching and learning, learning and teaching support materials. As one of the key areas of school development, curriculum is critical for the performance of the learners and also the overall outcomes of the school. School based curriculum development is the practical part of the implementation of the curriculum where the teachers use creative means in order to teach learners. The gap between the pronounced curricula statements gets interpreted at the level of the school. Teaching and learning are inseparable from the curricular activities which result in learner performance outcomes. From the above responses, there are other strong views whereby the priority is addressing teaching and learning. For purposes of this study we need to focus on the leadership aspects of curriculum development. Scholars from different perspectives advocate learning and thinking curriculum that needs to match the demands of the 21st century (Resnick, 2009; Resnick & Klopfer, 1998; Resnick & Spillane, 2006).

Curriculum development involves teachers taking learners to where the practical part of the curriculum is implemented. Mr Jokozela indicates how, as the school, they engage with curricula issues by going to the extent of taking learners to other places to widen their horizons. Mr Jokozela shows the value of exposing learners to the practical world, by taking them on educational excursions. The educational excursions are another way of linking the world of experiment with the theoretical world.

Mr Jokozela reported furthermore on the benefits of systems thinking to curriculum development:

> *Systems thinking helps that learners are made to understand the abstract concepts; such as taking learners to parliament and learn how policies are made. We went to the World Summit in Johannesburg. We needed to prepare a worksheet where the learners will present on the whole journey. The extra classes help a lot and leaners need to be at ease with the teacher; let the learners set targets and the school sets targets. Once these targets are set, we use the tools to check whether we are doing the right thing* **(Mr Jokozela).**

Mrs Godide recalled that Lungani Primary was sponsored to attend and present at the Cop17 Summit in 2013, which was hosted at Durban ICC for a conference on Climatic change. The learners were chosen after the sponsor saw them during the school‘s Grade 4 Farewell Function that is held annually at the school. The picture painted by Mrs Godide is as follows:

> *The reason is there is person that invited us. She had seen what we were capable of doing. She was interested when she saw our dedication; and enthusiasm as far as the teaching is concerned. She paid the transport for us, catering and everything. We were selected due to our hard work. Yes we were invited in 2013 to Cop17 that was held in Durban. We went there talking about the Climate change; we participated there as young are we are from Grade 4. We participated with schools from Bloemfontein, Cape Town. We participated successfully, we told people about the climate change; how to avoid the contamination of water; like the veld fires; like do not throw the waste products; planting of trees. We went there successfully, yes we gained a lot of information* **(Mrs Godide).**

The culture of teaching and learning that prevails in these schools has also improved due to the dedication of the teachers and their professionalism in approaching their work. In terms of the Language of Learning and Teaching (LOLT) policy principals are expected to promote reading by assigning periods for reading in the timetable. The instructional leadership role of the principal at Lungani Primary is evidenced by the number of learners that are flocking to the school in quest for quality teaching and learning.

This is attested by Mrs Godide, who goes to the extent of working directly with teachers as part of monitoring of IQMS.

> *We start with educators reading here at the assembly. Our educators come early to school. That is the first achievement. We do not have a hassle about educators coming early that is the first achievement. Teachers report at assembly- and start reading at assembly point. I help teachers to read at assembly. Number two, I have encouraged teachers to do proper lesson plans; and teaching aids which must be aligned with the work for the day; what they will teach for the day so that the lesson will be vibrant. Number three I have also developed educators to practice the IQMS because IQMS is vitally important for us because that is where we measure our information. Then I encourage educators to study; to read books to observe them in the classroom situation. They have to create the conducive learning situation* **(Mrs Godide).**

On the other side, Mrs Denison points out that the learners at her school were chosen by Moses Kotane for their outstanding performance and they were awarded bursaries. She further claims that the school results have improved from 58% when they started with their first Grade 12 presentation in 2012. In 2013 the school has improved to 100% pass rate due to the quality of teaching and learning that is taking place at Gateway Secondary school.

> *We have about four learners that through the different programme that the school has, some of our learners are exposed to in the Moses Kotane programme, about three of our learners- who focus on science development. All that ventured out from the school. Those are some of our achievements. Three learners have received bursaries to be boarders. Again our outstanding achievement is that our results have improved since we started in 2012 with Grade 12 introduction with the results at*

58.4%; the following year we improved to 100%. Whereby we are dealing with science of which most of the people think is difficult **(Mrs Denison).**

Mr Ndonga on the other hand, indicated that they are also doing well in teaching and learning and the learners are showing this by their performance. This is also supported by the improvement in matric results and the unique way in which the school has stabilised its enrolment and the collegial manner in which teachers work at the institution.

It also boils down to what we understand as systems thinking, the word „I" does not work in our school. In systems thinking we work as a team. We understand that the organisation is complex. We are doing very well with matric results. As a school we have grown in enrolment. Maybe I need to dwell in terms of how we have grown. The Grade 12 results in 2103 were at 96% due to the morning study from 7am to 8am, then our normal learning attracted lots of learners to our school and again from quarter to three to half past four. Then from quarter to four we have an afternoon study. That attracts a lot of learners. Saturday classes are also conducted to supplement on the extra tuition. Vacation schools are held in March, June and September **(Mr Ndonga).**

The issue of going the extra mile in schools that are functional is supported by almost all the principals. Mr Jokozela reports that teachers at Thokozwayo Secondary also come very early and leave very late in order to attend to the learners who are struggling with their subjects. Moreover, Mr Jokozela recalls how they work with learners and engage them in educational excursions as part of improving the quality of teaching and learning at the school. The idea of working by setting targets which is stipulated in the Schooling 2025 National vision is slowly taking off in most schools as evidenced by the statement made by Mr Jokozela.

So there is this systems thinking which helps that sometimes there are things which need to be made concrete for learners to understand and others which are abstract. You take the learners of business studies to the industry; take the leaners to the industry where they can learn. They have seen the debates in parliament and how policies are made. We have taken learners to Johannesburg during the World Summit. We have taken learners out you have to prepare the checklist whereby there will be a presentation when we come back. We want to bridge the gap between theory

and practice. These extra classes help a lot as a teacher. You need to be at the level of the learners for them to ask you questions. You are able to bond and set targets and the school also has targets. And also the extra classes the learners need to be easy to come to the teacher. You set targets for the learner and the teachers set targets and the school also set the targets. We also identify those learners who are slow to learn and group them for purposes of assigning tasks that differ in terms of complexity **(Mr Jokozela).**

The discussion above shows the unique manner in which the teaching and learning is taken at all the institutions where the principals are placed. Studies cite challenges of a various nature that are experienced by schools in the implementation of curriculum (Nkabinde, 1997; Pillay, 2014; Bantwini, 2010). However, the data presented indicates that these schools were coping due to the supportive structure that was established in the clusters within the circuit. The profiles of principals also show that Mrs Denison of Gateway Secondary played a critical role in assisting other principals in the interpretation of the curriculum.

Caps is more learner centred, it demands of the learner to know the content. It think they are intertwined with school development, because it develops the skill of the learner. Caps as a curriculum is good, it develops the skill of both the learner and the teacher, who has to attend workshops and deliver the appropriate curriculum. It has its own challenges, it is very long, it is about paperwork, and there is a lot to be written by teachers and learners. I think it is paper-based, because teachers have to do a lot of marking of homework and preparation of lessons. It becomes a challenge for a teacher to complete the syllabus. It is the best curriculum as I have said because it is content-based and makes the learner to know about the subject **(Mr Goldstone)**.

5.3.5 Teaching and learning

According to James & McCormick (2009) the purpose of school improvement is to impact ostensibly on the relationship between the teaching and learning process and the conditions

that support it. Fullan (2011) identifies the right drivers as capacity building, group work, instruction, and systems solutions which work directly on changing the culture of school systems. Fullan and Knight (2011) clarified the role of coach to instructional leader as involving lesson planning, modeling lessons, observing instruction, facilitating meetings, reviewing learner data, leading the collaborative marking of learner work. Knight (in Fullan, 2009) summarised the role of leader coach as significant for instructional coaching. Wagner and company (2006) proposes that systems thinkers start by understanding the 4Cs and the effect that these interrelate with the task of improving learning, teaching, and leadership. The systemic movement saw a shift from the narrow, mechanical paradigm to one designed to move towards addressing systemic issues from a holistic perspective.

The centrality of teaching and learning is a great feature of school development as demonstrated by the participants. It is evident from the data that teaching and learning was viewed as the core business in each of the five schools. Teaching and learning is taken seriously as the main core business of the school. It is all about why schools exist. From the observation, there are indicators that these schools prioritize teaching and learning. The schools are functional and attend to all that pertains to teaching and learning. The basics of good teaching, as defined by the respondents, are followed to the latter by the schools. Teachers are going the extra mile in terms of executing their professional duties. As a result, there is improvement in the performance of the learners. Teaching is the core business which is the focal point for improving the school. It is supported by the SMTs who monitor of the curriculum. The SMTs are assigned this role as the main custodians of the curriculum development. Even the clusters are supportive of the curriculum and there seems to be broad consensus that everything centers on the curriculum. Mrs Denison principal of Gateway Secondary had this to say about the role of the SMT in curriculum development.

> *The SMT leads the curriculum development process; the SGB focuses on the development of governance and policy formulation. The SDT committee focuses on the development of the SIP. The SGB works on issues of safety and security* **(Mrs Denison).**

In the words of Mr Goldstone, the principal of Bramley Primary the SMT plays a significant role in the functionality of the school. He further states that structures such as the teachers, the SMT and the SGB are significant in the process of curriculum development.

> *I think when someone reflects and talks about school development it is not a one man's show. That is very important. All the systems must be in place in order to develop the school. For example there is what is known as functionality, the structures need to be the functional, such as the SGB and the SMT. We need to work with the stakeholders outside the school. The other important component of this structure is the teachers themselves; without them nothing will ever happen* **(Mr Goldstone).**

Goldstone has strong views about the value of involving all the other stakeholders in school development. Hopkins (2011) mentions the role of collaborative stakeholder ownership in support of shared vision for school development as the critical element to drive sustainable learner improvement. Mrs Godide mentioned that the reason for the increase in school enrolment can be attributed to the recruitment of an English speaking teacher in Grade R. The parents believe that their children need to be exposed to English and they also believe that if their children speak the language it is an indication that they are learning. With the recruitment of this English speaking teacher, the strategy was to dissuade parents from taking learners to city and urban schools. In most of the schools, the participants attribute the achievements in school development to the dedication and passion demonstrated by the teachers. The teachers come early to school and leave late.

Furthermore Mr Jokozela commented on teaching and learning as such:

> *Teaching and learning is the core function of the whole system. If it is not working the school can be referred as non-functional. It ensures that HoDs monitor work daily and develop teachers to see where there are gaps. They check the quality of work, assessment after a quarter* **(Mr Jokozela).**

Mr Jokozela explained further his understanding of the interpretation of the curriculum.

Caps makes to teach in terms of the plan for the day, the topics assigned are treated by all schools. It also assists with the integration of learning subjects, for example if water in Natural Science so also in it taught it will be across the language sothat learners can grasp the concept and develops the learner in understanding concepts. It is an integrative approach to teaching and learning **(Mr Jokozela).**

As part of professionalism, time on task was mentioned as an area that contributes to school improvement. Time-on-task was a further fundamental characteristic of these rural and resilient schools (Christie, et al., 2007). Punctuality of teachers is also practised as a good virtue across all the five schools and is making a great contribution to school improvement. The commitment of teachers has been identified as one of the benefits of school development. Teachers conduct extra tuition classes in order to finish the syllabus and assist learners who have challenges with learning.

There is an indication that through IQMS teachers are monitored in terms of their lesson preparation and learner performance. Mrs Godide explained that she also forms part of the School Development Team (SDT) in order to ensure that the she monitors teachers to assess whether they are achieving their objectives.

To further emphasise the critical role of going an extra mile and beyond the call of duty in teaching and learning Mr Ndonga added:

I do not know what attracted learners from other schools during the winter vacation classes. In fact this has also improved the image of the school. There are teachers who were our former students who felt an obligation to plough back to the school. They come from all the three streams, i.e. Maths and Science, Commerce and Social Science. They assist the three groups. Those who were good in Maths, Accounting and Economics will teach those subjects accordingly. This has resulted in the improvement of Matric results. They felt it was necessary to do it; they also invited friends, some come as far as Durban and Portshepstone who also came to assist **(Mr Ndonga).**

With the improvement of the infrastructure and other curricula support. Mr Ndonga commented on how it impacted teaching and learning:

After we have established the computer lab and science lab; we needed to change the philosophy of teaching and learning we need to refer learners to computer labs; to be done at the computer lab. There is a special program used by learners to write homeworks and assignments. Slowly we are shifting from the traditional chalkboard and textbook methods. We have different strengths and principals; our former inspector used to identify those strengths. I would go about doing strategic planning – the other principal was good in financial planning; he used to call us and assist in IQMS. They will come and assist in IQMS and assist the cluster. As a result the Matric results improved in the circuit due to those initiatives **(Mr Ndonga).**

Benson (n.d.) reports that schools across the United States and throughout the world are actively exploiting the advantages of integrating systems thinking in classrooms and schools. The benefits of such approaches are immediate to student achievement goals and long lasting as systems citizenry is developed.

5.3.6 Cluster co-ordination and networks

There is wide range agreement on the benefits of schools working collaboratively towards improvement (Hopkins, Harris, Stoll & Mackay, 2011; Hopkins, 2011; Hopkins, 2009).Inspite of the structural mechanisms for supporting such a view in terms of clusters and PLCs (Hopkins, 2011; Fullan, 2011; Hargreaves, 2012; DuFour, 2008; Harries & Jones, 2010; DuFour & Mattos, 2013) what is also critical is the new notion of systemic leadership (James, Connolly, Dunning, & Elliot, 2005; Hopkins & Higham, 2007; Painter-Morland, 2008; Fullan, 2007) as a catalyst for upscaling these educational reforms (Hargreaves, Halász & Pont, 2007). Hopkins (2011) professional teaching, networks, collaboration and accountability have been postulated as the lead drivers. Invariably, Fullan (2011) and Hargreaves (2012) support the idea of teachers working across in networks. In South Africa the involvement of schools in working according to clusters is one strategy used to mitigate against the geographic distance between school, the lack of support regular from district and the rurality of schools (Jita & Ndlalane, 2009; Jita & Mokhele, 2012; Jita & Mokhele, 2014; Mokhele, 2014). The cluster system works for purposes of linking schools with the aim of

driving holistic School development (District Development Support Programme, 2003). Prew (2009) used a case study approach in working with the 96 schools on issues of School Development.

The idea of clustering schools in terms of their geographic location can be leveraged for purposes of turning the situation around regarding the scarcity of facilities and resources. The leadership displayed in clusters plays a pivotal role in the success of professional development, school governing body improvement, sharing of resources and financial management skills development as revealed in the data. The level of commitment to the cluster systems also requires the leadership of the circuit management of schools to derive maximum benefit from the potential of the systems. The idea of scaling up education reforms finds a lever to hang on in the cluster system and the systemic leadership (Hopkins, 2010) to drive the process across the district schools (Talbert, 2009; Chrispeels, Burke, Johnson & Daly, 2008). The dictates of the agenda of the cluster are incumbent on the identified needs of the schools that are clustered, inspite of the noted barriers to the effectiveness of the strategy. The circuit was arranged into different clusters in order to promote schools work together on issues of school development and share resources in the form of expertise and exchange information, as well as professional development.

Mrs Denison actively participates in the cluster system by providing curriculum teaching to the other principals during the meetings.

> *We are part of a cluster system; where we focus on curriculum development. This has been an eye opener in my career as I have been assigned the role of guiding the other principals in interpreting curricula documents* **(Mrs Denison).**

Mrs Godide expressed the view that through the cluster system, principals go to the extent of giving each other emotional and practical support by going to the extent of sharing the resources they have.

> *We work as a cluster; we network and we provide and share information. We assist each other emotionally and practically as we network with other principals. When talking about Systems Thinking we work on areas of development. Principals also*

visit the school. Principals are left assured that they have received the necessary help. Share resources and information. The neighbouring principal was assisted in getting a national flag **(Mrs Godide).**

From the interview conducted, it seems that all the principals made a contribution to the different clusters they were located in and also to the principals circuit development meetings. These views were expressed by the following principals in different ways that suggested their involvement. Mr Jokozela in sharing his experiences at the cluster system explains what has been happening where topics are shared between the principals as they participate in process of development.

We used to give topics to principals and we will share the experiences and topics and knowledge. We have this thinking that we are not competing with one another and also ensuring that all schools are above 80% working together ad sharing ideas **(Mr Jokozela).**

The role of Mr Jokozela in the cluster and that of teachers is shared further in the comments below.

We are able to take teachers who are experienced in subjects to assist the cluster and impart to all learners. It also promotes that we supplement each other than be in completion. Financial management we requested teachers who were in Commerce to workshop us on management of finances others on policy making and we also developed the policies to be in line with new development. Due to the cluster we ensured that all schools are moving towards the same goal.

I shared with colleagues on team building; we were experiencing problems with teachers who were not pulling together. It improved teacher human relations. What I was doing I used to be a Commercial teacher who assisted them to get 82% by teaching on Saturdays and Sundays in neighbouring secondary schools.

The manager was encouraging us to complement each other and share problems-such as in teacher late coming; drug abuse. Therefore we were sharing our experiences on how to handle such problems across the circuit. It was giving a

chance to be able to be confident to present to our colleagues and be ready for other challenges of promotion **(Mr Jokozela).**

Furthermore Mr Jokozela decried that the clusters are no longer vibrant as they used to be and this has hindered the improvement of the circuit initiatives such as CPTD.

In CPTD we are encouraged to embrace new things such as watching educational movies on TV for an example SKEEM SAAM – which focuses on the life of students at campuses **(Mr Jokozela).**

In line with the other principals, Mr Ndonga was positive about the work that was done at the cluster level. There is consensus from several scholars supporting the idea of establishing professional learning communities as part of school development (Fullan, 2010a; Ono & Ferreira, 2010; Hargreaves, 2012; DuFour, 2013; Ash & D'Auria, 2012; Lee & Lee, 2013). The study on clusters focuses on the role of teachers in providing support to each other in terms in terms of teacher content (Jita & Mokhele, 2014), which is in contrast to the role of principals in working across clusters sharing their experiences. The role of principal requires that he or she goes beyond the confines of her or his school to share the learnings with other schools for purposes of systemic educational reform. The cluster can be utilised as a vehicle to promote this kind of community engagement with other principals on what works. Fullan (2004) promoted the idea of principals working across the cluster of schools in sharing their experiences and expertise.

At local schools I taught History to the neighbouring school which was underperforming and the results improved. I think it is a good systems; it a good tool to minimise the challenges that we face as managers. I can say you end with a shoulder to cry on if you work in a cluster system **(Mr Goldstone).**

5.3.7 The Integration of systems WSE and IQMS

Senge and Forrester (2002) proposed a framework that recognises the value of working from a holistic perspective in driving school change.. The systems thinking approach to the modeling of these interrelated components requires the systems thinker (Fullan, 2003) to

work on the task of school development. There is consensus between Banathy (1991) and Betts (1992) in their argument for a radical change that will require the thinkers to forego any approach that is piecemeal, non-integrative, confined to discipline by discipline and reductionist. Both scholars advocate for a system that will be incremental, integrative, work across discipline boundaries and based on systemic thinking.

In terms of policy, the WSE and IQMS systems are intended to be theoretically and practically integrated for effective school development. The most important benefit of the use of systems thinking is the ability to bring about the integration between WSE and IQMS. In most of the responses, the principals mentioned the role of systems thinking in bring about an integrative and holistic approach to school development.

In terms of the IQMS policy documents there are three policies that need to be integrated, which are the Development Appraisal System (DAS), Whole School Evaluation (WSE) and Performance Management (PM). As a way of bringing these three systems together, the Integrated Quality Management System (IQMS) was promulgated as policy in 2003. The approach adopted by the principals was to integrate the three systems. Systems thinking became the catalyst for integrating the three systems. The three systems focused on all the expectations of the system, which requires a holistic approach to development, performance measurement and whole school evaluation.

Mrs Godide creates the conditions for teaching and learning in the interest of the teachers as part of professional development, which is a key element of IQMS.

The Principal of Lungani gave her viewpoints on the above by expressing it this way;

> *Number three, I have also developed educators to practice the IQMS because IQMS is vitally important for us because that is where we measure our information. Then I encourage educators to study; to read books to observe them in the classroom situation create they have to create the conducive learning situation. Three we have gone to the workshops by our ex- Circuit Manager who was encouraging us principals who gave us more information on IQMS who was more engaged in drawing the School Improvement Plan-as far as drawing the School Development*

Plan as far how to conduct school the school financial reconciliation and other things **(Mrs Godide).**

The synergistic approach used by the principal Mr Ndonga in working with both IQMS and WSE shows how a systems thinking approach ensures school development. South African scholars concur on a diverse factors that led to the failure in the implementation of school development due to the reductionist and consumerist approaches that underpinned from school effectiveness and school improvement practice (Sister, 2004; Mchunu, 2006; Dhlamini, 2009; Mntambo, 2009; Xulu, 2009; Mbalati, 2010; Sambumbu, 2010; Mathews, 2011; Mji, 2011; Mbulawa, 2012; Van der Voort &Wood, 2013; Van der Voort, 2014).

The principal Mr Ndonga indicated the value of working by combining both IQMS and WSE.

We conduct an advocacy campaign IQMS as tool to improve the quality of education. At the beginning of the year we come up with a management plan to IQMS; starting from classroom observation, how to fill in Personal Growth Plan (PGP); how to fill in PGPs; as well as ensuring development programmes are in place after identifying as the problem areas. As a result we have not been implementing IQMS not less than 70%; it is mainly attributed IQMS and WSE. We do not only confine our energy on IQMS because IQMS deals with what happens in class. With regard to WSE we take into consideration the infrastructure as a priority. We have to secure a computer laboratory and library. We have good toilets for both teachers and learners **(Mr Ndonga).**

Mrs Denison clarifies the role of IQMS as a catalyst for working on the identified nine key areas prioritised for school development, although there is an element of focus on key aspects of the school system. Mrs Denison expressed what she believes is working from a holistic perspective:

With this particular systems thinking it has helped to look at the nine key areas of the school from the Whole school and looking at approach and also looking at the issue of IQMS. When looking at these systems they look and the ....We work on the IQMS systems and check the overall view of the school. When looking at these systems

together they help in the focus areas which include basic functionality, curriculum; and also looking at the outside part in terms of the community involvement in the school **(Mrs Denison).**

Mr Goldstone in his approach also brought in the whole school evaluation perspective to the development of the school. According to Mr Goldstone, this holistic approach to school development also shifts to the areas such as finances which are considered as priority elements for the school to develop.

In fact the whole school evaluation process depended on that. It was not teaching and learning because I achieved that within two years of my arrival. In fact the whole school evaluation depended on the policy development. The parents are not stupid they know when the school is working and not functioning. Another area of development was finances. The finances of the school- there were no policies- people were issued cash cheques. There was no expenditure and income **(Mr Goldstone).**

Mr Ndonga exposited on how the collaboration between principals used to assist the cluster:

I think used to tell the colleagues about the successes we have heard achieving good results, later on it boosted the morale of those principals who were underperforming. At the leadership of Mr Mchunu all the secondary schools improved above 60%. We were also able to achieve good results **(Mr Ndonga).**

Scholars concur about the negative effects of overemphasing standardisation and accountability (Ash & D'Auria, 2013; Hopkins, 2013; Harris, 2012; Fullan, 2010a). The practice is to utilise WSE as a tool for evaluators to check the progress. However, this tool indicates that schools are also empowered to conduct their own self-evaluation. Studies conducted by Mchunu (2006) and Mntambo (2009) affirm that systems thinking was used as a catalyst to effectively implement IQMS whilst working with principals, SGBs and teachers. The systems approach enables the systems thinker to identify areas which can be considered as leverage points (Meadows, 1998; Senge, 1999).

Due to the complex nature of integrating these systems, that is Developmental Appraisal System (DAS), Whole School Evaluation (WSE) and Performance Measurement (PM), the

principals were assigned to play a meaningful role in sharing resources, experience, what they have learned, and also how they are implementing the above systems for school development. Several studies on IQMS are citing the silo approach and reductionist nature in which this policy is being implemented (Sister, 2004; Dhlamini, 2009; Xulu, 2009; Mbalati, 2010; Sambumbu, 2010; Mathews, 2011; Van der Voort & Wood, 2013). The shift in towards a holistic approach is observed in studies conducted by Mchunu (2006) and Mntambo (2009) from a systems thinking perspective. These studies demonstrate that IQMS can be a vehicle for mobilising all the nine key areas of the school, whilst working from a systems perspective. Whilst working with the principals using the systems approach, I was able to engage the principals, SGBs and teachers in an ongoing process of implementing an integrated approach in IQMS (Mchunu, 2006; Mntambo, 2009). These two studies affirm the efficacy of systems thinking as an approach in the implementation of policies of any nature.

5.3.8 Partnerships for school development

Ash and D'Auria (2013) argue for collaboration across the system in order for the benefit of the larger system. The co-authors are positive about the influence that collaborative work can have on increasing organisational sustainability. Collaborative efforts can also yield benefits that can impact the overall quality of teaching. The co-authors also hold a strong view that partnerships will eventually increase the ability of the organisation to adapt and solve complex educational problems. Hopkins (2011) proposed that the lead drivers are professional teaching networks, collaboration and accountability. In a similar manner Fullan (2011) and Hargreaves (2012) support the idea of teachers working across in networks. The model that Fullan (2004) is advocating for requires leadership that acts as a catalyst for school development beyond the level of the local school, to district and national level. The presented data indicates that principals are morally committed to working as systems practitioners. The ideal situation of working across the system is practiced by these principals as evidenced in their responses and also in the presented tables. They are working tirelessly at identifying partners to assist the schools with resources and expertise which is in response to the priorities in the school development plans. The level of learning in practice is at the principals meetings, the use of TESM manuals, the ACE Leadership programme and they also share such knowledge with other colleagues in clusters and across the circuit.

The nature of the needs identified at each school required that a holistic approach be followed whereby principals needed to think beyond the locality of the school in their programme of action. From all the respondents what came through was the need to work with other stakeholders. These are some of the ideas that are promulgated by Fullan (2004) in his conceptual framework of a systems thinker in action.

5.3.9 Handling Social Ills

There is a strong argument in research that has been conducted to seriously consider the political and socio-economic context of the schools where school development is needed (Harber, 1999; Bertram, 1999; Fertig, 2000; Mnisi & Prew, 2001). The unique character of each school influences school development planning as observed in the **Table 5.6** below. The contextual factors that prevail in all the schools are unique, yet there are those which are a common feature, such as the prevalence of Hiv/Aids; teenage pregnancy and the child-headed families to mention a few.

The critical areas of development that were mentioned by the participants dealt with socio-economic ills that plague our communities. Schools are part of the broader society and as a result they are affected by what is happening in the environment in which they are placed. Mrs Denison recognises the value attached to stakeholder involvement and how this can be used to handle the social ills that plague the school system.

> *As I have cited before Systems Thinking needs a lot of stakeholders; where the issue around the parents is to get their buy in. When looking at the community I am in, there are lots of the social ills that affect the functioning of the schools as a whole. They have a great influence on the school; they affect the school environment, but they have a great impact in the functioning of the school* **(Mrs Denison).**

In her leadership, Mrs Godide works with a number of stakeholders in the form of government departments and NGOs. These can be attested to by the pictures which were she testified to during the interview session. A variety of pictures support the view held that the school implements its plans for development by working with various stakeholders. The level of activities that attest to how the school bridges its vision with practice is exemplified in the pictures, some of which are displaced in the principal's office. To cite a few examples these include the annual Grade 4 Farewell and Grade R Graduation activities and the selection of the school to the World Summit to present a drama on climate change by Grade 4 learners.

> *Parental support is increasing, we invite experts; police, abuse domestic violence; we also invite welfare; state grants they are old I also invite the nurses to come and check all our learners. Those who need glasses they identify them. Those who are hard of hearing they are given hearing aids. They also issue a letter to parents that they must take them to the clinic. We do all these things for purposes of development* **(Mrs Godide).**

The school is treated as an open system and several departments and non-governmental organisations (NGOs) provide a variety of services as required by the need in that particular school. School development scholars that school development plans should be identified with shared ownership and purpose and shared leadership and management (MacGilchrist, 2000; Prew, 2009). This view opens up a broad and constructive role for the community in the School Development Planning process. Bertram (1999) points out the weaknesses in the school development planning approaches that were used by NGOs in schools for being atomistic, and mechanical. She further highlights the shortcoming in the NGO funded school development approaches which tend to mainly focus on developing the product, which is the school plan itself, rather than the process of change. The difference between the systems thinking approach to school development as indicated in the table below is that the principals work collaboratively with NGOs. The Joint Education Trust (JET) model on school development indicates that the success in their approach is due to the collaborative manner in which the NGO works with the schools and the district as partners (Taylor, Muller & Vinjevold, 2003).

Mrs Denison mention how they have been working with NGOs in different areas identified for holistic development of the school. They addressed these issues working with the NGOs and also the government departments.

> *We are working with an NGO which is working around this area in terms of life skills where we were doing tree planting; also specifying the issue of indigenous plants and also ensuring that we remove the invasive plants; the Environmental Committee; the to ensure that the school yard has trees planted and is well looked after. The other session we had donation from the SASA department when the parent addressed in terms of needy learners and how they can play their role. The parents were encouraged to help with uniforms* **(Mrs Denison).**

On a follow up interview, Mrs Denison remembered that there were also other NGOs that they were working with the school. The follow up interview also involved the checking of journals, support documents such as SIPs, year planner, pictures of various kinds; newspaper articles. From this follow up interview, I wanted to substantiate some of the claims made by principals and check for documentary evidence on what is happening at their schools.

> *We have organisations like the Mayikhethele progamme which is focused on dealing with Hiv/ Aids, even assisting children who were poverty stricken, teenage pregnancy was lowered after those interventions. The Columba Institute annually identifies twenty learners with behavioural problems. In this programme learners are taken for a 1 week camp. In their programme they take them for life skills. They normally start with leaners from Grade 10-11 sothat when they reach Grade 12 their behaviour will have improved. When these learners come back they are given tasks that direct them towards behavioural change. They are also expected to testify to other learners how this programme has assisted them in terms of change of behaviour* **(Mr Ndonga).**

The principal of Lungani also told the story of how they work with NGOs in trying to handle social ills.

We have identified that we work in a community which is poverty stricken. We have been assisted by CINDI, who identify vulnerable children. These learners were given 20 uniforms in 2102. We noted that as schools close some learners do not have food. As a result we handed over food parcel to learners during holidays. We also worked with the Gift of the Givers; who were also assisting the school in giving cosmetics, food parcels, sports equipment; javelin shot put, poles for netball. This was done for three consecutive years by the Gift of the Givers. This all happened because of the networking we have embarked on with NGOs **(Mr Jokozela).**

Table 5.7 below indicates the services provided by the NPOs in support of school development.

Table 5.7: Services from NPOs /NGOs for school development

School	NPO	Year		Service	Impact
		Start	End		
Lungani Primary	Indoni	2012	To date	Funded Cop 17 transport (Climate change) Building of Kitchen;	Self-esteem of learners improved Heath & safe place for cooking ;
	Taxi industry Funeral parlour			Transport discounts Marquee & chairs	
Gateway Secondary	Mayikhethele	2012	To date	Hiv/Aids teaching;	Awareness of the virus leading to behavioral

					change
	Red Cross-	January 2013	June2013	Life skills	Encountered problems ; terminated relationship after 6 months
	Caprisa/ RHiva project	2011	2012	Hiv/Aids awareness; Voluntary Male Circumcision	Reduction in infected learners; behaviour change; increased No of boys circumcised
Thokozwayo Primary	Rock Challenge; CAPRISA	2005 2010	2008 2014	Hiv/Aids; teenage pregnancy; Voluntary Male Circumcision	Awareness of Hiv/aids new infections; reduction in teenage pregnancy ; increased No of circumcised young males
Mbongwa Secondary	Mayikhethele CAPRISA Red Cross Columba Institute	2010 2010 2012 2013	2015 2014 2013 2015	Hiv/Aids; teenage pregnancy Behaviour of children (2 training on life skills) identify 12 learners	Awareness of virus Reduction in new infections; reduction in rate of pregnancy; behavioral change Behavioural change ; life skills
Bramley Primary	Muntu Omusha	2012	To date	social ills-School uniform	Vulnerable learners get uniforms
	Red Cross	2013	To date	social ills-School uniform; OVC ; orphans &	Awareness of the virus ; behavioral change; reduced numbers of

				vulnerable children	children

According to Haynes, Emmons, Gebreyesus & Ben-Avie (1996) school development is a system whereby changes and innovations of any part are considered to affect the interrelated parts. In a study conducted by Miller- Grandvaux, Welmond & Wolf, (2002) the role of NGOs in education particularly in Africa is discussed in detail, as well as their contribution to the education system. There is scanty of research based on the role of NGOs in supporting schools towards their academic, social, cultural, aesthetic, and infrastructural development, yet their role cannot be neglected as the table above indicates (Khamba, 2006; Haque, 2004; Grandvaux, Welmond & Wolf, 2002; Jagnnathan, 2001; Mazibuko, 2000). With the evolution of these social ills, the school leadership needed to evolve and come with new innovative strategies, rather than seating and awaiting for the departments interventions. This is attested by scholars that schools are evolving in terms of mitigating environmental issues (Caine & Caine, 1997; Reigeluth, 1993; Reigeluth, 2004). Due to these evolving patterns the school development plans are shaped and designed to meet the needs coming from the environment. Scholars using the complexity lens concur on how this perspective provides a different window of looking at how the schooling system is influenced by environmental factors (Reigeluth, 2004; Reigeluth, Patrick, Gonzalez, Christie, Brock, Lee, 2006; McQuillan, 2008). Spreen and Vally (2010) decries the erosion of NGOs and community based organisations, considering their provision of assistance to schools in a number of critical areas for development (Vally, Motala & Ramadiro, 2009). The next paragraph presents the outcome on continuous professional development.

5.3.10 Continuous Professional Development

Scholars consulted concur argues compellingly that systems thinker in action is the model of leadership that is needed in order to mobilise continuous improvement and capacity building (Fullan, 2004; 2005; 2010; Hargreaves, 2001; Depress, 2005). System thinkers in action are practitioners who operate at all the three levels of the schooling system (Hargreaves, 2001; Depress, 2005). South Africa is no exception as several studies refer to leadership

professional development programmes for principals and the different approaches used in such programmes (Mathibe, 2007; Mestry, R., & Singh, 2007; Bush, 2011 ; Bush, Kiggundu & Moorosi, 2011; Moorosi, 2013;Steyn, 2014). There is a plethora of studies that have been conducted in South Africa on principalship development programmes (Bush, 2007; Maestry & Singh, 2007; Bush, 2008; Aluko, 2009; Bush, 2009; Bush, Kiggundu, Moorosi, 2011; Moorisi & Bush, 2011; Bush, 2012). Professional development is a key driver of school development, which needs to be encouraged and conditions set for it to work effectively (Maestry, Hendricks & Bisschoff, 2009).

The critical feature of this research is to discover that all the participants are lifelong learners, as expressed by some of them in their own words. Mrs Denison attests to the use of manuals that were assisting the principals in supporting them in understanding the areas of development in the school. These manuals were invaluable as indicated by Mrs Denison when it comes to sharing ideas on what and how to engage in personal self-development.

> *Okay I would say the TESM annuals are just like the Bible of the school. It gives you ideas of managing different systems which are there. When looking at these manuals, there is a TESM manual that is talking about administration and safety and security. There is a TESM manual for governance, a manual for curriculum, for the SMTs, the human resource management and how to manage conflict. Some manuals give you an idea on how to manage finances; if used properly they really work out to the best tools as systems if the school has to work effectively and efficiently* **(Mrs Denison).**

The principal of Lungani Primary, Mrs Godide had already started on working on her Continuing Professional Teacher Development (CPTD) file and this was verified on the visit to the school to check on documents.

> *I have done a lot with my CPTD- though it is not easy I am satisfied and carrying on with section A with my details. There are also some answered questions; if you are doing it properly you will not succeed in filling that section. We included photos; the CV is also included. It is so nice to improve yourself by carrying on upgrading. What are some of the community based activities? Many questions are answered; community based questions; the officials they can come and see it, it is all here.* **(Mrs Godide).**

The idea of being a lifelong learner was expressed by two principals Mr Jokozela and Mr Ndonga in the middle of our interviews is an important conscious aspect of personal development.

> *I think though I may not remember because I am a Lifelong learner and reader. I am a completely changed principal like a person who was driving without a license. I would like to impart the knowledge I have acquired. Knowledge is improving daily; we need to provide different programmes. I have just finished a programme called PMDP it has opened my eyes- I realised that there were so many areas I was not doing right* **(Mr Ndonga) .**

Mr Ndonga further elaborated on the latest development about the CPTD roll out plan.

> *In fact IQMS, WSE, CPTD, and PMDP all deal with it is a process not event I should be done yearly, the kids I teach today are not the same. That is why the PGP professional growth plan;- I think I was doing together with PMDP I have already accumulated 20 points. The Principal and the Deputies and the SMT are expected to train the teachers on how to do it- I think we are on the right track. It was easy to tell teachers that it is part of IQMS that is why they showed willingness to participate* **(Mr Ndonga).**

The collaboration shown by teachers in workshops and seminars proves to bear fruits in many countries. Many scholars have done research in this area and their findings reveal that Continuous Professional Teacher Development (CPTD) enhances teachers‘ daily practice and learner performance (Thompson, Gregg & Niksa, 2004; Hord, 2008; Sargent & Hannum, 2009; Blackburn & Williamson, 2010; Mncube, Naicker & Nzimakwe, 2010; Maloney & Konza, 2011; Seo & Han, 2012).

In the course of their professional development, the principals used the Towards Effective School Management (TESM) manuals. There were about twelve manuals which dealt with several topics, ranging from financial management, human resource management, school development planning, curriculum development, norms and standards to mention a few. Mrs Goldstone outlines some of the key aspects in terms of what is entailed in these manuals and how they assist the principals in their journey of professional development.

Mr Jokozela the principal of Thokozwayo Primary expressed what he considered to be the value of using the TESM manuals. The ideals of life long are expressed in the context of the use of such TESM manuals for purposes of capacity building.

> *You will find that each TESM has got a topic, there is one that deals with financial matters, with SGB function, one with templates whereby one has to claim and give vouchers. All of the nine key areas of the whole school evaluation are embraced in those manuals, which helps the teachers. A teacher must always be a life-long leaner. Teachers will not put their foot wrong and need to consult with the seniors. The teacher will always seek for help and consult. This will ultimately result in helping the teacher and eventually the school will develop* **(Mr Jokozela).**

The demands of the CPTD were outlined by Mr Jokozela as some of the following:

> *With the introduction of CPTD, there are new things like educational programmes in radio and TV. We are supposed to collect evidence on our journey of improvement. There is a lot of work and research needed to be done. We try to make a transition towards learner–centred teaching. CPTD is good tool for upgrading the performance. Due to our negligence we think that we can use the cluster system to enhance the CPTD programme. This is based on the understanding that when we work together we always have power. If the cluster systems can be revived we can have a positive impact on teachers and improve the healthy competition* **(Mr Jokozela).**

There is wide consensus regarding the idea that professional development is bound to be successful if it is a lifelong process (Middlewood, Parker & Beere 2005; Robertson, 2008; Steyn, 2010). During this era of education transformation there is a general expectation that the school principal must initiate the facilitation for professional teacher development programmes in schools (Bush & Middlewood, 2005; DuFour, DuFour & Eaker, 2006; Fullan, 2009; Mncube, Naicker & Nzimakwe, 2010; Hilty, 2011). Mchunu (2014) found that there was a policy disjuncture between IQMS as appraisal and also a form of professional development for teachers.

Mr Jokozela indicated the expectations in terms of CPTD:

A rollout of the workshops was conducted with principals. The CPTD workshops were conducted. We are expected to enroll online in order to register in order to access the SACE. We are also supposed to access material, write articles conduct research in order to show the evidence of our professional development. We are credited by SACE and score points by attending workshops. During the vacation we attended a curriculum workshop. Previously we used to come together as a circuit and check each other where we are and respond to the questions that are in the CPTD profile. We need follow up sessions in order to capture information and further develop the Deputy Principals and HoDs **(Mr Jokozela).**

Another view was expressed by the principal of Bramley primary that he has been continuously encouraging the staff members to be engaged in continuous professional development.

Table 5.8 shows the profile of principals in terms of their involvement in professional teacher development.

Table 5.8: Profile of Principals on continuous professional development

School	Principal	Experience	Qualifications	Progress CPTD	Contribution Cluster & circuit
Lungani Primary	Mrs Godide	PL1 (1986) Hod (1997) Dep. Principal (1999) Principal (2003 to date)	JPTD ; FDE (Management) ;Bed	File compiled; work in progress curriculum management	Facilitator Women Leadership;
Gateway Secondary	Mrs Denison	(1990)PL1; HoD (1996)Principal (2001 to date)	STD; Bed; HR Management; Computer; Ace Leadership programme; FDE (Management programme)	File not started Work in progress CPTD-PMDP	
Thokozwayo Primary	Mr Jokozela	(PL1-1990)HOD(2000) Department Principal (2005) Principal 2007 to date	STD; HDE; Ace Leadership Programme-Certificate	File not started Work in progress – curriculum management ; acquired points	Facilitator in Governance

Mbongwa Secondary	Mr Ndonga	PL1(1984) (HoD) (Deputy Principal (1998) Principal (2001) to date	Bed , BA Hons	File not started Work in progress- CPTP – acquired 20 points on PMDP & curriculum management w/shop	Facilitator in Strategic Planning; Development of SIP
Bramley Primary	Mr Goldstone	PL1(1990); Acting HoD(1992-1998) Principal (1998 to date)	Std; Ace Leadership Programme; Bed Hons; B.Theology	File not started	Facilitator in Governance ; Financial Management; governance ; leadership & management Teaching History : at neighbouring secondary school

In the table above the field notes that have been collected shows what the background, the areas of interest, the professional development, the progress with CPTD and the contribution of the respondents to the cluster. There is a growing requirement for the training of principals in order to be equipped to handle the challenges of school development (OECD, 2009; Dempster, Lovett & Fluckiger, 2011). For this need to be plugged there needs to be new models and tools used for such capacity building.

Figure 5.2 below points to the interconnection between teachers, principals on professional development.

Figure 5.2: Systems interconnection teachers and principals professional development

5.3.11 The Functionality of the structures

Literature emphasises the dire need for effective training of governance structures (Mgadla, 2011; Tsotesti, Van Wyk, Lemmer, 2008; Heystek, 2006; Grant- Lewis & Naidoo, 2004; Looyen, 2000, Sibuyi, 1997). Scholars concur that SGBs seem to be the weakest link in the governance of schools, which results in some of their functions being devolved to the educators and principals (Grant- Lewis & Naidoo, 2006). Ngesi (2003) in his study reported that few schools had embarked on the development of School development Plans and the establishment of School Development Committees (SDC). There are a number of structures which are responsible for the functionality of the school. The co-ordination of such structures requires the leadership and management of the principal so that they work towards achieving one desired goal. The Principal of Lungani Primary, Mrs Godide is responsible for the co-ordination of the committees by using the conveners who report on progress to her regarding their allocated duties.

> *It is so easy because we have committees, we have a convener. The convener comes to me and reports on what is happening in her committee. And remember we are doing IQMS that is besides that we have performance standard No7 for IQMS, where they*

have to account for what they do for the community. It is so easy because I am not working alone, for instance there is the Nutrition Committee where they have to account for school development. I am not working alone; teachers report and the Committee conveners also report **(Mrs Godide).**

Furthermore, Mrs Godide clarifies the role of the SDT in drawing the School Development Plan, which tends to be lacking in other institutions.

Then after looking at those spheres you start, then you sit down with SDT and you draw a School Development plan as a whole **(Mrs Godide).**

In the secondary schools the learners are represented on the SGB and also have their own structure. Mr Ndonga explained how the system works at this school, whereby there is a working relationship between the Teacher Liaison Officer (TLO) and the Representative Council of Learners (RCL) who are significant stakeholders at school.

During this process, these two structures are engaged in the formulation of the vision and mission.

The Teaching Liaison Officer (TLO) plays an important role in working hand in hand with the Representative Council of Learners (RCL). The TLO at the beginning of the year works with the RCL and they are given the vision. From that school vision and mission they are asked to come out with a vision and mission which is in line with the school vision. He also sits down with the class rep: each and every class has its own classroom rules. We sell the vision to the RCL, they also form their own in line with the school vision. The TLO sits with class reps and comes with classroom rules and mission of school and their own classroom rules **(Mr Ndonga).**

Mrs Denison emphasised the value of School Management Team (SMT) working collaboratively with the SGB.

For example I could site two issues around the SGB and SMT; there are bodies which are the powerstones or cornerstones of the school- and when looking at these cornerstones of the school if within they have proper systems; if they have proper systems. They have systems they can work around to support the SMT to achieve

through these systems. There could also be sub-committees within the SGB; through which these different systems approaches can enhance the school. At the end of the day we end up with a successful school that is efficient and effective in terms of the whole school development. **(Mrs Denison).**

Furthermore, she expressed the value of working systematically with these structures such as the SMT, the SGB and the SDT.

The SMT leads the curriculum development process; the SGB is part of the process for their buy in and the understanding the process whereby the school wants to venture in. focuses on the development of governance; policy formulation. The SDT committee focuses on the development of the SIP. The SGB works on issues of safety and security **(Mrs Denison).**

In order to ensure co-ownership and accountability by SGB members, the principal of Mbongwa Secondary ensures that every member of the SGB is either a chairperson or else a member of the respective sub-committees.

There are so many committees. For example the finance, at least one member of the SGB must chair that committee, the safety and security committee, the School Development Committee and the one member must be there. Each and every committee which we call the sub-systems of the school. Each and every SGB member of the governing must be a chair or participate as member in these sub-committees **(Mr Ndonga).**

According to Mr Goldstone, the functionality of the school rests on the SMT and SGB structures.

All the systems must be in place, in order to develop the school. For example it has what is known as functionality, the structures the functionality should be there like the SGB the SMT **(Mr Goldstone).**

This was also endorsed by the principal of Thokozwayo primary, Mr Jokozela who believes that these structures need to work collaboratively.

The first thing is first; one has to do is to get all the structures of the school in place, more than anything, the SGB structure, the SMT structure and be able and also the teachers down the organogram to get the ideas from other stakeholders **(Mr Jokozela).**

Figure 5.3 represents the integrated boundary systems of governance, school functionality and curriculum.

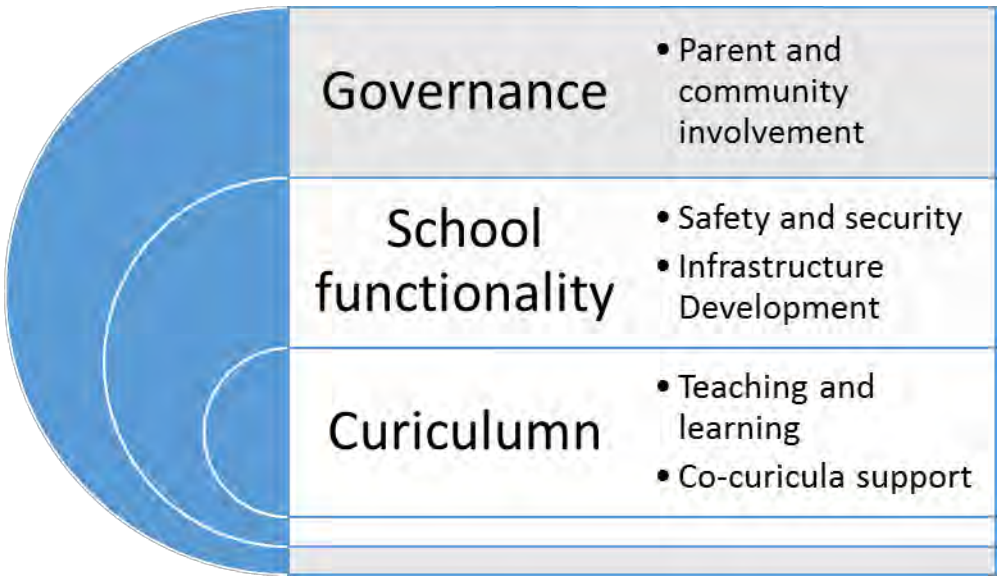


Figure 5.3: Boundary systems of governance, school functionality and curriculum

Table 5.9 below illustrates the sub-committees which have been established at school. These committees and sub-committees are considered as the points of leverage.

Table 5.9: Functional Structures contributing to school development

School	**Structure**	**Function**	**SGB-sub-committees**
Lungani Primary	SDT	Leads IQMS	Maintenance &Building
	SGB	Governance	Safety & Security ; Finance

	SMT	Curriculum development	Curriculum management
Gateway Secondary	SDT	Leads IQMS	Maintenance &Building
	SGB	Governance	Safety &Security ; Finance
	RCL-TLO	Co-ordination of learner activities	Co-ordination of learner activities
Thokozwayo Primary	SDT-	Leads IQMS	Leads school development; strategic planning
	SGB	Governance	Safety & Security ; Finance ; maintenance
	SMT	Curriculum development	Management of Curriculum
Mbongwa Secondary	SDT-	Leads IQMS	Leads school development; strategic planning
	SGB	Governance	Safety & Security; Finance; maintenance
	RCL-TLO	Co-ordination of learner activities	Co-ordination of learner activities
Bramley Primary	SDT-	Leads IQMS	Leads school development; strategic planning
	SGB	Governance	Safety & Security; Finance ; maintenance
	SMT	Curriculum development	Management of Curriculum

Data indicates that the principals were providing direction to their SGBs in terms of their roles and responsibilities which support school development. Findings indicated that principals were taking active responsibility in the building the capacity of the SGBs in the circuit (Mchunu, 2006). Mr Goldstone of Bramsley was the leading facilitator in governance related issues. The figure below illustrates the kind of relationship that exists between the structures of management and leadership and governance. The matrix of relationships and functions are co-ordinated by effective principal leadership. Netshitahame and Von Vollenhoven (2002) posit that the safety of learners needs to be ensured if there is effective management and planning. Studies attest to the challenges faced by SGBs in South Africa in the execution of their duties (Lewis & Naidoo, 2004; Lekalakala, 2006; Xaba, 2011; Davids, 2011; Kani 2000). The governance structures are significant points of leverage (Meadows, 1999; Copland, 2003) for school development that are utilised by the school leadership. In terms of the South African Schools Act of 1996, there needs to be great correlation between the structures responsible for leadership and management, governance at the level of the school. Principalship requires that all of the above structures which are supportive of school development are functional and supporting the school (Heysteck, 2004; 2006; Davids, 2011).

Figure 5.4: indicates the interconnection between leadership, management and governance that prevails in schools.

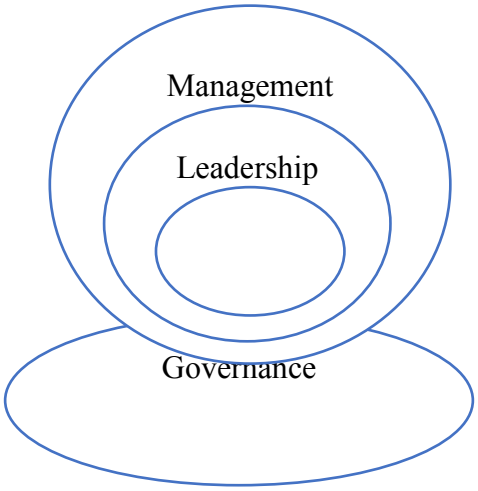


Figure 5.4: Interconnection between Leadership, management and governance

The above structures are show the value of the interrelationship that is needed and what these structures are their contribution to school development. For a coherent and integrated

approach to issues of leadership, management and governance, systemic leadership becomes a critical factor to maximise all the requisite resources towards achieving the common goals and overall vision of the school.

> *There is a lot of planning for example we have this committee called the SDT. It works hand in hand with the SGB. They meets quarterly if need be and monthly; even when we make budgets for the school you also know how much will be sent to repairing the school infrastructure. We also know we that is how is works. The Safety and Security committee it has improved and we have resolved the security challenges with the use of caretaker who stays day and night at school* ***(Goldstone)***.

5.3.12 Participation in extra-curricular activities

Table 5.10 below summarises the participation of the schools in extra-curricular activities. The table also shows the state of facilities for sports and other cultural activities, as well as the level of participation. In spite of the number of complex infrastructural challenges prevailing at the school, some schools are trying their level best to participate. Other noted challenges include the lack of funds to enable the learners to be transported and to get the proper attire and equipment for participation. What is impressive is the entrepreneurial spirit that is displayed by schools such as Lungani primary, who have just won a Provincial Shield in the Cubs completion. If you also look at their profile, they have excelled and were funded by their sponsors Indoni to participate in COP 17 in 2013.

Table 5.10 below shows how schools are participating in extra-curricular activities.

Table 5.10 Participation in extra-curricular activities

School	Sport code	Level of Participation	Scope of Participation
Lungani Primary	Soccer- no proper grounds	Circuit competition	Scouting- won Provincial competition 2015
	Netball- no proper court	Circuit competition	Cultural activities ; boys & girls circuit & district awards
	Drama – singing	Circuit competition	Presented Drama – COP 17 Durban ICC -2013.
Gateway Secondary	Soccer	Circuit competition	Participation limited in scope
	Netball	Circuit competition	Participation limited in scope
	No choral music	School level	Limited participation
Thokozwayo Primary	Soccer- no proper grounds	Circuit competitions	Limited participation
	Netball- no proper court	Circuit competitions	Limited participation not won anything
	Drama – singing	Circuit competitions	Drama presentation to Rock Challenge-Durban
	Athletics- javelin, shot put	Circuit competitions	Competition ends at circuit level
Mbongwa Secondary	Proper multipurpose- netball;	Circuit Completion	Participation beyond circuit

	basketball		
	No proper soccer Grounds	Circuit competition	No choral music choir
	Soccer ladies soccer boys	Circuit competition	Cultural activities- different genres circuit competition
Bramley Primary	Soccer- no proper grounds (rocky)	Circuit competition	Cultural genres- limited participation due lack of finances
	Netball- no proper court (rocky)	Circuit competition	Participation limited by finances
	Choral music taught Cultural activities	School classroom level Circuit level	Financial constraints limit participation Financial constraints limit participation

We try to play tennis like in our driveway. In other schools parents pay more for a teacher for sports. In our case our children are coming from poor backgrounds. We expose our children like visit a place when there is a rugby game in the city we take them to get a taste of what it is about. On Saturday we went to Hammersdale where our scouts participate and won overall in the province. We managed to get position one. The children who are involved in extra-curricular activities like cubs they are disciplined, due to instruction, they easily adapt to any environment for learning when they do the wrong thing you easily scold them and remind td that you are a cub. Scouting helps children to be disciplined the thing the department is concerned about. (**Mrs Godide)**.

The principal of Gateway Mr Goldstone lamented about the state of infrastructure and how it impacts on their plans for improving extra-curricular activities.

> *We participate in soccer and netball competitions at the level of the circuit. We have challenges in terms of facilities. We do not a proper soccer ground. The place is rocky and dangerous for learners. We would have introduced sports such as basketball and other codes if we had the proper facilities. We also play netball in a rocky grass filled field. . Where we can we try to improvise. We would like to have cricket. The learners are participating in choral music; although we do not have a piano. They participate in cultural activities, which have different genres, which requires a lot of money to buy and hire the attire for cultural activities* **(Mr Goldstone)**.

5.3.12 Infrastructure development

The table below illustrates the level of infrastructure development and gives an overall picture as far as this part of the school is concerned. **Table 5.11** below portrays the overall improvements that have been made to the school infrastructure and also the source of the interventions which contributed to such areas of development. SGBs are expected to maintain and improve the school property in terms of the Section 21 of the South African Schools Act (SASA) of 1996. According to Section 21 of SASA, schools enjoy the benefits of selecting their own suppliers, negotiating better prices and discounts, determining the delivery dates for essential goods and services; and taking control over the utilization of state funds deposited into the schools‘ banking accounts (Mestry & Bodalina, 2015).

Table 5.11 illustrates the form of infrastructure and the provider of that infrastructure to the school.

Table 5.11: Areas of Infrastructure Development

School	Status	Area of development	Change in infrastructure	Provider
Lungani Primary	Section 21	Repairs ; dilapidated toilets	School repairs; classroom renovations; Gr R jungle jim;	Department of Education
		No Computers	Computers laboratory	Office of Premier
		Shortage of classes	Hall for teaching	School Development Committee
		No kitchen for Nutrition	Mobile kitchen	Mpisi Group(Indoni facilitated getting the sponsor i.e. Mpisi Group)
		No car port	Car port	School Development Committee
Gateway Secondary	Section 21	No sports facilities	Multi sports facilities	Department of Sports and Recreation
		Dilapidated toilets	VIP toilets	Department of Education
		No library	Classroom library, mobile books for library ; computer lab; science lab; media	School Development Committee /Dept Educ; St Annes ;

			centre	
Thokozwayo Primary	Section 21	No Gr R class	Mobile classroom for Grade R ;jungle jim ; mobile toilet	Department of Education
		No strongroom	Strongroom built ;3 mobile classrooms; affected by storms (Jan- 2014)	School Development Committee
			Grade 5 Story telling competition resulted in price of library building to be built	Msunduzi Municipality
Mbongwa Secondary	Section 21	Shortage of classrooms	9 additional classrooms; multimedia; full equipped laboratory	Department of Education
		No library	Library ; palisade fence ; computers ; books for library ;	School Development Committee
Bramley Primary	Section 21	Broken windows& doors;	Major renovations & repairs ; fencing	Department of Education
		Toilets broken	Needs major renovations ; additional toilets	Department of Education

The above table illustrates the role that was played by the School Development Committees (SDCs) and also School Development Teams (SDTs) in securing the additional infrastructure

provision from the Department of Education and other private sponsors and government departments. The departmental policy documents spell out clearly the duties of the School Development Committee (SDC) and the School Development Teams (SDT). At Thokozwayo Primary, the principal Mr Jokozela painted the following picture in terms of infrastructure development;

> *We started with the conversion of one of the small rooms adjacent to the small office into a strongroom at the top and also a clerk"s administration office. This was done as one of the requirements for obtaining Section 21 status. The Department of Education added one big mobile for Grade R and mobile toilets for teachers. We acquired also fencing from the Department of Education. In January 2014 we experienced a storm, which damaged two classrooms and little office. However, the Department has responded by adding three mobile rooms for teaching purposes, although one of them has falling roof. We have serious challenges with sanitation, which are making life difficult for the number of learners. We do not have any sports facilities in the form of a ground, however we received some donations from Gift of Givers in the form of javelins, and other sports equipment* (**Mr Jokozela).**

Mr Ndonga, Mbongwa Secondary is one school that has uniquely benefitted from the systems thinking approach to school development in term of infrastructure development.

> *By means of the partnerships that we have forged with St Annes we were able to secure donations that led to the palisade fencing. Secondly, the Department of Education, added some classes as it was observed that the numbers of learners was increasing. Another area of development that was the effort of the School Development Committee was the donation that we secured for the mobile library. The Computer laboratory was donated by the University of Qwaqwa by means of the contact that one of our SMT members had with the person who is working at the university. Recently we have requested the SGB to build the car port for staff members. We are working on improving the assembly, we started with the greening the area and paving the whole area. It has contributed a lot towards the improvement of control during the assembly meetings. What we are left with is to get a covering at the top sothat we can continue with our assemblies inspite of any weather conditions* **Mr Ndonga).**

The other issue concerning infrastructure is the maintenance thereof, and also the protection of it from burglary, theft and vandalism from the outsiders. It was also indicated that there is a Maintenance and Repairs Committee that is responsible for looking after the infrastructure. The principal of Bramley Primary, Mr Goldstone mentioned that on his arrival at the school the infrastructure was badly vandalised. This was due to the poor relationships between the school and the community.

> *There was a lot of animosity between the members of the community, the SGB and SMT. As I have mentioned earlier, the doors were broken and there was no development at all. We started by identifying the problem of securing the school promises by building a house for a family person who acts as a caretaker during the day and night. Since then we have not experienced any house break ins. We still have challenges in terms of sanitation. Our toilets are not in a good condition, however we are hopeful since we saw some inspectors from Public Works who came to assess the situation* **(Mr Goldstone).**

The situation in terms of infrastructure at Gateway Secondary was portrayed by Mrs Denison as follows;

> *The School Development Committee by means of its initiative has been able to get the Department of Sports and Recreation to build a multipurpose ground for tennis and basketball. However, due to weather conditions and poor workmanship the surface is now eroded and its dangerous for leaners. There is no library, but through the initiative of one teacher, we converted one class into a makeshift library. The Department of Education built VIP toilets that are serving learners and teachers. As s school with a Science stream we are struggling because we do not have a Laboratory. Even the little equipment that we have been collecting for science is stored in our storeroom. However, we normally receive services such as the conducting of experiments by mobile equipment that is an initiative of Vuka an NGO initiative from Maritzburg Boys College* **(Mrs Denison).**

The shortage of infrastructure impacts negatively on teaching and learning as well as the development of the whole learner in terms of aesthetic and physical development. The provision of resources for effective teaching and learning works when there is joint

partnership between the Department of Education, the District offices and the parents. The Department of Education established the School Development Committees with the responsibility of mobilising resources, fundraising for school programmes such as sports and fundraising. In an article in the Mail & Guardian (2014) the Equal Education (EE), an NGO focusing on the issues of equity in infrastructure provision challenged the Department of Education on the statistics that are provided on infrastructure. The EF also outlined its plans how it was going to upscale its campaign against inequalities in infrastructure in the education sector. Infrastructure development is one of the hindrances to quality provision of education in the less developed schools. The infrastructure backlogs are due to the inherited inequalities and imbalances that will live with use for a number of years, due to the limited funds to address them.

5.4 Documentation Based Evidence

During the process of interviews I checked whether the principals were prepared to allow me to view some of the pictures and documents that were visibly on the walls. The principals were prepared to even go an extra mile and show me some of the pictures which were in school albums, some were saved in their computers as gallery. Furthermore, they showed me some documents which were in support of what they had reflected on in terms of the questions that were posed to them. The paragraph below further tells the story of what I considered as another source of data concerning the reflections.

5.4.1 The Value of Journaling

Scholars consulted concur on the value attached to the use of journals, although these may be used differently and for achieving a multiplicity of purposes. McMillan & Schumachi (2006) supports the value attached to the use of the journal as tool for record keeping. Towndrow, Ling & Ventham (2008) agree that journaling allows the researcher to produce information that is generated from the data by means of written narratives from the participants (Faziah, 2008; Sharil & Majid, 2010). It assists in verifying the co-learning and co-researching between the respondents and the researcher, however training is critical for the success of this learning journey. I observed that the principals were not necessarily using diaries as part of reflective practice. The normal practice is that not all of them were using their dairies for

purposes of planning and taking notes when they had attended meetings. The skill of reflection on practice, as a thinking skill is not normally practiced for purposes of checking one‘s assumptions, beliefs and also practices that needed to be improved. I made a follow question on how they were practicing reflection in their journals as part of the requirement for continuing professional development (CPTD). All of them were not assigning time for reflection as a skill.

The principal Mrs Denison kept a journal which she used for planning, reflection and also keeping notes of all the meetings, the discussions that she has with most of the stakeholders. The journal also served as a diary to tracking the developments at the school. I remember when this journal was checked; Mrs Denison discovered that there was one NGO which she had forgotten which worked with the school. In our initial interview Mrs Denison had indicated that she was keeping a journal and she was going to avail it on our next visit. In this diary she recorded most of the daily, weekly and monthly and yearly events and occurrences. The journal dates all the issues way back to 2010. The other respondents use dairies for noting of meetings; records of daily things happenings and the appointments for meetings.

Table 5.12 below indicates the records which include documents and pictures which support the school development.

Table 5.12: Support documents, pictures

School	**Type of document**	**Representation**
Lungani Primary	file for CPTD ; Sips; vision& mission; pictures article; New Age	Cope17;Computer Launch; Gr 4 Farewell ; newspaper article on school ; Climate World Summit ;Kitchen Opening & NTA Award for Gr R teacher
Gateway Secondary	Journal; File for CPTD; SIP; year planner;	Reflections ; records of events; tree planting; Arbour Day; Grade 12

	pictures[events] certificates of achievement ;	Farewells
Thokozwayo Primary	Diary; Gr 7 farewell; mission & vision; Sip ; year plan; pictures ; achievement certificates;	Pictures of Hiv/Aids Durban event; Grade 7 Farewells
Mbongwa Secondary	Diary; Pictures; vision& mission; Sip; year plan; pictures[events]	Networking with overseas ; library set up; media centre ; computer centre; Awards; newspaper articles about the school ;donors; events captured; Gr 12 matric ball; ex-students ploughing back; Welcome Spring Day
Bramley Primary	Dairy; Sip; vision & mission ; year planner; pictures [events]	Heritage day;

The journals are used for reflective practice which assists in keeping records.

5.5 Challenges of Working with Systems Thinking

There are different opinions in as far as the challenges of working from a systems thinking perspective. The Principal of Gateway secondary, Mrs Denison considers the change in mindset and involvement of stakeholders as some of the challenges of using a systems thinking approach.

> *One challenge some people might not be able to see the value and impact in terms of how systems work; it deals with projects working towards the same goals. I do try to involve the people that understand the system in different teams in order to influence; they may not be aware that they are fusing new ideas in the teams but they are get involved they infuse those ideas. No two the other issue is mindset change, in Systems*

Thinking you do not work in silo; you use different systems to work towards achieving the same goal. The mindset can be a hindrance to achieving the desired goal **(Mrs Denison).**

The principal Mr Ndonga of Mbongwa Secondary mentioned these challenges as follows;

The major challenges is that in systems thinking is like a chain, so every block must be do its work immediately each block comes out the whole systems will be must be connected. Sometimes if other subsystems are not functioning. As a result there was a year I cannot remember well in what year ten years ago. We got less than 50% percent unfortunately we were unable to see the problem. We were not wise as we are now in terms of understanding the systems thinking approach. With regard to Systems Thinking Approach each and every system is very important. If it does not perform its function it will crumble **(Mr Ndonga).**

Mr Jokozela also expressed his views about the challenges of using a systems approach;

Every system has to be function at school because they are integrated. By the systems thinking approach you are able to check both the internal and external issues. You understand why at times teachers need for an example to be motivated as well as the learner. There is also a need pastoral care. Another difficulty is to change the mindset of people and also the value of working as a team, there are people who do not want to work as a team. The issue of managing time is a problem. You need to make time for extra classes. Otherwise a systems approach assists you in working smart, promotes collaboration. It enables you to compare the old school of thinking with the new ways of doing things. One is also able to work independently and also collaboratively with others **(Mr Jokozela).**

Furthermore, Mrs Godide added the following as the challenges;

There are things that we see as challenges make demands on time you have to convince teachers to stay behind preparing for the forthcoming day and whatever you to have to do. It needs sustainability everyone. As you know people take time to

understand what you want them to know. You cannot throw those people away; because those people they end up get excelling **(Mrs Godide)**.

The challenge in systems thinking is the understanding of the theoretical framework. The different models of systems are complex for some people to understand. The Soft Systems Model with all its stages is not easy to follow for others. The use of systems tools for purposes of conducting analysis is quite a complex process as was also observed with the respondents. All the respondents were exposed to the different kinds of systems tools as well as Soft Systems Methodology (Mchunu, 2006) whereas it could be noted in this study that there is no evidence that they were using the CATWOE, Rich picture, influence diagram and iceberg, as tools for thinking in their strategic planning and school development activities. The challenge for systems thinkers is identifying the high leverage strategies required to enhance school improvement. Understanding school development means acquiring and applying the skills in identified high leverage points (Hargreaves, 2001; Meadows, 1999). These challenges need to be handled by increasing the capacity of school leadership as suggested by these scholars (Hargreaves, 2001; Copland, 2003; Davies & Davies, 2004; Morse, 2009). Considering the above as school development outputs and outcomes, I am concluding that there are benefits that were accrued in the use of systems thinking approach. Studies cited also support the view that there are benefits attached to the efficacy of systems perspective to school improvement (Senge, Cambron-McCabe, Lucas, Smith, Dutton & Kleiner, 2000; Thornton, Peltier & Perreault, 2010; Thornton, Shepperson & Canavero, 2007). However, there is scanty of literature in South Africa to support that view, although in other fields and disciplines such as health, systems thinking is an established framework.

Considering the barriers to upscaling education reforms, scholars concur regarding the conceptualisation of systemic leadership as the driver and catalyst towards improved school development (Cater, Bond & Franey, 2006; Hargreaves & Shirley, 2009; Bolden, et al., 2011; Depress,2013; Fullan, Cuttress & Kilcher, 2009a; Fullan, 2007; 2010; Ash & D'Auria, 2012).

5.6 The Benefits of Using a Systems Thinking Approach to School Development

The application of systems thinking to different contexts is understood to be its efficacy, as already demonstrated in the literature reviewed. The interdisciplinary character of systems thinking as a paradigm is known and is used in a multiplicity of areas and systems of interest. This paradigm is used in areas which are considered to be complex in order to show the nature of the system and its relation to other sub-systems, hence the interconnections that go with it when analysis is conducted. The purposive nature of school development requires systems thinking to be applied in order to show the other interconnections with sub-systems. A systems theoretical framework provides the lens needed in order to understand the existing complexity prevailing in school development. School development is a system with a complexity of human activities taking place in different contexts which justify an approach and understanding of the nature of systems thinking.

Most of the participants indicated their use of systems thinking to school development in terms of the school context. The circumstances which prevailed in each school were different, the rural schools however, showed common features which the principals indicated as their areas of development. The most common feature of systems thinking related to the strategic planning, the process of school development, curriculum development, teaching and learning, cluster co-ordination and networks, partnerships for school development, handling of social ills, partnerships with NGOs, handling social ills, continuous professional development, functionality of structures, the value of journaling and challenges of using systems thinking. The principals in these schools developed strategies to implement school development and to provide leadership in facilitating the process of implementing the holistic approaches to the school. School development is implemented in a climate where there is open communication systems, interdependence and cohesiveness (Keshav, 2006). Studies support the role of NGOs in supporting school improvement in diverse interests which include addressing social ills, developing infrastructure, providing resources, supporting the curriculum and other aspects leading to school development (Grandvaux, Welmond & Wolf, 2002; Khamba, 2006; Jagannathan, 2001; Mazibuko, 2000). The following discussion focuses on strategic planning as sub-system of the broader understanding of school development.

In spite of the reported challenges of working from a systems perspective, there are notable benefits as indicated in **Table 5.13** summarises the benefits that have been accrued in terms of the use of systems thinking to school development.

Table 5.13: Summary of benefits of STADE

Benefits of STADE to school development			
Infrastructural	**Curriculum**	**Financial**	**Social**
1. Library 2. Computer lab 3. Toilets 4.Grade R Classes 5. Tree planting 6.Painting premises 7. Media centre; library ; laboratory	1. Reading 2. Lesson plan 3. Teaching aids 4. Practice of IQMS 5.Curriculum management 6.Curriculum interpretation	1. Budgeting 2.Finance committee 3.Bank reconciliation 4.Procurement processes 5.Annual financial statement	1.Teenage pregnancy 2. Drug abuse 3. Crime prevention 4. Sexual abuse 5. lowered risk of infections

5.7 Conclusion

A study of this nature does not propose to be a panacea and a way of providing quick fixes to the problematic issues prevailing in schools (Senge, 1999; 1999). A system thinking approach fosters rather a collective understanding of the problem situation and a lens that lends itself to critical analysis. Systems lenses are subjective and reality is socially interpreted and constructed, yet also allowing a diversity of interpretations. It is a process oriented study which offers training to participants with tools to forsake the quick fix approach, as is often the practice in positivist thinking. It does, offer the principals an understanding of the how

schools can be perceived as complexity systems that are influenced by the prevailing contextual factors in which schools are located.

Central to this chapter is the presentation of the data in response to the main themes that emerged during the examination of the meaning of systems thinking, use of systems thinking in school development, the benefits of using the systems thinking approach to school development and the challenges thereof. In this chapter the themes that emerged from the study are presented as understanding of systems thinking, curriculum development, the teaching and learning, strategic planning, partnerships for school development, continuous professional development, the integration of systems WSE and IQMS, the functionality of the structures, social ills and challenges. In summary theoretical and empirical understanding of systems thinking as discussed in relation to its conceptualisation and efficacy in school development was presented. The issue of context also plays as significant part in the use of systems thinking as an approach to school development. The level of understanding systems thinking as a conceptual framework varies from one participant to the other. What needs also to be considered in this study is the complexity and depth of systems thinking as a framework, in policy implementation. The potential of systems thinking as a potential framework for use in school development is argued to

be a useful tool to assist and understand schools as complex human interrelated and human activity systems. The next chapter will be an analysis based on the similarities and differences emerging from the patterns as presented in the previous chapter. As part of the discussion the analysis will also present the intricacies of the school sites.

CHAPTER SIX
PATTERNS THAT EMERGED FROM THE DATA

6.1 Introduction

In Chapter Five, I presented the data gathered from interviews with principals. It featured descriptions of themes emerged. Building from those themes, I weave the discussion on the basis of current literature and the theoretical framework. The emerging themes cover key elements in school development as envisaged in this study. The themes reflect on the experiences of the five principals on their understanding of systems thinking, how they used the systems thinking approach in school activities and the benefits thereof, and what they consider to be challenges of this approach.

The purpose of the study is to examine the use of systems thinking by principals in school development. In this section of the study, I analyse by comparing and contrasting the responses of principals on the questions. In executing this task I will first present the setting of the study. The purpose of this chapter is to cohesively present and analyse different themes according to the responses. As outlined in Chapter One, the linear and reductionist way of thinking and activities conducted in schools hinders and constrains school development. In this chapter I attempt to weave and align the reviewed literature, theoretical and methodical insights that shed light on the themes that emerged from the study. In the following discussion, I attempt to discuss the emerging patterns from the data gathered by analysing the similarities and differences between the responses of participants.

6.2 Overview of emerging themes

In this study there are a number of themes that emerged with regard to principals understanding of systems thinking, the application and benefits of systems thinking and the challenges thereof. In this section I analyse the observed similarities and differences between the emerging patterns from the five principals and the five school sites. A list of themes that emerged that deserve analysis is presented as follows as the conceptualisation of systems thinking the efficacy of the systems thinking approach to school development, the challenges of using the systems thinking approach to school development. There marked differences in principals understanding of systems thinking, whilst there are a number of similarities in the application of such in school development. In the presentation of school profiles in Chapter Five, it can observed that there are similarities and differences between the five schools in terms of size, PPN and enrollment, although these schools are located within the same local circuit area. All these schools have attained Section 21 status, which this study needs to indicate that it was due to a process of engaging in school development to reach that goal. All the schools are located in rural communities, although they are making great strides to improve inspite of those challenges.

6.2.1 Conceptualisation of system thinking

Differences were noted in the way the five principals conceived systems thinking. Mr Ndonga indicates the understanding that systems are hierarchical and complex. Mr Goldstone used the metaphor of a security to describe his functional version of system thinking which is also indicative of his uniqueness in providing such an interpretation. Mrs Denison considers school development as a journey, an idea that needs to be embraced in all schools. This idea was also echoed by Mr Goldstone who sees it as a journey fraught with many difficulties. All the principals agree that there are challenges linked to school development. The structural and functionalist approach to systems is confirmed by the explanation given by Mrs Godide, how she understands systems. The kind of thinking is linked to the mechanical approach from which systems thinking as evolved from as it embraced by Mrs Godide. Looking at systems thinking from a structural perspective indicates the prevalent mindset in schools. Mrs Denison observed that systems are significant in terms in attaining the set

goals of the school. The utilitarian nature of thinking supports the mechanistic thinking located in schools. The principals understanding of systems thinking is influenced by the complexities and contextual factors prevailing in the different sites. The understanding is not based on an academic and deep theoretical background as these principals were not exposed fully to systems thinking in their professional development.

Mr Ndonga in his explanation demonstrates the transformational and distributive style of leadership which is in line with systemic leadership. The explicative manner in which Mr Jokozela clarified the activities attached to systems tells the story of what are the practices at Thokozwayo Primary during the course of their school activities. In a different vein, Mr Jokozela raised the issue of looking at the school as a system. He spells out clearly the roles and responsibilities attached to the engagement in strategic planning. In systems theory there is a plethora of metaphors that are used to show how people think and perceive reality differently. The language used in systems theory needs to be shared without complication for people to get acquainted with it. Language guides and assists if simplifying reality and abstract concepts. The language used demonstrates the simplistic and linear understanding of systems by the principals.

6.3 Efficacy of Systems Thinking

Data on the efficacy of systems thinking can be grouped in terms of the application of its principles and also how it benefitted the schools. The application of systems thinking approach in school development activities covered a wide range of aspects. These are aspects which demonstrate how the principals applied their understanding in the school context. From another perspective, the application of the systems principles influenced the decisions and activities in which the principals engaged their leadership. There are observed outputs which can be considered them as indicating the benefits for using a systems thinking approach to school development. Comparatively, all the five schools benefitted from the leadership that was demonstrated by the principals in applying systems thinking in practice. The application of systems thinking principles was checked against the strategic decisions, the planning processes and projects that schools were engaged in order to improve the school. There are similar and different approaches that these five principals used in their engagement

at different sites. The tables that were presented in Chapter Five could attest to some of the findings and conclusions of the study. In the following sections I will be discuss both the application and considered benefits which were accrued from the use of systems thinking in school development.

6.3.1 Strategic Planning and School Development planning

In the application of systems thinking to strategic planning there are observed similarities and differences amongst the five principals. A common observation amongst all the five principals was the use of SWOT Analysis as a tool for conducting strategic planning. All the five principals prioritised strategic planning as a key a requirement for engaging the stakeholder views on school issues. All the principals demonstrated that they were aware of their role as strategic thinkers for their organisations. All the five principals consider strategic planning as a key feature of school development. This thinking is in line with understanding systems thinking principles which place value on the engagement of stakeholders in decision making. However, the difference is the outcome of and output of the strategic planning between these schools. A key characteristic of Mr Ndonga is the skill that he acquired on strategic planning, for which the benefits are noted in how the school has improved. Strategic planning has changed due to the influential and dominant theories at particular periods of the historical development of the dominant paradigms. All the five principals prioritised that value of conducting an environmental analysis. All the principals consider that at the center of organisational development is the place of strategic planning that sets the direction which the organisation takes. All the five principals involved the stakeholders during the process of conducting strategic planning. There is an indication that two schools are distinct in terms of the acquisition of the benefits of their school development plans. Lungani primary and Mbongwa secondary acquired the most benefits when it comes to assets due to the strategic leadership of the two principals. This can be attested from the tables that were presented in Chapter Five.

As I have indicated the thinking that prevails at that particular time influences the manner and form of the organisation. These observations emanated from the data that was gathered. Basically all the principals were using SWOT Analysis as a tool for conducting the

situational analysis. This is also a confirmation of the kind of training that principals were exposed to during the advocacy campaigns for school development.

Mr Ndonga understands the language of systems although in a simplistic manner. By systems he referred to the administration policies, the structural systems such as committees that are supposed to exist at school level. Mr Ndonga understands significance of the interrelationship between the three tier systems of the education department, which includes the province, the district and the school. The practice at Lungani Primary is explained in detail by Mrs Godide in terms of what happens. The whole school development approach requires that work at the school be coordinated internally in order to identify the key areas of school development. Mrs Godide expanded on the strategic planning process as practiced as Lungani Primary. Mrs Denison uses questionnaires as an innovative way for gathering the views of stakeholders at Lungani primary.

School development planning is an iterative process starting which is preceded by subject improvement planning. Mr Jokozela's statements show the consultative process and the elaboration that the school has to go through during the strategic planning process. There is an indication of principals providing leadership in terms of strategic direction. However, observations are that a proper situational analysis is hindered by lack of support and time constraints. Mr Goldstone emphasised the value of collaboration and also the establishment of functional structures to drive the process of school development. Mrs Denison is very explicit about the way the school needs to develop the curriculum as part of their identified priorities. Mrs Denison goes to the extent of clarifying to the parents the value of science stream which was introduced when the school was upgraded to introduce Grade 11 to 12.

Most of the mechanistic and total quality management approaches to strategic planning rely solely on SWOT as the tool for thinking. The single loop and unilear approach to strategic planning is prevalent in most organisations. The observation in these schools is that principals could not use the other tools for conducting situational analysis. There is evidence in the previous research (Mchunu, 2006) that principals were exposed to the use of the iceberg tool and the CATWOE as some of the systems tools. Innovative thinking and organisational learning are hindered by single loop thinking. Systems dynamics approaches

offers diverse tools for conducting strategic planning. The key factor to the introduction of these thinking tools is a positive mindset for change and learning in organisations.

Strategic planning is a microcosm of school development planning which is a long drawn out process with an expected outcome. The whole process of engaging in strategic planning is a journey in the process school development planning. In the discussions with principals of school there is consensus in the fact that schools are engaged in strategic planning, however unique the school development plans may be to each individual school. The identified priorities may not be the same from one school to the other, due to the unique manner in which these schools find themselves and particularly the strategic leadership of the principal involved.

Due to the exposure to training in strategic planning, Mr Ndonga attests to how it has transformed the way he has viewed school development planning. Mr Ndonga confirms how school development planning has pervaded and influenced the way the school is led and the benefits that have been accrued thereof. Mrs Denison strongly believes in the involvement of all the stakeholders and she always puts emphasis on curriculum development, which has become the core function of school development. Mrs Godide identifies the stages that are implicit in strategic planning and mentions all what they normally do and the timing in strategic planning. All the five principals valued the whole school development planning approach which is based on the process of identifying the areas of development after considering the nine key areas of the school as prescribed in the Whole School Evaluation Policy documents. Mrs Denison suggests that the nine key areas of school development and she prioritises those which they begin to work with in school development planning.

The process of school development requires an understanding of the interconnections of the different areas that come to make up the school as a system. With the use of the systems tools one can uniquely portray the influences between the different sub-systems and show how they link and connect with each other to illustrate their interdependence. The basic process of school development planning is presented in all the TESM manuals that were used to assist principals in conducting strategic planning.

6.3.2 The Integration of systems WSE and IQMS

Closely linked to the above areas is the thinking that prevails amongst all the principals in terms of understanding a holistic approach to the implementation of WES and IQMS. The five principals recognised the value of integrating the three systems, i.e. Whole School Evaluation, Developmental Appraisal System and Performance Measurement during the process of strategic planning and school development planning. All the five principals used a holistic approach in conducting school planning as illustrated in Figure 6.1 below. The Figure portrays the interrelationship between the three sub-systems, as drawn from the principals understanding of the interconnection between Whole School Evaluation, Performance Measurement, and DAS. **Figure 6.1** illustrates the interrelationship between these three systems.

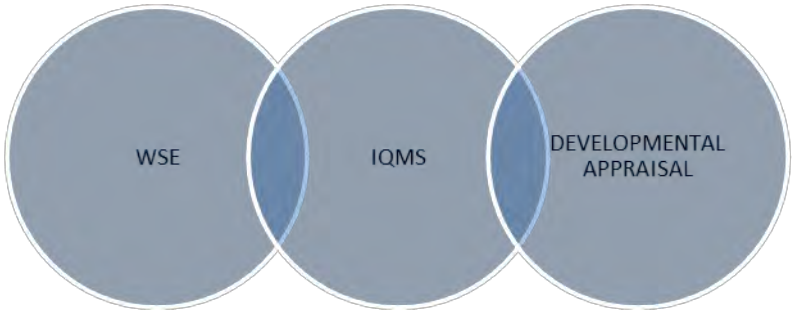


Figure 6.1: The Interrelated Systems WSE, Performance Measurement and DAS

The synergistic approach used by Mr Ndonga in working with both IQMS and WSE shows how a systems thinking approach ensures school development. Mrs Godide creates the conditions for teaching and learning in the interest of the teachers as part of professional development, which is a key element of IQMS. Mrs Denison highlighted the idea of interconnection between the existing policies of Whole School Evaluation (WSE) and Integrated Quality Management Systems (IQMS) and the interrelationship that exists between these systems in order to establish in a holistic perspective to school development. Mrs Denison clarifies the role of IQMS as a catalyst for working on the identified nine key areas prioritised for school development, although there is an element of focus on key aspects of the school system. Mr Goldstone in his approach also brought in the whole school

evaluation perspective to the development of the school. According to Mr Goldstone, this holistic approach to school development also shifts to the areas such as finances which are considered as priority elements for the school to develop.

During the process of strategic planning Mrs Godide indicated that the SDT starts by working on the nine key areas utilising the WSE tool for analysis. In a different vein Mr Ndonga, expressed that these two systems WSE and IQMS are integrated and their tools are used to complement each other. Mr Ndonga has a vibrant Strategic Planning Committee that drives these processes at the school; they have been able to achieve a lot in school development as indicated in **Table 5.5.** Mr Goldstone arranged that the working of the SMT and the SDT be in line with the identified needs in terms of the WSE and IQMS. An integrated approach to school development by these structures makes school development to be calculated and directed as provided by the principal and SMT. According to Mr Jokozela due to the unique situation prevailing at his school, they do not have the luxury of working with a number of structures as envisaged in WSE and IQMS. The idea of integrating these programmes is built in the IQMS policy although it has been very difficult for others to implement it. There is concurrence in the application and interpretation of the WSE and IQMS policies.

In the next section the analysis focuses at the role of principals in improving curriculum development through teaching and learning.

6.3.3 Curriculum Development and Teaching and Learning

Closely linked to the above discussion is the distinct role that is demonstrated by all the five principals in developing the curriculum and also improving teaching and learning. At the center of curriculum development is teaching and learning, which ultimately leads to improved learner performance. In that regard the principals were assigned different roles in terms of their depth in understanding and interpreting curriculum. This is attested by the information provided in **Table 5.7** in Chapter Five**.** In that table it is indicated which principals were contributing to the development of the curriculum, as well as the manner of their involvement. Besides the table what also transpired are the strides that were made which contributed towards curricula improvement.

The two school principals were adventurous in their involvement in curriculum development by taking strides in taking the school forward. Mrs Godide recalled that Lungani Primary was sponsored to attend and present a drama on climate change at the COP 17 Summit in 2013. The Grade 4 learners were chosen after the sponsor saw them performing abut climate change during the school's Grade 4 Farewell Function that is held annually at the school. On the other side, Mrs Denison points out how eight learners at Gateway Secondary were chosen by Moses Kotane for their outstanding performance and they were awarded bursaries. She further claims that the school results have improved from 58% when they started with their first Grade 12 presentation in 2012. Mr Ndonga on the other hand, indicated that they are also doing well in teaching and learning and the learners are showing this by their performance. This is also supported by the improvement in matric results to 100% in 2013 and the unique way in which the school has improved its enrolment and the collegial manner in which teachers work at the institution. Mrs Denison has been instrumental in assisting principals in conducting training on curriculum management. Furthermore, Mrs Denison designed curriculum management tools which she shared with other principals and members of her cluster.

The issue of going the extra mile in schools that are functional is supported by almost all the principals. Mr Jokozela reports that teachers at Thokozwayo Secondary also come very early and leave very late in order to attend to the learners who are struggling with their subjects. Moreover, Mr Jokozela recalls how they work with learners and engage them in educational excursions as part of improving the quality of teaching and learning at the school. The profiles of principals also show that Mrs Denison of Gateway Secondary played a critical role in assisting other principals in the interpretation of the curriculum. The idea of working by setting targets which is stipulated in the schooling 2025 National vision is slowly taking off in most schools as evidenced by the statement made by Mr Jokozela.

The idea of working amongst the principals in strengthening the curriculum eventually assisted other principals to be able to report back to their staff members on how they understood the implementation of curriculum. Secondly, the other benefit was also to the way all these principals became peer members for each other at the level of the cluster when it

was time for IQMS appraisal. The benefits that were accrued from this approach led to the principal teaching lessons in their schools, besides focusing on the management of the curriculum. During the appraisal period for IQMS all the principals were normally found ready to present their curricula files and present lessons, which the researcher was able to observe with a peer from the cluster. In this way the implementation of IQMS was strengthened in most of the schools.

The centrality of teaching and learning is a great feature of school development as demonstrated by the participants. It is evident from the data that teaching and learning was viewed as the core business in each of the five schools. The basics of good teaching, as defined by the respondents, are followed to the latter by all the schools. Teachers are going the extra mile in terms of executing their professional duties. As a result, there is improvement in the performance of the learners. Teaching is the core business which is the focal point for improving the school. It is supported by the SMTs who monitor of the curriculum. The SMTs are assigned this role as the main custodians of the curriculum development. Even the clusters are supportive of the curriculum and there seems to be broad consensus that everything centers on the curriculum.

At Lungani Primary, Mrs Godide introduced the teaching of basic computer skills to the Grade 1-4 learners. She consulted a number of schools which were teaching basic computer to get the syllabus. After being assisted by these schools she created a slot in the timetable for teaching basic computer to Grade 1-4 learners. During the IQMS appraisal the researcher can attest to how he observed her teaching these learners in the computer room. Mrs Ndonga organises a number of teaching and learning workshops at her school, where teachers meet to be trained in curriculum interpretation. Mr Goldstone, the principal of Bramley Primary considers the SMT as playing a significant role in monitoring teaching and learning, which part of the functionality of the school. He further states that structures such as the teachers, the SMT and the SGB are significant in the ensuring that teaching and learning takes place in a conducive atmosphere. Mrs Godide attributes the reason for the increase in school enrolment the quality of teaching and learning. This can be attested by closely analysing the statistics in **Table 5.2.** In 2013 the SGB recruited an English speaking teacher for Grade R. This teacher introduced English as Language of Learning and Teaching (LOLT) which encouraged parents to bring their learners to the school. In 2014 she entered for National

Teaching Awards (NTA) Awards for ECD and won that category at National, which also improved the profile of the school. The parents were impressed and they have a belief that if their Grade R children are able to speak English they are receiving quality teaching and learning. This can be attested by the sharp increase in the number of learners in Grade R, which culminated in the increase of the enrollment every year as observed in **Table 5.2.** In most of the schools, the participants attribute the achievements in school development to the dedication and passion demonstrated by the teachers.

There is an indication that through IQMS teachers are monitored in terms of their lesson preparation and learner performance. Mrs Godide explained that she also forms part of the School Development Team (SDT) in order to ensure that the she monitors teachers to assess how they are conducting their teaching and learning. Mr Ndonga mentioned that as part of professionalism, time on task is emphasised and monitored by the SMT that it is observed.
Mr Goldstone of Bramley Primary also indicated how they have worked tirelessly on improving the culture of teaching and learning, considering where they are coming from when he arrived at the school, seventeen years ago. Mr Jokozela, the principal of Thokozwayo primary shared how he has also worked with staff members in sharing skills on how to interpret the curriculum and improve teaching and learning. He also teaches a number of classes as part of his workload because the school is small in numbers. Mr Jokozela also shares his skills by teaching Economics to Grade 12 learners voluntarily in one of the secondary schools within the cluster and beyond. This shows the level of collaboration amongst these principals to improve the Grade 12 performance across the circuit. Mr Ndonga also takes his share of the workload by sharing with the Deputy Principal sections of the History subject. He pointed out that they go to the extent of conducting observations of each other whilst teaching some sections as part of staff development and sharing their expertise. At Mbongwa Secondary, teachers are required to use the available media facilities, library and IT related facilities in order to move towards learner centred teaching. Mr Ndonga claims that teachers changed their method of teaching from focusing only on the textbook and chalk SGB methods. With the improvement of the infrastructure and other curricula support, Mr Ndonga indicated they had to align their teaching style to the use of curriculum support in the computer laboratory and also use other facilities to improve teaching. The commitment of teachers has been identified as one of the benefits of school

development. Teachers conduct extra tuition classes in order to finish the syllabus and assist learners who have challenges with learning.

Figure 6.2 indicates the relationship that exists between the different elements as it is expressed by the participants in their execution of school development activities. The participants demonstrated leadership in driving towards improving infrastructure that is used for teaching a learning purposes. It also shows that interconnection between these elements in terms of the influence they have on each other.

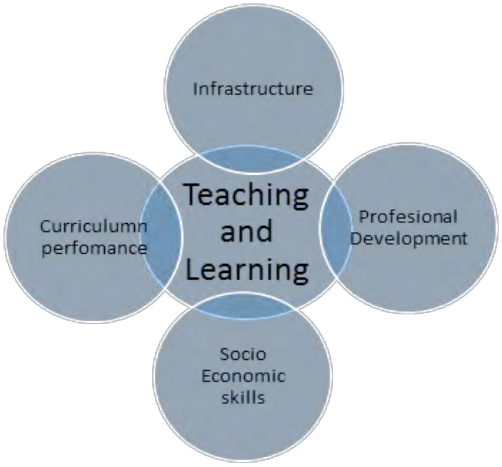


Figure 6.2: Systems map interconnected infrastructure, teaching and learning, professional development, curriculum performance and socio-economic skills

6.3.4 Cluster co-ordination and networks

Cluster co-ordination has been the strong point of the circuit which improved the systems of communication and development amongst the school principals. Through the cluster system there was a high level of collaboration and collegiality amongst the principals. All the principals made a contribution to the different clusters they were located in and also to the principals circuit development meetings. These views were expressed by the following principals in different ways that suggested their involvement.

Mrs Godide expressed the view that through the cluster system, principals go to the extent of giving each other emotional and practical support by going to the extent of sharing the resources they have. The contribution made by Mrs Godide to the cluster was the hosting of meetings to be held at the Computer laboratory which also assisted in cluster workshops. In the clusters Mrs Godide provided leadership and encouraged other members to meet regularly in order to share experiences as schools. Lungani Primary provided the meeting space for cluster teachers, SMT members and principals for different kinds of workshops. The contribution of Mr Jokozela in the cluster added value particularly to leadership on curricula issues. Amongst others Mr Jokozela improved the relations between the principals and teachers of the cluster by working collegially on governance areas of development. The discussions that were held within the cluster covered a wide range of aspects, from curriculum management, financial management to governance. In the **Table 5.6** the roles of the respondents are briefly stated. Mrs Denison contributed to the circuit and cluster level in presenting on curriculum management and also its interpretation. A number of workshops were organised for principals where she shared on the curriculum tools she developed at school. Mrs Denison and Mrs Godide happened to belong to the same cluster, although they are heading a secondary and junior primary school respectively. Consequently, this was one of the most effective and influential cluster in terms of meetings that were held and the progress that was made on areas of school development.

Mr Jokozela played a meaningful role in the cluster by co-ordinating the members of that cluster. Furthermore, he was responsible to assisting the neighbouring secondary school within the cluster by teaching Economics to Grade 12 learners. He was also requested also by another secondary school to offer similar services in another cluster. Mr Ndonga was a key factor in the co-ordination of another cluster of schools. He played a pivotal role in mobilising principals in that to work on IQMS implementation. Mr Ndonga was also a leader of this cluster where he was assisting with strategic planning and sharing on how to develop the School Improvement Plan (SIP). The evidence is shown by the results that are indicated in **Table 5.9** for infrastructure development. Mr Goldstone, of Bramley Primary has contributed to the cluster where the school is located. Before moving to principalship, he used to teach history secondary school. As part of his contribution to the cluster Mr Goldstone was assisting learners in some sections of History at the neighbouring school.

This was a great initiative which bore tangible results, although it was not sustained. Mr Goldstone assisted cluster schools in conducting workshops on financial management and governance. Other clusters also invited him to conduct workshops on financial management and governance.

Comparatively, the clusters are working differently as will be noted in the above discussion. On further follow up on the sustainability of these clusters, it was indicated that the vibrancy with which they worked waned. Generally speaking the respondents reported that the clusters are no longer active and vibrant as they used to be. Consequently, this has hindered the ongoing improvement within the circuit and other circuit initiatives such as the implementation of CPTD.

6.3.5 Partnerships for school development

All of the principals are working tirelessly at identifying partners to assist the schools with resources and expertise which is in response to the priorities in the school development plans. The level of learning in practice is at the principals meetings, the use of TESM manuals, the ACE Leadership programme and they also share such knowledge with other colleagues in clusters and across the circuit. From the observation in **Table 5.5** the partnerships that have been forged are of a mixed nature, ranging from working with government departments, private companies and NGOs. Lungani Primary has distinguished itself by continually working even with government departments such as Health, Correctional Services and Social Development. The above mentioned sister departments to education bring services which are of benefit to the school. Lungani Primary is a Health Promoting school, where clinics are provided on cite for the learners. The school ground is cut by the inmates from the local Correctional Services. Social workers also visit the school to check on learners who need to be assisted with their grants. The schools work with Home Affairs in the provision of provision of birth certificates and IDs for learners.

Mr Ndonga has forged a strong partnership with St Annes, which has yielded huge benefits for the school. This partnership has resulted in the school being able to sustain what was learnt from the training that St Annes provided for the staff members on strategic planning.

The partnership between Indoni and Lungani Primary is working and going very strong, considering the latest benefits it has accrued for the school as indicated in **Table 5.2** and **Table 5.5**. Gateway Secondary benefitted from a partnership that was forged with Moses Kotane Institute when eight leaners were selected to receive bursaries.

Another observation made is that only those schools which have continued to forge new partnerships with NGOs are improving as noted with Lungani Primary and Mbongwa Secondary. Almost all of these schools are working with NGOs in handling social ills. Across all these schools there is at least an NGO that assists with issues that affect learner's health. A closer observation in **Table 5.2** shows that NGOs are actively involved in almost all the schools. However, due to the global economic depression that has affected South Africa, most of these NGOs are unable to work with schools due to lack of funding. The school is treated as an open system and several departments and non-governmental organisations (NGOs) provide a variety of services as required by the need in that particular school. The critical areas of development that were mentioned by the participants dealt with socio-economic ills that plague our communities. Schools are part of the broader society and as a result they are affected by what is happening in the environment in which they are placed.

Mrs Denison recognises the value attached to stakeholder involvement and how this can be used to handle the social ills that plague the school system. In her leadership, Mrs Godide works with a number of stakeholders in the form of government departments and NGOs. Mrs Denison mention how they have been working with NGOs in different areas identified for holistic development of the school. The partnership with Indoni is yielding benefits for the Lungani Primary, taking into consideration the recently erected mobile kitchen donated through Indoni. Learners are affected by sicknesses, others are targeted for drug use by the criminals. In Gateway Secondary school there is an ongoing programme of working with South African Police Services (SAPS) on programmes of drug awareness. Learners are made aware of the dangers of different kinds of drugs. Besides that SAPS conduct unannounced visits to search for drugs and dangerous weapons. Ongoing HIV /Aids awareness campaigns are conducted at Mbongwa Secondary school and Gateway Secondary by different NGOs.

Spiritual counseling is also provided to the Gateway Secondary and Mbongwa Secondary by local pastoral teams on issues of a spiritual nature that affect learners. Both of these schools have been affected by outbreaks of satanism, whereby some learners were found to be engaged in behaviour that is uncharacteristic of learners. Joint prayers have been conducted at these schools to assist learners who have been susceptible to satanic behaviour, and the situation has been reported by principals to be have been contained. Learner behaviour in secondary schools changes due to a number of factors, which leads to ill-discipline. At Mbongwa Secondary school there is an NGO that assists learners who have difficulty with behavioural problems. These learners are taken for a weekend camp, where they are trained on different aspects that assist them to positively change.

The issue of social ills indicates that schools cannot be isolated from the environment in which they are located. These social ills are an indicator of what happens in society and the local communities which is plaguing the school. This says much about the kind of instruments that we are supposed to use when conducting our strategic interventions. A worrying factor is the closure of a number of NGOs due to the lack of funding, which leaves a number of schools without the required support.

6.3.6 Continuous Professional Development

Internationally continous professional development is highly regarded as vital part of school development. In these South African schools, they are no exception as was noted in the data presented in **Table 5.5**.of Chapter Five. Using the table I was able to collate the profile of principals in terms of their involvement in professional teacher development. As part of principal‘s reflection in their professional development I was able to present such in **Table 5.5.** All of the principals as indicated in **Table 5.5** are qualified for their duties. Added to that, all the principals have been engaged in upgrading their professional expertise. All principals are engaged in progressing with CPTD, although at different levels. In spite of the different educational backgrounds, all the principals have similar interests in their choice of courses. Indications are positively pointing to the support that the principals are making to the clusters. There is consensus amongst the principals in supporting the idea of establishing professional learning communities as part of school development.

The idea of being a lifelong learner is embraced by two principals Mr Jokozela and Mr Ndonga as an important aspect of personal development. All the principals acknowledged the value attached to the use of TESM manuals for training purposes to principals. Mrs Denison attests to the use of TESM manuals that were assisting the principals in supporting them in understanding the areas of development in the school. The TESM manuals were an invaluable source for information for use on a range of topics which covered school development. During the principals meetings and cluster meetings these manuals were used for conducting training of SMTs and principals on a range of topics. The topics that were covered in these manuals included curriculum management, financial management, school improvement, human resource management to mention a few. The cluster principals were also using them for conducting financial management workshops. The circuit manager also assisted the principals and SGB members in utilising these as tools that guided them on developing school development plans. These manual were also used as source of reference for newly appointed principals during their induction and orientation workshops. Mrs Denison shared ideas on what and how to engage in personal self-development with other colleagues during the process when IQMS was implemented. Mrs Goldstone outlines some of the key aspects in terms of what is entailed in these manuals and how they assist the principals in their journey of professional development.

Mr Jokozela used these manuals during his induction and orientation as school principal. In his personal development he also indicated that he was involved in Principal Management and Development Programme (PMDP). The PMPD is a programme that assists principals to get involved in professional development on a range of skills and topics which contribute to school development. The principals are monitored in terms of how they are improving on assigned tasks which sharpen their expertise and leadership skills. This programme covers about five modules which almost touch on crucial aspects of school development. Mrs Denison also attended this course and used this material to enhance the knowledge of other principals and cluster members on curriculum development monitoring. All these principals were trained lately in a vacation programme, which used the material of the PMDP. Mr Ndonga was also part of a vacation programme for principals which were using the PMDP material. He indicated how this programme was of benefit to him, although he has been a

principal for number of years. Mr Goldstone used to get involved in conducting workshops for the other principals, during the era of Education Management Development (EMD). EMD was a unit within the Department of Education at the provincial level which was responsible for conducting workshops for principals in leadership, management and governance.

In 2014 all of the principals were trained to on Continuing Professional Teacher Development (CPTD), which was provided by Provincial Office of Teacher Development. CPTD is an initiative that is supported by the Department of Basic Education (DBE) in collaboration with South African Council of Educators (SACE) to improve the capacity of principals. In terms of CPTD all educators need to keep track and record all the training that they are exposed to as part of their continuous professional development.

Mrs Godide the principal of Lungani Primary had already started on working on her Continuing Professional Teacher Development (CPTD) file as part of the ongoing professional development required of principals. Mr Ndonga further elaborated on the latest development about the CPTD roll out plan. Mrs Denison indicated how this CPTD programme was envisaged to be implemented in terms of the expectations and obligations from the side of principals to South African Council of Educators (SACE). The principals attest to how they have used the Towards Effective School Management (TESM) manuals as one of the tools for their professional development. Mr Jokozela the principal of Thokozwayo Primary expressed what he considered to be the value of using the TESM manuals. Mr Goldstone also attended the PMDP workshops which focused on enhancing the skills of principals in the area of leadership, management and governance. The ideals of life long are expressed in the context of the use of such TESM manuals for purposes of capacity building. Mr Goldstone encouraged even the staff members of Bramley primary to continuously engage in continuous professional development. Consequently, almost the entire staff members were improving their professional qualifications and engaging in continuing professional development.

6.4 The Role of Leadership

The principals demonstrated leadership in various areas which contributed to the development of the school. These areas are interconnected to the whole school development. The current role of leadership at the school level has evolved as the context in which they work has also changed. The focus of the principal leadership is on understanding the interrelationships in the education system. The literature indicates shifting roles which entail leadership role, managing change, increased accountability, and playing a significant role in system–wide change. The findings also confirm the as observed from the leadership of the five principals. In this section I will analyse the role of leadership in ensuring the functionality of the structures, the reflective practitioner role, the development of infrastructure, and participation in extra-curricular activities.

6.4.1 Functionality of structures

The coordination of work by all the structures at school plays a significant part in providing leadership, management and governance. All the principals are responsible for providing leadership in the co-ordination of the activities of the SMT and SGB. All of the structures that are listed in **Table 5.9** contribute towards making a school to be catergorised as effective and functional. All of the principals were responsible for the establishment of the functional structures. However, the effectiveness of such structures is determined by the leadership that is provided by the principal. For the school to function effectively all the recognised structures need to work harmoniously towards achieving the same goal. The Principal of Lungani Primary, Mrs Godide is responsible for the co-ordination of the committees by using the conveners who report on progress to her regarding their allocated duties. Furthermore, Mrs Godide clarifies the role of the SDT in drawing the School Development Plan, which tends to be lacking in other institutions. Mr Jokozela has a small school, which stifles the establishment of all the expected structures at school. However, Mr Jokozela works with a functional SGB on areas of school development. Mr Ndonga established a Strategic Development Committee, which is representative of almost all the critical stakeholders, i.e. the SMT, SGB, the RCL and teachers. In the secondary schools the learners are represented on the SGB and also have their own structures. Mr Ndonga explained how the system works at this school, whereby there is a working relationship between the Teacher Liaison Officer

(TLO) and the Representative Council of Learners (RCL) who are significant stakeholders at school.

Mrs Denison emphasised the value of School Management Team (SMT) working collaboratively with the SGB. Furthermore, she expressed the value of working systematically with these structures such as the SMT, the SGB and the SDT. In order to ensure co-ownership and accountability by SGB members, the principal of Mbongwa Secondary ensures that every member of the SGB is either a chairperson or else a member of the respective sub-committees. There are a number of sub-committees which are required to work in supporting the school to enhance governance, such as the Discipline Safety and Security Committee (DSSC) and Finance Committee.

According to Mr Goldstone, the functionality of the school rests on the SMT and SGB structures. This was also endorsed by the principal of Thokozwayo primary, Mr Jokozela who believes that these structures need to work collaboratively. The profiles of principals also support this view as it will be noted that Mr Goldstone of Bramsley was the leading facilitator in governance related issues. For a coherent and integrated approach to issues of leadership, management and governance, systemic leadership becomes a critical factor to maximise all the requisite resources towards achieving the common goals and overall vision of the school.

6.4.2 Infrastructure development

Considering the inherited backlogs that the rural schools have in infrastructure, it is worth noting the role of leadership in addressing this anomaly. The observation that can be made on the list in **Table 5.8** is the role of leadership in prioritising infrastructure for whole school development. Using **Table 5.8** it is notable that there is willingness from schools to fully participate in all kinds of sport codes and cultural genres, inspite of the lack of facilities. The table shows the diverse levels of involvement in different kinds of sports and extra–curricular activities. Lungani primary participates in cultural activities and different sports codes, which are improving the image of the school in the community. This year Lungani Primary achieved Number 1 position in Scouting at Provincial level. Mr Jokozela established a

partnership with Rock Challenge, whereby learners were participating in working on drama presentations for Hiv/Aids. Gateway Secondary school was assisted by Department of Sports and Recreation with the construction of a multi-purpose sports field. Sanitation facilities were built by the Department of Education. The upgrading of the school from junior secondary with the introduction of grade 10-12 brought new challenges as the school chose the science stream. There was no laboratory for practicals, with only a few pieces of practical equipment kept in the storeroom. The school was a beneficiary from the Vuka Project, an NGO based at Maritzburg College that provided the practicals in mobile kit every quarter. Through the initiative of an enthusiastic teacher, the school changed one classroom into a library with basic facilities. The ELITS sub-directorate added new books after an assessment of what was provided by the school. At Thokozwayo primary the Department of Education provided for Grade R with a mobile classroom, a toilet and jungle gyms as part of the equipment. The SDT reinforced one office into a strongroom for purposes of keeping the stock safe from housebreaking. Early in January 2015 in Thokozwayo primary two classrooms and the administration office were blown by a storm. As a temporary measure the Department of Education erected a three roomed mobile classroom to alleviate the shortage of teaching space. With its participation in a Storytelling completion at Msunduzi Municipality, the school was promised to have a library built as part of their price for winning the competition.

Mbongwa Secondary benefitted from the Education Department after nine additional classrooms, multipurpose and computer rooms were erected at the school. The Strategic Planning Committee initiated the sponsorship of a container library and computers which were fitted into the computer laboratory. The Department of Education completed major renovations to the roof and floors at Bramely Primary. After experiencing continual housebreaking and vandalism, the SDT built a house for a caretaker within the school premises. The major challenge at the school is the renovation and building of additional toilets.

In most of the schools in rural areas there is a backlog in terms of the provision of additional facilities for teaching and learning, libraries and laboratories to mention a few. This backlog dates back to the era of racism where inequalities in the allocation of facilities were the order

of the day. Generally in most there is a need for additional facilities and development of the infrastructure.

6.4.3 Participation in extra-curricular activities

The dire shortage of facilities is a critical setback to the whole school development of the learners in rural schools. Due to the noted backlogs in infrastructure development, the priority of the Department of Education has been the development of the latter. All the school leaders are making their own efforts to improvise for purposes on involving learners in extra-curricular activities. This has been noted in in the comparative tables which displayed how schools are involved in extra-curricular activities. Lungani Primary involved the NGO to get learners exposed to COP 17, which has worked in terms of stretching that partnership to other areas of development. Gateway secondary benefitted from the Department of Sports and Recreation. Mbongwa Secondary excels in soccer and netball at circuit level. Inspite of the lack of sports facilities at the school premises, the teachers encourage learners to participate at the local community grounds which are far from the school. At Thokozwayo Primary learners have participated in the Rock Challenge for many years before it was closed. The Rock Challenge was an Hiv/Aids drama completion which was annually held at Durban with the aim of creating awareness to learners. With the leadership of principals these schools are making the best of what they have to participate in extra-curricular activities. Teachers at these schools are also involved in assisting learners to learn new sports codes. At Gateway Secondary, the teachers introduced ladies soccer after they were built a soccer facility by Department of Sports and Recreation.

6.4.4 Reflective Practice

Reflective practice is one of the Norms and Standards for Educators, which connotes this as an aspect for critical development. Leadership was implored to consider the development of this skill. The principal Mrs Denison kept a journal which she used for planning, reflection and also keeping notes of all the meetings, the discussions that she has with most of the stakeholders. The journal also served as a diary to tracking the developments at the school,

the notes for meetings, which lacks the element of reflective thinking. Newspaper cuttings were also showing the achievement of the school. Mrs Denison kept different records that captured the activities and events at the school, which included the photo albums. She also kept a journal exercise book for recording activities and incidents, which had few elements of reflective exercises.

Mr Jokozela indicated that during the PMDP programme it was part of the course to engage in reflective exercises. However, that experience was not brought into the picture during the implementation of IQMS. Mr Ndonga had various sorts of records inclusive of newspaper clips, photo album in the computer which kept the record of school achievements. The principal utilised the diary for purposes of keeping minutes notes on school engagements, but not as a point for reflection. Mr Goldstone also kept the records of photos based on school activities and a photo gallery. He mentioned that staff would meet and review the school activities based on the activities that were conducted during the year.

6.5 Challenges of Working with Systems Thinking

There are different opinions in as far as the challenges of working from a systems thinking perspective. All the principals expressed their frustrations in terms of systems thinking which are systemic in nature. Issues of a systemic nature are manifested in the challenges that are experienced in all the school sites. The Principal of Gateway secondary, Mrs Denison considers the change in mindset and involvement of stakeholders as some of the challenges of using a systems thinking approach. Another challenge is the poor understanding of systems thinking as a theoretical framework. The different models of systems are complex for some people to understand. The Soft Systems Model with all its stages is not easy to follow for others. The use of systems tools for purposes of conducting analysis is quite a complex process as was also observed with the respondents. Mrs Godide indicated that it is difficult to get the stakeholders into one place. Furthermore, it takes a lot of time to explain the process. It is not easy to get the co-operation off all the teachers and their support. Time is an important commodity in working within this approach. Mrs Godide points out how people need to be assisted to get on SGB with the ideas that are put on the table. Furthermore, she illustrated that the way of working need to be sustained and not be taken for granted that

everybody is on board. The Systems thinking approach needs to be sustained and it takes a lot of time and people need to understand what is meant by this approach. The other challenges are the shortage of resources to work within this perspective.

Mr Jokozela indicated the difficulty in getting people to agree on what needs to be done as one of the hindrances, although these are not peculiar to systems thinking. Parents in rural school contexts have a tendency of locating all the power at the hands of the principal. The lack of skills was also cited by Mr Ndonga as one of the factors that hinder progress of work in these school contexts. Mr Denison cited the experience of conflicts amongst the members of the SGB and SMT over roles and responsibilities as another area of weakness. This may hinder the progress of the organisation and render all the systems to be in a dysfunctional state. This system demands commitment from all the stakeholders, which may be one of the shortfalls if there are sectors that are not pulling their weight.

Mr Ndonga was supported by Mrs Denison when he pointed out the lack of capacity amongst stakeholders that it can hinder the envisaged progress. He pointed out that the danger is to resort to the winner takes it all system, where only one or two people take decisions. This was supported by Mr Jokozela who made an observation that lack of participation by all stakeholders leads to conflicts when decisions have to be implemented.

6.6 Towards a Conceptual Framework for Systemic School Development

The model presented in this section is based on the identification of areas of strength from different approaches which were combined. The model is combination of aspects of the SSM, VSM, SD, Critical Systems Heuristics and Systemic Leadership. The purpose for the formulation of a conceptual framework is to provide systemic guidelines for understanding school development. The proposed framework is multi-methodological, holistic and systemic in nature.

6.6.1 Systemic School Development Framework (SSDF)

In this section I am presenting SSDF as a model based on the systems thinking theories. It contributes in strengthening gaps that were identified in the SSM, VSM, SD, and Critical Systems Heuristics. It combines their strengths into a multi-methodological and dimensional model. The framework will serve as comprehensive thinking tool for application in school development. The model has allows the practitioners flexibility to be adapted to the practice. The basis for a multi-dimensional and multi-methodological approach is to enhance the approach in dealing with complexities in the schooling system. It will enhance focused thinking in the area of school development, provide a platform for potential building blocks for practitioners and systems thinkers on school development to emergent properties. I support the view held on multi-methodological and pluralistic approaches to complex issues (Mingers, 2001). A multi-methodological approach focuses on different elements of reality and subsequently a richer understanding of school development will be gained by combining different methods.

The model embraces a combination of assumptions that are informed from SSM, SD, VSM, Critical Systems Heuristics and Systemic Leadership approaches. The combined selection from these models is justified on their combined strengths to the framework. Critical Systems Thinking provides the techniques for the framework. SSM, SD, VSM, Critical Systemic Heuristics (CSH) and Systemic Leadership are selected on the basis of the value they can add to the framework and their assumptions. The framework draws the strengths of SSM techniques which is renowned for handling soft issues with complex human activity systems. The techniques of SSM include stages that are critical for facilitating a discussion amongst stakeholders in understanding the problem. CSH adds value to the framework as it provides an element of critique which is emancipatory in approach (Green, 2013). CSH provides a philosophical and theoretical foundation for an intervention in complex situations (Green, 2013). CSH with the Ulrich‘s twelve boundary judgments provides an ideal checklist which will allow a normative content of the system to be unpacked for qualitative analysis (Ulrich, 1998; 2003). SD guides in understanding the dynamics that are at play in human activity systems such as schools. Systems dynamics looks at how the whole organisation behaves, anticipates, understands and then engages with change. Systemic Leadership bases its strength on multiplying leadership across all the levels of the system. The table of information presented is building from a viable systems perspective which is strong on

designing activities. The division of the framework into many parts is done from a soft systems perspective, following a hermeneutic method, and not from a hard systems perspective where the total is the simply seen as the sum of the parts.

A systemic approach embraces diverse influences and allows for understanding of the bigger picture. Schools as organisations are not static but dynamic institutions which need to be understood from that angle. Systemic leadership understands that systems are products of synergistic relations between the parts and are not isolated from each other. A systems thinking approach is open to capturing unanticipated elements, insights, variables and counter-intuitive results. Boundaries are a key element in systems thinking, considering hierarchical nature of organisation. The school system exists in the context of wider systems. Interventions of any kind or nature need to be leveraged with an understanding of the implications these will impact on different levels of the organisation.

The elements that were presented above need to be considered as interconnected. Each of them impacts on the other. For a scalable improvement there needs to be change in the organisation, in terms of its culture. These identified systemic elements form a part of the framework. The framework is designed is a way that it must be collaboratively and coherently implemented through the all levels of the system: provincially, district and school. A tri-level approach draws all the experience and knowledge of aligning the resources to where they are required most. Clustering of schools is advocated in order to build the capacity in the remote schools.

Figure 6.3 below presents the multi methodological approaches of the SSDF Model which combines SSM, SD, VSM, Critical Systems Heuristics and Systemic Leadership.

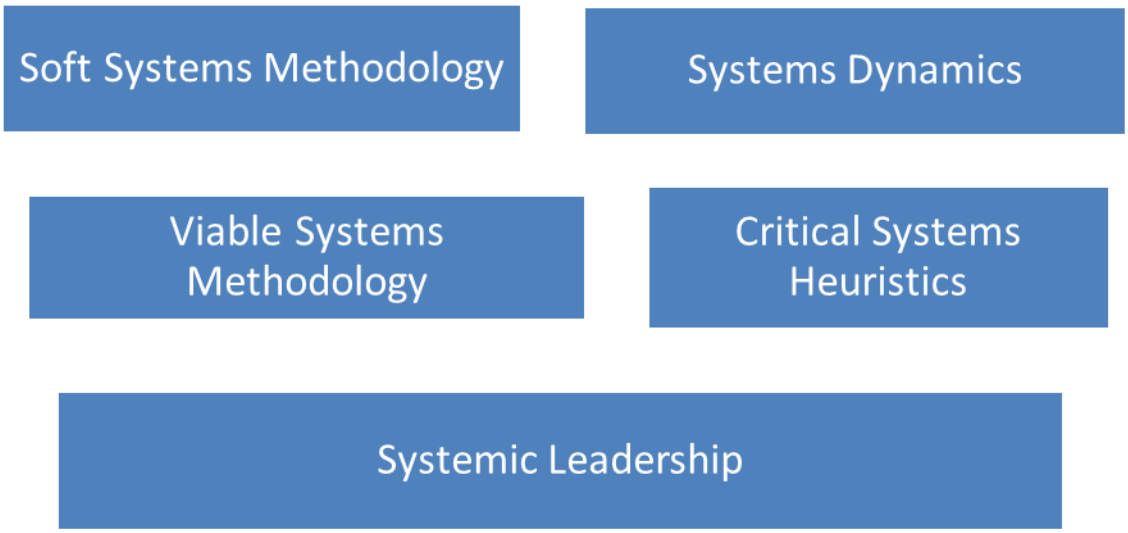


Figure 6.3: SSDF Multi–Methodological Approach

(i)The purpose and objectives of the systemic model

The purpose of the systemic model for development is to improve teaching and learning across all the district schools and upscale educational reform. The objective of the model is to improve and support school wide improvement. The model assumes that district provides support and monitoring to schools. This framework plans to align resources with priorities

(ii)The conceptual framework

The model is based on the key philosophical assumption that educational outcomes have to improve across all the schools. The improvement across the schools needs to be scaled across the other schools in the district. All of the levels and tiers of the schooling system i.e. the school, district and province are required to work in synergy. The collaboration between the district and province needs to be targeted at improving support, guidance and monitoring to schools. To achieve this, schools need to work both in developing their own and interdependent approaches with new solutions to emerging challenges. Systemic leadership is an essential component to play the key role of influencing change in complex and dynamic organisations. It becomes a catalyst between the traditional reductionist approaches and the emergent systemic thinking framework. The model proposes a radical shift from the reductionist orientations. It requires that the whole system needs to be put into perspective. The boundaries are become blurred. It strongly advocates for dynamic relationships which are based on the hierarchical linear cause and effect mode. It acknowledges the constant and

dynamic flow in the organisation. It recognises the complexity and change can be influenced from anywhere in a learning organisation.

The purpose for schools needs to be reiterated by all systemic leaders at all the levels of the organisation. This framework seeks to establish strong professional learning communities at all these levels, through school clusters, principals associations and teacher professional bodies.

(iii) Root Definition of School Development framework

The objective of the conceptual model for school development is to combine the elements that frame the assumptions of school development at the level of the school. This is done from the soft systems method technique, called the root definition. The viewpoint represented by this framework stresses what a school development entails.

School development model will be of benefit the learners across all the schools in the district. Such an established model will have to be learner centred. Leadership needs to ensure that it is owned by all stakeholders. It must be based on an effective team based action approach. The assumptions upon which it is based must be on theories of systemic thinking and emancipatory approaches. This model needs to be able to bring about radical changes. The plans need to be conducted in order to bring synergy of operations. A new culture needs to be engendered across schools to share the available resources. The model needs to be developmental. Leadership needs to ensure that it is effectively implemented, reviewed, monitored. School Management Teams have a responsibility to report with integrity and accountability. This will ensure that it makes a marked impact on teaching and learning at school level.

The proposed model is based on a holistic, multi-dimensional, developmental and systemic approach to complex issues considered as of high human activity. The proposed systemic development model needs to operate in all the three tiers i.e. school, district and province. The need for such a systemic model is based on the view that for effective change to be implemented it needs to be across all the schools in the district and in the province. This modeling avoids all the ad-hoc interventions that are disjointed. It needs to bear the character

of being holistic, coherent, developmental, integrative, sustainable, supported, interconnective and dynamic. From a soft systems perspective, school development objectives are supported by the enabling factors of the different role players that work together. Soft systems thinking advocates an awareness of the internal aspirations and advises a method to resolve conflict and achieve consensus.

(iv) Root Definition of District Development

The model places the district at the centre of providing system-wide education change. Schools are nested in systems which link them with the district schools. The district support to schools and serves a link with schools. The district is a catalyst in systemic school development. The district plays the role of facilitating systemic coherence and alignment. From a soft systems thinking perspective, the model below gives an understanding of what is envisaged from the district. The technique used to formulate this root definition is from the SSM. District development model that will benefit the learners and which is learner centred. The model needs to be owned by all stakeholders. It must be based on team action. The assumptions that underpin this root definition are based on systemic thinking and emancipatory approaches. The latter approach is required in order to bring radical changes to the system. It will bring synergy in operations across the different sub-directorates. The resources need to be shared in the operation of activities. It has to be developmental in its nature. Operational plans need to be effectively implemented across the district schools. The sub-directorate operational plans are reviewed, monitored, reported with integrity and accountability. Sub-directorates need to develop sustainable programmes, order to make a marked impact on teaching and learning at school level. Programmes have to be adaptable to local change. The leaders need to be able to recover from setbacks. They have to learn creative and engage in critical thinking. Systemic leadership is required to facilitate organisational learning.

(v) Root Definition of Systemic Leadership

From a soft systems perspective, systemic leadership is conceived in terms of what it is and what it can do. Systemic leadership embraces principles of collaborative and trusting relationship. These are leaders who aspire to be knowledgeable. Their operations are client-oriented. Systemic leadership requires that teachers, officials at district and province work

across all levels of schooling system. They have facilitative skills in order to gain the trust of the beneficiaries. They have features of being systemically aware and are strategic in thinking. They are reflective in their approach and are skilled in the use of systems tools. They mobilise the required resources. They are firm believers of life-long learning. They are developmental in formulating the organisational goals. They know how to articulate a clear vision, mission and strategic goals. They have the needed capacity for leading learning processes across all schools in the district. Such leaders formulate an effective succession leadership and management plan. They take charge of the management of effective programmes. They aspire to work towards a sustainable development of leaders at school level and beyond. Leadership is empowered to engage with complex organisational issues. They believe in developing deep learning. They have the ability to work in diversified learning environments. The system requires that they become resourceful. They are required to demonstrate expertise in teaching. They need to promote teamwork in decision-making amongst the stakeholders. They have to set achievable targets related to school action plans. They need to be able to compose teams. Their approaches must consider integrating educational provision with health and social services. They must provide mutual support. Schools must be encouraged to engender a new culture of sharing the available resources. They need to develop the capacity of the organisation to sustain resources. Leaders must work towards building a shared vision. They must foster the acceptance of group goals. They need to clearly set the goals and communicates high performance expectations in achieving them. This leadership must strive to foster genuine trusting relationships with learners, staff, families and communities. They must be guided by a sense of mutual respect. They must affirm and empower others to work in the best interests of all learners. They need to build relations of trust and honesty. They must communicate features of competence, openness, and shared vision and values. They need to work towards collective responsibility in all their endeavours. They must be reflective professional who inquire and collaborate with others.

(vi)The CSH boundary questions

CSH provides a tool for understanding the multiple perspectives people bring into situations. There are in total twelve questions which prompt an understanding of the bigger picture. The questions are grouped according to Ulrich (1996, 1998) sources of influence.

Sources of motivation

- Who is the intended beneficiary of using a systems thinking approach to school development?
- What is the purpose of the use of a systems thinking approach to school development?
- What are the possible benefits of the use of a systems thinking approach to school development?

Sources of control

- Who is the decision maker regarding conducting school development?
- What conditions of successfully planning and implementation of the systems are controlled by the decision maker?
- What conditions are outside the control of the decision maker?

Sources of knowledge

- Who is providing relevant knowledge and skills for using a systems thinking approach to school development?
- What are the relevant new knowledge and skills for using a systems thinking approach to school development?
- Who are regarded as assurances of successful implementation?

Sources of legitimacy

- Who are representing the interests of those negatively affected by using a systems thinking approach to school development?
- What opportunities for the interests of those negatively affected to have expression and freedom?
- What space is available for reconciling differing worldviews regarding service quality among the involved and the affected?

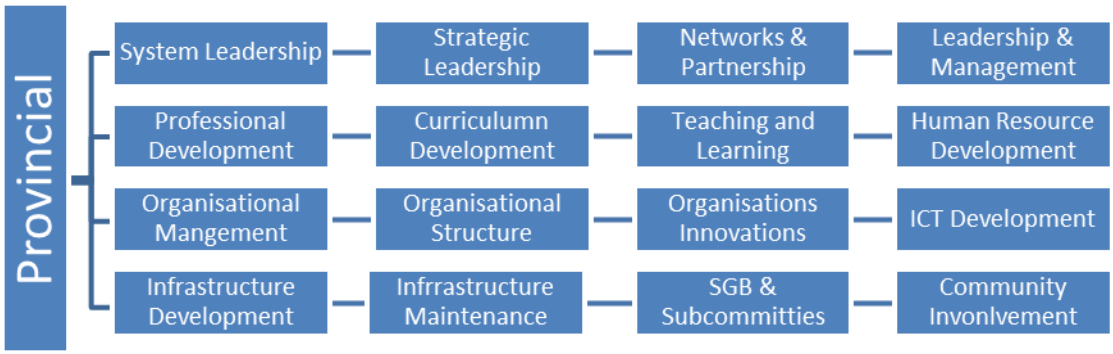
The reason for using the boundary questions are three fold, to make sense of the situation, understanding assumptions and appreciating the bigger picture, unfolding multiple perspectives. It also promotes mutual understanding and promotes reflective practice, to analyse situations. These questions in boundary judgments are central in the identification of role players who play a significant role school development at all the levels of the education system. The critical systems thinking perspective guides the facilitator on the awareness of

the different agendas and motivations and attempts to expose conflicting views to the main objective of school development.

(vii) The Viable System Model (VSM)

VSM is regarded as an abstract model for assisting in designing the structure of an organisation. The main theory underlying VSM is that for an organisation to be viable, its ability to survive within a changing environment, it must undertake particular activities and there must be relations between them. The three essential elements of VSM are environment, activities and management, which are interrelated. The activities listed below are based on the elements of VSM.

Figure 6.4 illustrates the Systemic School Development Framework. The framework shows the link between the three level, i.e. province, district and school. It identifies the areas that are considered critical for holistic school development. It presents a holistic approach whereby the provincial, district and school leadership levels are expected to understand the matrix of operations that are implicit in the model.



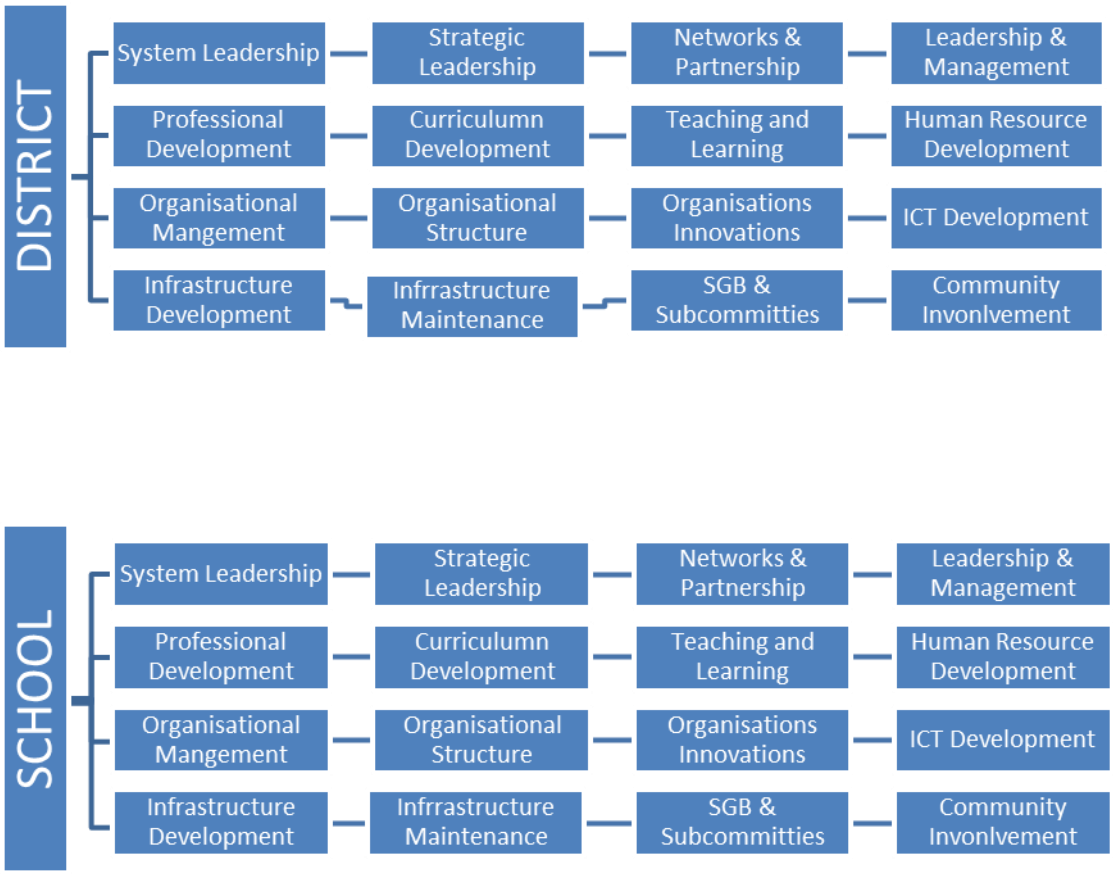


Figure 6.4: Systemic School Development Frameworks

From a critical systems thinking perspective, the systemic leader are involved in all the phases and levels of the three tier education system to ensure that the complexities of problems are understood and solved by the teams. From a systems dynamics lens, there is interaction that is modeled by the framework to illustrate the matrix of activities. The systems leadership team designs the dimensions to represent the activities and interrelationships of these different elements in the schooling system. Critical systems thinking will highlight the conflicting interests of in all the levels of the schooling system, in terms of source systems owners and owners at these levels. The underlying motivations of these conflicts need to be exposed and resolved at every phase and stage and level of the schooling system. From the critical systems approach, the teams of participants involved in

the whole enterprise of holistic school development across the schooling system, need to be trained to understand the roles and responsibilities.

6.6.2 Systemic Leadership

Systemic Leadership serves as a catalyst for the Systemic School Development Framework. Systemic Leadership will serve at the three levels of the system, i.e. the province, district and school. Systemic Leadership serves as the driver of the SSDF. The responsibilities of the Systemic Leaders are crucial for the organisation to function and realise its vision. These are visionaries who strategise based on the conditions of the organisation.

Table 6.4 below outlines the Systemic Leadership activities and responsibilities across the spectrum.

Table 6.4 Systemic Leadership Framework

Setting Directions	**Developing the Organisation**	**Building Relationships and Developing People**
Sets goals & communicates to the organisation	Improves relationships between structures	improves communication and relationships amongst people
Research, monitoring and evaluation and quality assurance	**Strategy for ICT development**	**Infrastructure Development**
Draws intervention programmes from gathered data	Synergises programmes for development	Develops programmes for infrastructure improvement
School and School SGB Improvement	**Fostering a Culture of Professionalism**	**Administrative Structures**

Improves policy implementation	Professionalises ethical behaviour	Establishes support systems and structures

Figure 6.5 presents the Structural Development of SSDF Model which portrays the Systemic Leadership envisaged to lead and manage the structure at all the three levels.

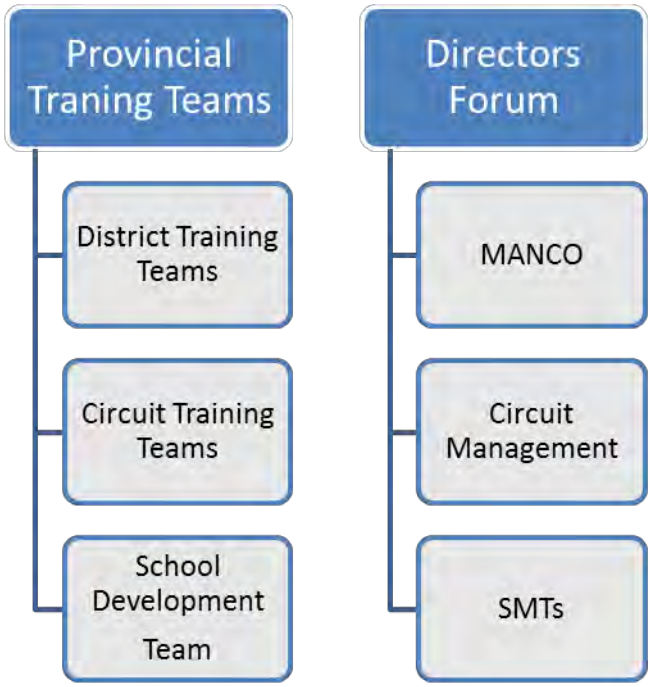


Figure 6.3 Structural Development of SSDF Model

6.6.3 Structural Leadership and Levels of Systemic Leverage

The Systemic Leadership serves at all the three tier levels of the education system. At all the three levels the leaders are assigned roles and responsibilities.

(i) Provincial department: Role of provincial is multifaceted and framed according to allocated resources in chief directorates.

- create a vision of what must be achieved in terms of the organisation's operations and services
- provide support, resources for established professional learning activities

(ii) District Role: Role of district is multifaceted and framed according to allocated resources in sub-directorates. **District Manco** has responsibility for creating readiness for development initiatives

- the commitment to the implementation is crucial aspect for progress
- co-ordinate differentiated interventions, support and monitoring
- implementing strategic plans and programme of action
- design effective learning programmes to improve learning outcomes and learner well fare

(iii) School Level: Role of systemic leadership at school is to align all leaders across and structures responsible for management and governance.

School Development Committee team members takes the lead, members of the school‘s development committee learn to be catalysts and managers of development.

- identify key aspects of the organisation's activities that can be changed
- plan and build the operating, accountability, and reporting systems to put the vision into practice
- enhance empowerment, a sense of community, and general readiness and commitment to new approaches

6.6.4 The Conceptual stages of the Soft Systems Methodology

In the application of the SSDF, the following stages are followed which define the activities in detail. The SSDF has nine stages which are participatory in nature. The First to Seventh stage are similar to those of Checkland. The model has the Eight to Ninth Stage which are additional.

The first stage: Define Situation/finding out by acknowledging, exploring, defining the problem situation by drawing rich pictures.

The second stage by expressing the issue in all its ―richness", i.e. Naming and making meaning of the following viz., structures, processes, climate, people, issues expressed by people, conflicts to mention a few what are the goals of your system.

The third stage involves deriving the root definitions of the relevant systems.

The Root Definition is a definition of the purpose of the system of human activity by means of the CATWOE analysis.

The fourth stage involves deriving conceptual models and all monitoring activities.

The fifth stage of the model involves comparing conceptual models with the real world.

The sixth stage involves analysing feasible and desirable change in this iterative process.

The seventh stage is that of taking action by consideration to implement a set of incremental changes.

The eight stage involves asking Systemic Leadership Questions such as the following, viz.;

- How does the organisation engage with the leadership process?
- What capacity building programmes are in place for leadership?
- What criteria for evaluating how leadership implements changes, interventions, programmes?
- What needs to happen if manager‘s leadership endeavours are to flourish?
- How does leadership engage with systemic issues in the organisation?
- How can the organisation best understand, expand, release, promote, improve and apply its leadership capability?

In a holistic approach the state of leadership and the key to its improvement is found in the way the organisation collaborates and works as a collective.

The ninth stage involves Systemic Leadership Activities

- planning and implementing strategies to obtain the support of key policymakers, as administrators and school governing body members
- formulating strategies for reflecting on the process
- formulating criteria for evaluation

Figure 6.4 shows graphical of all the stages of the SSF model. The activities are explicated in the explanation above.

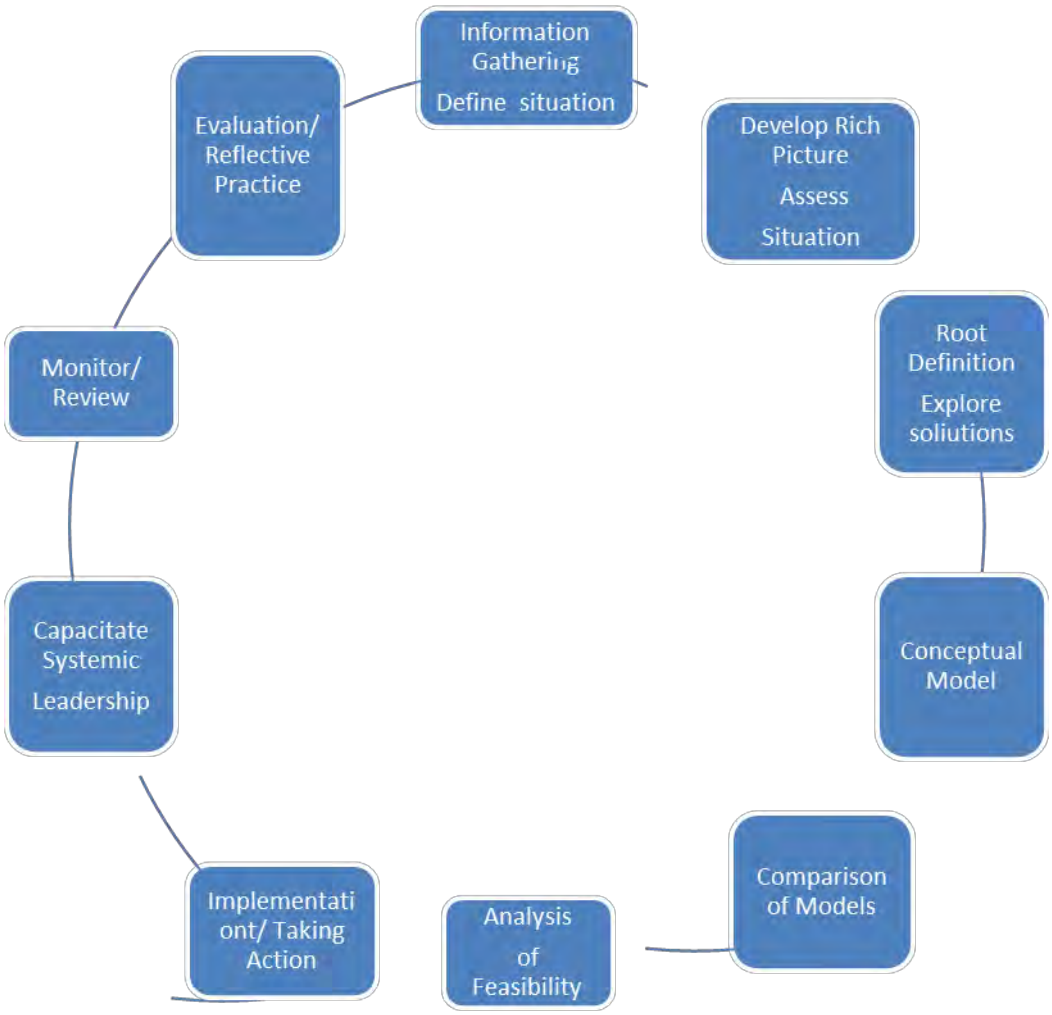


Figure 6.4: A Nine Stage Model for Systemic School Development Framework (SSDF)

6.7 Conclusion

This chapter presented the patterns and themes that emerged from the data. From these patterns I analysed the themes by comparing and contrasting the key aspects in relationship to each other. There are identified similarities and differences across the cases on key elements based on understanding systems, the benefits of using the systems thinking and the challenges of using a systems thinking approach. In this analysis I considered the context in which the schools are located and the profiles of each case. From the identified themes I established the existing gaps by formulating a holistic systemic school development

framework. The framework is undergirded by systemic leadership, which I consider to be the catalyst for school development across all the levels of the schooling system. By formulating this framework I justified the selection of elements from the SSM, SD, VSM, and CSH. SD and VSM guides insight into the technical, cultural, political and social issues affecting school development. CSH is essential for providing support for pluralism and emancipatory element to the framework. The formulated framework is influenced from a multi-methodical lens that takes into consideration the complexity of the schooling system. The concluding framework presented in this chapter is a combination of information gained from literature studies and interpretive case studies and systems thinking approaches. The framework should be viewed as a guide to practitioners, not an end in itself. This view represents the critical research or intervention aspect of the model. The theoretical framework study in Chapter Three gave discussion on systems in terms of philosophy. Chapter Four provided the basis for methodology, whereas Chapter Two the literature on school development. The framework assumes a three tier approach which considers the significance of the level of the province, the district and school and its relevance to the upscaling of changes to the system. It identified areas that are considered as points of leverage for systemic intervention. In formulating this framework I also infused areas which cover the systemic leadership which needs to be the catalyst in driving systemic development of the schooling system. The purpose of the complete framework given in Figure 6.1 is to guide the reader in building a holistic view from the sub-sections presented in this chapter. The division of the framework into parts is done from the soft systems, viable systems and systems dynamics perspectives.

The multi-methodological approach attempted to combine the different approaches from the SSM, Systems Dynamics, Critical Systems Heuristics and Viable Systems Model in formulating the framework. The framework is a product of thinking that considered a combination of the influences of the above approaches in Systems Thinking. The framework can be utilised from a systems perspective to areas of school development. The framework can be modified and adapted to the situation where it is applied.

In the next chapter I will discuss the findings and conclusions of the study. Furthermore, I will present directions for future research. The possibilities for using the framework will be considered for future research.

CHAPTER SEVEN
SYNTHESIS, FINDINGS AND RECOMMENDATIONS

7.1 Introduction

In the previous chapter I presented the emerging patterns and themes from the multi-cases. The emergent themes covered critical areas of school development. The themes confirmed the benefits of using a systems thinking to school development. I proposed a systemic school development framework based on the multi-methodological and holistic approach which covered elements of SSM, SD, VSM, Critical Systems Heuristics and Systemic Leadership. The presented systemic school development framework is influenced from different perspectives. This study aimed at examining the efficacy of the systems thinking approach to school development. To achieve this aim, the study focused on the principals understanding of systems thinking, the benefits for using a systems thinking approach to school development and the challenges thereof.

Given the process of the study and the aims as stated above, the purpose of this chapter is to provide a summary of the findings and state the contributions the study makes. Implications for further research are also discussed. I present limitations of this study as they inform the implications further research. This chapter provides a discussion of findings drawing from the emergent themes in the previous chapters. The purpose of this chapter is to pull together the data presented in different themes in Chapter Six to indicate how they inform what is identified to be the findings.

7.2 Synthesis

The review of literature and empirical research evolved and through that process a number of themes were explored. The themes explored with principals covered the key areas on the research questions. The use of semi-open interviews, focus discussion groups and reflections based on diaries and journals enabled engagement with principals on research questions. The themes that emerged from the findings are not consistent with all the reviewed literature. A general discussion of the themes from the findings provide an overview, which leads to conclusions that form the basis of recommendations made on the efficacy of systems thinking for school development.

In discussing the findings from this research it is important to note that school development was not conceived in a narrow sense. This serves a shift from the reductionist and mechanistic approach to school development. The use of systems thinking as a lens through which school development was be examined and interpreted, indicated a need to develop a systemic school development framework. Findings pointed that a holistic and multi-methodological systemic approach is justified. The SSDF as a model for systemic school development, is multi-dimensional and holistic in approach. The proposed framework is multi-methodological in nature, with elements of VSM, SD, Critical Systems Heuristics, SSM and systemic leadership. It proposes to address the three tiers of the system, the school, the district and province as a way to upscale school development. The framework in **Table 6.4** identifies the areas regarded as leverage points for systemic interventions. The systemic school development framework regards systemic leadership as the driver of systemic change. There are fundamental principles of systemic thinking which undergird systemic leadership. As a multi-methodological approach, it needs to be explored as a theoretical framework to check its applicability and strength. Its strengths and weakness can be checked in the field when it is applied to problematic situations. During the implementation of the IQMS as a school development policy I used the SMM tools as indicated in the previous study (Mchunu, 2006). As a matter of fact multi-methodological approaches have not been explored for use in the implementation of departmental policies. However, I would argue that there are vast benefits in using a systemic school development approach. The framework accommodates the emancipatory, participatory stakeholder inclusive approaches.

7.3 Key research questions and findings

The first research question focused on the principals‘ understandings of systems thinking as a theoretical framework. The focus of the second question was on the application of systems thinking in school development. Linked to that question is also checking on the benefits of using a systems thinking approach to school development. Lastly, another question focused on the challenges of using a systems thinking approach in school development. The findings reveal a variety of systemic issues associated with school development. Some of the findings include understanding systems thinking, strategic planning, curriculum development, infrastructure development, partnerships, clusters, reflective practice and challenges. The findings from this research vary in comparison to literature review. In some areas there is co concurrence in others differences. These will be discussed in relation to the key questions of the study. The final conclusions are framed within the theoretical framework of systems thinking and systemic leadership.

7.3.1 What do principal understand about of systems thinking?

One of the objectives of the study was to examine the understanding of systems thinking. The responses from principals show the depth and level of understanding based on system thinking. The findings point to the shallow nature in which principals understand systems thinking. They have a basic understanding which demonstrates that they were exposed to the use of systems theory. This also points to the limited scope of written research on systems thinking and its use in relation to education studies and alludes to the rationale for conducting a study of this nature (Banathy, 1999; Sterling, 2001; Lang, 2004; Smyth, 2005; Mchunu, 2006; Mntambo, 2009; Xulu, 2009; Green, 2013).

The findings show that principals have a basic understanding of systems thinking. What is noted is the remarkable way in which the principals conducted themselves in leading and managing school development. The findings point the different levels of understanding systems thinking amongst the principals, which is expected as any setting. What seems to be emerging is the lack of continuity and sustainability in understanding the conceptual framework as a theory that underpins the approach to school development.

There are multiple studies that have been conducted on the challenges related to the implementation of IQMS from different perspectives (Queen-Mary & Mtapuri, 2014; Mbalati, 2010; Kershaw, 2012; Mathews, 2010; Hlongwane, 2009; Prew, 2009). Comparatively, there are few studies that have used the systems thinking approach in the implementation of IQMS (Mchunu, 2006; Mntambo, 2009). This indicates that there is a general lack of knowledge about the systems thinking approach in the education field. In most of the studies conducted on school development several issues have been cited regarding the cascade model that is utilised within the education field when new policies are implemented. The cascade model used in the training phase for purposes of the implementation stage is failing the department of education, due to a multiplicity of factors that are cited in several studies. Yet there seems to be no solution to ameliorate this deficit and reductionist approaches that have a great impact on policy implementation and the benefit of the schooling system.

The low level of understanding of the theory based on systems thinking is clearly indicated in the findings of this study, as shown by principals. Based on the findings regarding the low level of understanding systems thinking, the study recommends that principals need to be trained in order to understand how schools can be developed from a systems thinking perspective.

From the findings, it may be concluded that:

- The understanding of systems thinking as a framework be simplified and integrated in the existing IQMS framework and the CPTD.
- An orientation model be introduced on basic understand of the principles of systems thinking, which is developmental, systemic, trainer-oriented, empowering to all the levels of the system, which starts at the school, the circuit, district and provincial level.
- Interventions at school, circuit and district level be underpinned by fundamental principles of systems thinking.

- The shift in thinking towards a systems model needs to be guided by the values and principles that consider moving the school, the circuit, district and province.

Based on the findings and conclusions of the study, I recommend conceptual framework for a district as follows:

- A school district that is benefitting the learners, is learner- centred, is owned by all stakeholders, team–based action, based on revolutionary thinking and socialist in character, with ability to bring radical changes, will bring synergy in operations, resource shared operations, developmental, be effectively implemented, reviewed, monitored, reported with integrity and accountability, in order to make a marked impact on teaching and learning at school level.
- A shift in thinking at the level of the school, district and province leadership will change the goals and roles of the system at the three tier that is the school, district and province.
- The major shifts in thinking is required for the benefit of the three tier system to influence and permeate the whole system.

7.4 How do principals use systems thinking in school development?

The other critical question was; How do principals use systems thinking in school development? Linked to this question is, what are the benefits for using a systems thinking approach to school development? The literature reviewed and the empirical research indicate that systems thinking is applied in different fields and contexts. Few studies have been conducted based on the application of systems thinking approach to IQMS (Mchunu, 2006; Mntambo, 2009). In the education sector there are no studies that been conducted to examine how principals use the systems thinking approach to school development. The application of systems thinking will be looked from the perspective of understanding the assumptions of systems thinking as a theoretical framework. In this section the application of systems thinking will be viewed from the understanding of what systems thinking is all about, and also it will overlap into the question of the benefits of using this perspective.

7.4.1 Strategic Planning for School Development

Studies point to the value of strategic planning for purposes of engaging in school development. Strategic planning is considered as a critical skill which requires a certain level of thinking to be used for organisational development. In the school systems principals have a responsibility of facilitating the development of the school improvement plan with clearly set goals, activities, and time frames for attaining such. As part of this process principals lead the school through the goal-setting process in which learner achievement data is analysed, improvement areas are identified and actions for change are initiated. Strategic planning is a key feature of school development, and principals were trained in this particular skill. These were confirmed that principals were trained in conducting strategic planning (Mchunu, 2006; Mntambo, 2009) by using the systems thinking tools and techniques. These studies point out that these principals were exposed to the use of other systems tools, however there is no evidence that they applied such tools in their schools. Findings point to the overuse of SWOT Analysis as the key technique for strategic analysis.

The findings point out that strategic leadership is the critical factor for effective school development. The evidence presented confirms that principals are capable of demonstrating strategic leadership. This is supported by the effective strategies that were put in place to improve the schools. The principals were able to identify the systemic issues that affect the schooling system. This is evidenced by the programmes that were put in place to deal with the underlying issues of social ills such as pregnancy, HIV /Aids and drugs. Inspite of the use of some of these systems thinking tools, there is evidence that most of the principals in these schools were able to deal with the systemic issues that were affecting the culture of the school. This is evident in how the principals responded in handling the social ills which were affecting the schools. The strategies used by the schools in handing issues such as HIV/Aids, teenage pregnancy drug abuse and handling vandalism of property were effective.

School development is a process that is iterative and which cannot be confined to single approaches when it comes to the tools used for planning. The school development projects that were sponsored by NGOs and business were lacking in terms of sustainable development and the transfer of skills to the beneficiaries.

Based on the findings, it can be concluded that:

- Leadership at the school and district system needs to be capacitated, trained and empowered on how to use and apply other the systems thinking tools, besides the SWOT Analysis.
- Training and empowerment on strategic thinking that goes beyond the narrow confines of SWOT Analysis is a requisite which will eventually equip all the Practitioners and Facilitators with new thinking skills.
- Inclusive in this package of strategic thinking tools will be tools for thinking that include; iceberg tool, the influence diagram, double loop learning and understanding of other techniques of systems tools.

7.4.2 Synergy in the implementation of programmes

Studies indicate that leadership has failed to implement WSE and IQMS policies in an integrated manner. In terms of policy the WSE and IQMS systems are intended to be theoretically and practically integrated for effective school development. The most important benefit about the use of systems thinking is the ability to bring about the integration between WSE and IQMS. Principals acknowledged the role of systems thinking in bring about an integrative and holistic approach to school development.

Systems thinking can be serve as a catalyst for integrating the school programmes and departmental polices if it can be appropriately applied. A holistic approach implies the integration of development, performance measurement and whole school evaluation. Senge and Forrester (2000) proposed a framework that recognises the value of working from a holistic perspective in driving school change. The systems thinking approach to the modeling of these interrelated components requires the systems thinker (Fullan, 2003) to work on the task of school development. There is consensus between Banathy (1991) and Betts (1992) in their argument for a radical change that will require the thinkers to forego any approach that is piecemeal, non-integrative, confined to discipline by discipline and

reductionist. Both scholars advocate for a system that will be incremental, integrative, work cross discipline boundaries and based on systemic thinking.

The findings of the study lead to the following conclusion:

- The use of the cascade model leads to the risk of relying on principals to train staff members
- Most departmental initiatives fail to take off due to the lack of skills amongst the principals
- The interdisciplinary nature of IQMS needs to be undergirded by a systems perspective to guard against piecemeal approaches.
- The silo mentality in organisational development is a hindrance in the upscaling of systemic education reform and contributes to wasteful expenditure.

7.5 What are the benefits of using a systems thinking to school development?

Literature supports the role of whole school development as a holistic approach which has not been implemented in terms of the intention to identify all interconnected needs of the school (Dlamini, 2009). Most literature suggests gaps in approaches that were intended to foster an integrated approach to whole school development (Mathew, 2010). These mechanistic and reductionist approaches are underpinned by the total quality management framework which fails to empower principals with the skills to engage in systemic evaluation of school needs (Mathews, 2010; Mbalati, 2010; Rampa, 2010). In most of the township and rural schools the SGBs are assisted by the leadership role played by principals to formulate and implement an effective school development plan.

The leadership of the principal is a key factor in combining the skills needed to mobilise the stakeholders to work jointly towards sustainable school development. The studies that have been cited on IQMS and WSE indicate that there are identified gaps and barriers that have a tendency to work against the outcomes and objectives of school development (Mathews, 2010; Mbalati, 2010; Mazibuko, 2007). The findings in terms of the study provide confidence in the benefits that are accrued when school development is approached from a

systems perspective. **Table 5.7** shows the areas in which are considered to have benefited schools by working from a systems thinking perspective.

There are studies that purport the efficacy of systems thinking to school development, and other areas which may not necessarily be termed school development, yet schools end up as main beneficiaries (Green, 2013; Siegrist, Green, Brockmeir, Tsemunku & Pate, 2013; Mpungose, 2011; Xulu, 2009; Mntambo, 2009; Cabrera et al. 2008; Mchunu, 2006). Most of all the above studies were conducted using the action research and were underpinned from a systems thinking framework. There are benefits in the framework that is underpinned by strategic leadership and systemic leadership approaches (Fullan, 2007; Cater, Bond & Franey, 2006) to school development. The literature on school improvement in overseas countries supports the role of the state in providing financial backing to schools to embark on initiatives supporting school development. The funding Norms and Standards in the South African education system are skewed towards supporting the less privileged schools. However due to the immense backlogs in infrastructure development not all the schools are able to benefit in the allocation of funds. The rural schools are the worst in terms of infrastructural backlogs, due backlogs and fiscal constraints.

The findings of the study indicate that some of the schools that are participants in the research have benefitted from the Kwazulu-Natal Infrastructure Provincial allocation, although it varies from one school to the other. This has been indicated in **Table 5.7** which shows how schools have benefitted from such initiatives. The findings of the research show that principals are providing leadership and direction in mobilising other infrastructural resources from several sources, which include the private sector, the NGOs and other parastatals. In **Table 5.7** there is evidence to illustrate the inequalities in terms of how the schools have benefitted from such school based management initiatives. These indicators point to the comparative results of the effectiveness of the school development plans in the cases of schools cited in the research.

The evidence presented further suggests the role of a rural principal as a systems practitioner in spearheading effective, developmental, holistic, stakeholder-supported school development approach which yields tangible results.

7.5.1 Curriculum Development and Teaching and Learning

The history of South African education system shows how curriculum development has evolved over a long period. This has been an evolutionary experience as supported by literature which is a key aspect of school development. Inspite of complex environment in which principals find themselves in schools, they are required to prioritise teaching and learning as the core business. The central role of principalship is facilitating suitable conditions for curriculum development and teaching and learning. In the developed education systems there is a body of literature that supports the crucial role of principals in leading schools towards improved teaching and learning (Dempster, Lovett & Flückiger, 2011; Mourshed, Chijioke, & Barber, 2010; Robinson, Hohepa & Llyod, 2009; Educational Leadership Policy Standards, 2008; Hopkins, 2008; National College for School Leadership, 2004).

The findings point to the keen interest that principals are showing by their involvement in curricula issues beyond their schools. The nature of South African schooling shows the value attached to the leadership working towards centralising teaching and learning in the school system. Based on the findings above it can be concluded that:

- Curriculum development needs to be prioritised as an important aspect for holistic school development.
- The leadership role of the principal serves as a catalyst for creating a conducive environment for curriculum development.
- The experience of principals in curriculum development guides the school towards improvement in learner performance.

The South African literature is replete with examples of support for principals leading and creating the appropriate conditions for teaching and learning. This study confirms how these principals were fully involved in leading teaching and learning (Mchunu, 2006). Furthermore, it confirms that principals were involved in classroom observation by the researcher as part of the implementation of IQMS (Mchunu, 2006). The effect of that

exposure may have made an impact in the way the participants valued teaching and learning. Based on these findings the study may conclude that:

- Instructional leadership is a critical skill of principalship that serves as a catalyst for teaching and learning.
- Principal leadership and demonstration in teaching and learning creates the necessary conditions for mentorship and coaching to teachers.
- Principals who teach in classrooms are in daily touch with the complexities and dynamics of curriculum development.
- Principals involved in teaching and learning show how to walk the talk and can serve as mentors to novice teachers.
- Leading principals who improve learner performance by teaching can hold teachers to account for their results.

Table 5.7 indicates the extent to which some of the leaders have gone an extra mile in working towards improving teaching and learning by providing the appropriate infrastructure and the way they contributed to curriculum development.

7.5.2 Promotion of Partnerships and Networking

There is scarce South African literature on how schools are supported by the private sector, NGOs and parastatals and the contribution thereof to school development. The idea of partnerships with local NGOs is commonly acknowledged in all the five cases. **Table 5.2** illustrates the kind of partnerships that existed between the schools and NGOs and government departments in addressing social ills. The issue of social ills that are affecting the schools cuts across all the schools, and there is a deep realisation that NGOs are the way to go in addressing such issues as HIV /Aids awareness, drug awareness and other social ills. The social ills illustrate the point that schools are nested within the environment and community in which they are located. The level of NGO involvement in schools shows the

power of working in collaboration with organisations which have resources that schools do not have.

The NGOs and other funders are however finding it difficult to get funding to keep them afloat, but in inspite of that they make it a point that they share whatever information, skills, expertise with the schools. Bertram (1999) in her study discovered that school development models which were funded by sponsors and NGOs were unsustainable due to lack of ownership and lack of sustainability of the projects. However, the findings in this study show that there is a high level of acceptance of NGOs by the schools in order to receive specialised services in addressing the issues pertaining to social ills. The observation in **Table 5.2** is that some NGOs discontinued their services due to the lack of funding, which jeopardises the progress made in that particular area. Studies indicate that NGOs play a significant and diverse role in supporting schools towards improvement in various fields such as academic, socio-economic, cultural and aesthetic and infrastructure development to mention a few (Haque, 2004; Grandvaux, Welmond, & Wolf, 2002; Mazibuko, 2000; Jagnnathan, 2001; Victoria, 2014).

The findings based on the above discussion lead us to conclude that:

- Reliance on sponsored NGOs services without ownership from the schools can lead to unsustained initiatives
- The existence of social ills in schools indicate that schools cannot be isolated from the society in which they are located
- Schools as nested sub-systems of society reflect the behaviour that exists in society

7.5.3 Co-ordination of clusters and networking

Literature supports the idea of schools and teachers supporting each on a variety of initiatives that yield mutual benefit. Professional teaching networks, collaboration and accountability have been postulated as the lead drivers for school development (Allan, 2011; DuFour, 2013; Hopkins, 2011). In a similar vein Fullan (2011) and Hargreaves (2012) supports the idea of teachers working across networks. In South Africa the involvement of schools in clusters is one strategy used to mitigate against the geographic distance between school, the lack of

support regular from district and the sharing of resources amongst schools. The cluster system supports linking schools with the aim of driving holistic school development (District Development Support Programme, 2003). A study conducted on the impact of the ACE Leadership programme assumes that principals are supposed to work and learn together in networks or clusters, although the findings indicate that they meet informally (Bush, Duku, Glover, Kiggundu, Kola, Msila & Moorosi, 2007). Jugmohan (2010) in his study on Ace Leadership programme for principals confirms the value of an organised process of mentoring which will allow the transfer of knowledge, skills and life experience to school managers. The findings of this study show that the principals were playing a significant role in working with other colleagues at the cluster level as well as at the circuit in providing mentoring and sharing of their skills, experiences and knowledge at different levels.

The collaboration and networking that exists amongst the schools is sustained by means of the cluster system. Schools mutually benefitted in their clusters by sharing expertise, resources and skills. The cluster system shows what schools can achieve when they have a shared vision. The idea of clustering schools in terms of their geographic location can be leveraged for purposes of turning the situation around regarding the scarcity of facilities and resources. Clusters created the environment for professional development, empowerment of school governing body, sharing of resources and financial management skills. The level of commitment to the cluster system, requires circuit and school leadership to mobilise to derive maximum benefit of its potential in the system. The idea of scaling up education reforms finds a lever to hang on in the cluster system. The dictates of the agenda of the cluster are incumbent on the identified need to of the schools that are clustered.

The circuit was arranged into different clusters in order to promote that schools work together on issues of school development and share resources in the form of expertise and exchange information, as well as professional development.

The findings of the study lead us to make the following conclusions:

- The idea of clustering schools in terms of their geographic location can be leveraged for purposes of turning the situation around regarding the scarcity of facilities and resources.

- Leadership from all levels of the school can be a catalyst for stabilising the cluster system.
- Circuit management leadership needs to be at the centre in committing to the cluster system.
- The idea of scaling up education reforms finds a lever to hang on in the cluster system.

7.5.4 Continuous Professional Development

Continuous professional development has been newly introduced as a policy by the National Department of Education. Findings point out that overreliance on the cascade model works against the good intentions of the department in the implementation of new policies. The lack of support and monitoring from the district contributes to the stifling of continuing professional development. The cascade model which is normally used for workshop purposes lacks the element of continual support which is needed for whole school development. The finding shows that principals have regressed after they were trained in CPTD due to lack of follow up and monitoring from the district. Participation by principals in professional programmes sharpens their skills, knowledge and understanding. The exposure of principals to Principalship Leadership Programme serves as a catalyst for improving the leadership and management skills. Findings in other studies show that much as principals have been exposed to such programmes, they do not show much growth in their leadership and management skills.

Table 5.3 illustrates that the principals are positive about professional development. This may be evidenced by the qualifications they have acquired in their careers. This further strengthens the point that is fully advocated and supported by Senge (1999) of personal mastery. These principals have availed themselves to professional development when the situation availed itself such as the Department‘s sponsored Leadership Programmes. On top of that they have also taken the initiative to personally engage in professional development.

CPTD is perceived in isolation from the other programmes such as IQMS and WSE at these schools. The quick fix approaches used for school development end up in teachers and

principals failing to see the connection in the whole value chain of events. The nature and quality of workshops for professional development requires that an element of ownership be introduced into the system of continuous professionalism. Principals need support in terms of continuous professional development in the absence of which those who do not have the initiative fail to improve their schools.

The study shows that principals are committed to uplifting the standard of teaching and learning in their individual schools. Upon observation at school level it shows that these schools are not having the same challenges. Principals need to be supported in terms of strategically formulating a shared vision, working on team building, and providing leadership and direction. Principals have embarked on a programme of action, which bore fruit in school development.

School development plans are inclusive of nine key areas as suggested in WSE policy document. The commonly used tool for engaging in strategic thinking is SWOT Analysis. These studies (Mchunu, 2006; Mntambo, 2009) support the view that these principals were exposed to use other thinking tools such as rich picture, influence diagram, root definition and the iceberg during the workshops. There is general lack of knowledge of the use of systems tools as indicated that in a previous study these principals were exposed to such. The basis for strategic thinking in systems thinking is to approach the phenomena from the systems lens, which provides the tools of analysis of such (Thornton, Shepperson & Canavero, 2007; Mathews & Jones, 2008; Lamb & Rhodes, 2008; Barnard, 2013). The research findings point that TESM manuals served a points of reference for effective training of principals in professional development.

Leading change in an organisation goes beyond the narrow view of analysing the attributes of leadership, as most literature will advise. Change comes at a cost and after a lot has to be considered. Principals consider themselves being overladen with too many initiatives, due to lack of identifying points of leverage and skills of integrating the new initiatives with existing programmes. The glaring gaps are already seen in existing cascade model which leaves the principals on their own once the workshops have been finished.

The above discussion leads to the following conclusions:

- The principal has a critical role to play in motivating teachers to embark on continuous professional development.
- The cascade model is a deficit model when it comes to needed continuing support for school development efforts.
- When principals take ownership of the personal mastery and continuous development, the positive spin offs dovetail to school development.
- Leadership in clusters plays a pivotal role in supporting continuing professional teacher development.
- District supported continuing professional development is needed to influence teaching and learning.
- Programmes for continuing professional development need to be updated.

7.5.5 Infrastructure development

The findings of this study have additionally revealed that principals are taking the lead in providing solutions where they are confronted with infrastructure shortages at school. The principals are providing both school-led and departmental led interventions in addressing challenges of varied nature such as the following, namely:

- A critical shortage of basic instructional resources
- Lack of technology and ICT support to schools
- Lack of skills amongst SGB members to drive fundraising efforts for infrastructure development
- Infrastructure challenges for sports facilities

In spite of the challenges cited above, it also emerged in this study that principals provided leadership, vision, to guide schools towards improving infrastructure resources. Despite the lack of funds to sustain, maintain and acquire funding for infrastructure development, the principals were visionary in soliciting outside support from other partners for purposes of developing the infrastructure.

Table 5.5 shows the nature of the provision of infrastructure to all the multi-cases. The table indicates how School Governing Bodies have taken responsibility for the development of infrastructure, with the support of the Department of Education.

The discussion leads on to make the following to the conclusions:

- Leadership that is visionary prioritises to address the infrastructure backlogs.
- Partnerships with NGOs and other sister departments is of benefit to schools in addressing infrastructure challenges.

7.5.6 Participation in extra –curricular activities

Participation in extra- curricular activities by learners is a critical element of school development. In rural schools the participation also depends on the level of support the schools receive from the district and province in providing the required infrastructure for development of new sports codes.

Table 5.4 summarises the participation of the schools in extra-curricular activities. The findings point to the dire need for funding to establish more facilities and infrastructure in order to improve extra-curricular activities. In terms of the data presented the findings show that schools which have taken the responsibility to seek for sponsors have improved their extra-curricular facilities. The findings also indicate that systemic leadership in schools looks at all aspects for a holistic school development. With the backlog at hand, the department cannot be able to provide all the schools with infrastructure for extra-curricular activities. Therefore systemic leadership is a requisite in schools in order to begin to seek for partnerships with both the private sector and NGOs.

The conclusion made from the discussion is that:

- School development interventions does not necessarily mean a one size fit all strategy
- Leadership is making efforts to expose learners to extra-curricular activities inspite of the infrastructure challenges.
- Participation in extra-curricular activities is a necessary for a whole development of learners.

- Private and public partnerships can make a difference in supporting schools with facilities for extra-curricular activities.

7.6 How do principals engage in reflective practice?

Reflective practice is a critical skill in systemic leadership, which needs to be developed. Findings of this study point that principals were able to recall the events of the journey, whereby they were engaged in utilising systems thinking as an approach to conduct school development. Findings point out that different kinds of records were used as a point of reference for reflection on past school activities. However, the use of diaries as source references for daily reflection was not practiced as a skill.

These findings lead to the following general conclusions:

- Principal leadership and management manuals are needed for advanced training based on new knowledge based on the recent developments.
- Refresher courses and programmes can serve as stop gaps for improving principalship development.
- Principalship programmes lack the reflective character that is needed to continuously challenge them to engage in reflective practice.

It is recommended that district support programmes need to be geared towards improving reflective skills. Reflection is a significant systems thinking skill which is practised in countries with developed professional systems. The skill of reflection on practice, as a thinking skill is not normally practiced for purposes of checking one‘s assumptions, beliefs and also practices that needed to be improved. The findings indicate that not much is being done by principals in exercising reflective practice. In terms of the findings of the study it can be concluded that:

- Reflection as a tool for thinking is not exercised by principals.
- Reflective practices are minimal due to lack of professional development of such a critical skill
- Lack of reflective skills can hinder strategic thinking required for evaluation of programmes.

7.7 What are the challenges of working with systems thinking in school development?

The findings of the study cited different kinds of challenges faced by principals in using the systems thinking approach in school development. There is general lack of clear understanding of systems thinking as a theoretical approach for school development. Observations point that stakeholder participation in systems approaches need a lot of time, whereas most people prefer quick fix solutions. Working from a systems perspective needs training, exposure and alignment with other systems thinkers in order to identify leverage points for intervening in the system. Lack of systemic awareness leads to ~~"s~~ingle tool" approaches, whereby quick fixes are sought and one size fit all lenses.

From the cited challenges envisaged I can conclude that:

- Systems thinking is neither a quick fix and nor a panacea, but rather an approach that empowers the individual with thinking tools to analyse a problematic situation.
- A quick fix approach may not necessarily be a decision that is unintended, considering what is at stake in the schooling system. However, this may be justified on the urgency that prevails in the situation, such as to turn around a dysfunctional school by removing a principal.
- School development interventions do not necessarily mean a one size fit all strategy for all schools.
- Our socialisation always lends us in using a hammer approach as a way of fixing problems, which is an indication of how many tools we carry in our mind toolbox for any given situation, considering the level of the complexity of the problem and its given context.

As much as there are challenges in the use of systems thinking perspectives, there are also immense benefits once you are immersed into this line of thinking. The challenge in systems thinking is the understanding of the theoretical framework. I argue that the investment that systemic leadership can make on human resource, can immensely benefit the whole school organisation. The demonstration of life-long learning by systemic leadership can be a trajectory towards becoming a learning organisation. I argue that systems thinking can serve as a catalyst for any sustainable systemic interventions and programmes. Systems thinking

approaches require time commitment from all the stakeholders, which may be one of the shortfalls if there are sectors that are not pulling their weight.

7.8 Development of the Systemic School Development Framework (SSSDF) model

The research study culminated in the development of a systemic leadership school development model for based on integration of principles from the SSM, SD, VSM and Critical Systems Heuristics. Information obtained through the literature review and systems thinking theory informed the structure and content of the model. The model is holistic, multi-methodological and multi-dimensional in nature and consists of elements from the SSM, SD, SVM and Critical Systems Heuristics. It attempts to close the gaps identified in the SSM, by integrating a combination of elements from the above mentioned strands of systems theory. The holistic, critical, emancipatory, and systemic aspects strengthen the model. It is undergirded by systemic leadership as the driving force behind school development. Systemic leadership permeates the three tier levels of the system, i.e. province, district and school.

7.9 Recommendations

The following recommendations are derived from the findings of this study. The findings above justify the presentation of recommendations based on the 21st century need to upscale changes towards system-wide school development approach. These recommendations are applicable to the three tier levels of the system, i.e. the province, district and school. It is recommended that the level of the province consideration needs to be given to the infusion of Systemic Leadership in the design of training material for workshops by the chief directorates that are responsible for human resource development. Systemic Leadership as a state of mind is requisite for identifying systemic issues and can a serve as a trajectory for producing other Systemic Leaders. Continuous Professional Development Programmes is critical for setting the stage for infusing systemic awareness and pointing at the areas which are considered as leverages for improvement.

Recommendations Applicable to the Three Tier Levels

(i) The Kwazulu-Natal Provincial Department of Education needs to investigate the possibility of implementing the systems thinking approach to support school development. The role of the Kwazulu-Natal Provincial Department of Education needs to shift towards working in collaboration with Districts in facilitating system-wide school development. This can be achieved by strengthening the existing structures such as District Forums with a renewed mandate to establish collaborative structures, with a new mindset for continuous professional development. District Directors and Chief Directorate Directors establish Directors Forum made of the twelve District Directors and the Directors in Chief Directorates at Provincial Head Office. This Directors Forum can play a new role in co-ordinating collaborative teams, forums for professional learning, support, monitoring and sharing resources and training. In this Directors Forum the District Directors and Head Office Directors can collaborate and promote interaction amongst themselves in terms of identifying areas of intervention that can make an impact on school development. The Directors Forum as a structure needs to promote joint problem-solving of complex challenges, sharing of best practices, coaching, mentoring and peer support. This endeavour will reduce isolationism in work practices and promote joint planning of Programmes of Action.

(ii) There is an identified need to bridge the communication and collaboration gap amongst the Chief Directorates with the District offices. A key recommendation is to strengthen the Directors Forum by identifying key personnel to be responsible for providing training and facilitation from the Provincial Head Office. The establishment of this Provincial Training Teams is considered as strategic for leading and managing trainings and promoting professional learning networks within and across the level of the Province and District. This will enable the Provincial Training Team with authority and resources to strategically provide identified development based on Directors workplans and professional development needs (EPMDS). This will serve as a trajectory for infusing systemic thinking in training manuals and material for conducting workshops. In this way the Provincial Training Facilitators will be empowered to impart skills, knowledge and understanding of systemic thinking to the District Training Teams.

(iii) CPTD as a departmental initiative which is currently rolled out by the Kwazulu-Natal Education, District in collaboration with the South African Council of Educators (SACE) is

identified as a leverage point for continious professional development which needs to be infusing systemic thinking. Prior to the roll out programme, a buy in should be procured from all the relevant stakeholders at the level of the province, district and schools. A fundamental principle pf systemic change process is broader stakeholder ownership. The implementation of the CPTD would have been easier if the buy in at the district and school level has occurred prior to its implementation. A strategy for eliciting the ownership from unions needs to be developed by engaging them from the onset. Broad representation at the Provincial and District Training Teams needs to be inclusive of unions.

(iv) The development of a systemic mindset across the broad spectrum of the stakeholders, at the level of the province, district and schools is considered as the critical milestone for holistic and sustained implementation of programmes. The Provincial Training Teams as education leaders need to be introduced to the basic tenets of systemic thinking is order to support the idea of system wide school development strategy. The training manuals and materials can be developed with the mindset that key stakeholders need to be exposed to this new thinking. These key stakeholders need to have a systemic awareness of the nature of the education in which they are embedded in and see their role within this complex organisation. It is believed that understanding the interconnections and interrelationships within the system, as well as the interdependent nature of the Chief Directorates, Districts and schools, is necessary to renew the mindset of key stakeholders. This mindset shift can lead to collaboration and building of trusting relationships with the teacher unions.

(v) It is recommended that the proposed Systemic School Development Framework (SSCDF) be considered as an approach for upscaling the roll out of CPTD to the school teachers. It is recommended that parts of the SSDF model be adapted for guiding CPTD Trainers and Facilitators as it is scaled across school districts to all teachers.

(vi) It is recommended that Provincial and District Teacher Development Trainers and Facilitators be exposed to the understanding of principles of Systemic Leadership. Secondly, the next stage requires that they be trained in Systems Thinking models. It is recommended that principles which undergird SSDF be incorporated into IQMS as a way of strengthening it to a level where it is owned and sustainable. It is recommended that IQMS be considered as point of intervention as its potential as a transformative policy has not been explored. A renewed approach to Whole School Evaluation and IQMS from a systems thinking approach

is recommended, where areas of alignment are identified for improvement at school level. District Trainers and Facilitators need to be trained in developing District Improvement Plans which integrate the systems thinking approach.

(vii) It is recommended that the Strategic Directorate of the Provincial Departments of Education integrate the principles of the systemic thinking in the Provincial Strategy and Programme of Action. The latter are considered as a key strategic policy documents which are pivotal for turning around and driving systemic awareness across the Provincial Department of Education.

7.2 Recommendations for implementation at District and Circuit levels

(i)It is recommended that the Strategic Directorate guide and train District Teams on systemic thinking and Systemic Leadership as a way of exposing districts as critical players in driving school development. It is proposed that such activities be structured not as –quick fixes" considering the unintended consequences this may have on the system. The suggested approaches need to be based on principles of life-long learning and reflective practice. Continuous engagement in principles of systems thinking during the strategic planning sessions, meetings, reporting sessions, workshops, seminars and education summits is suggested as the some of the methods to infuse the systemic mindset.

(ii) It is recommended that the District Teams be trained on developing District Action Plans and District Improvement Plans. It is suggested that the trained District Teams train the district officials in diverse sub-directorates on developing Sub-directorate Action Plans. I further recommend that the District Training Teams train Sub-directorate heads and District officials on developing Action Plans. It is recommended that these Action Plans be aligned with individual Sub-directorate Employee Performance Management Development System (EPMDS) Work Plans, as the latter reflects the day to day activities for quarterly review.

(iii) The shift in thinking at the strategic level of the District and Circuit requires that the following objectives be considered as those of the Systemic Leadership at these structures. The District Management Committee (Manco) as a structure needs to rethink its objectives and roles based on the systems framework. We suggest that these objectives and roles be considered in order to implement this model. It is recommended be trained in developing Circuit Improvement with set goals, timeframes and identified areas of intervention that

impact on school system. It recommended that Circuit Managers identify Circuit Teams responsible for training and facilitating school improvement. It is recommended that the Circuit Management Teams align the Circuit Improvement Plans from the consolidated school improvement plans. It is recommended that these Circuit Management Teams be composed of leading subject teachers, cluster leaders who will be responsible for formulating, implementing and monitoring and evaluating the Circuit Improvement Plan across the circuit school. The Circuit Management Teams are trained in supporting schools which are struggling with dysfunctionality by identifying areas for intervention.

(iii) It is suggested that the existing partnerships between private business and NGOs be institutionalised and profiled for upscaling to other areas where there are dire needs such as remote rural schools and the sharing of resources. The contextual challenges facing schools, such as Hiv/Aids, teenage pregnancy and drug abuse, need to be addressed. Due to the complexity of such issues affecting school development, it is proposed that the existing partnerships with government agencies, departments, and NGOs be strengthened. It is recommended the research be conducted on the effectiveness of the existing partnerships with NGOs and business for purposes of learning the best practices in these partnerships.

(iv) A new culture of collective leadership and team work that does not get entangled in the titles and positions attached to the hierarchies is needed for any sustainable, coherent, and flexible school development. This culture needs to be engendered across all the three tiers of the system, i.e. the province, district and school amongst all the leaders.

(v) It is recommended that all the existing structures at the District, Circuit and School be identified to examine their roles and responsibilities, effectiveness, and identify areas which can be considered for alignment with other functional structures. It is suggested that District Management Committee (MANCO) takes responsibility for providing leadership and management.

7.10 Areas for further research

The following aspects of this study merit further investigation. In view of the limited scope of this study, it is recommended that a more in-depth study should be conducted to provide more insights into other related areas of the implementation of school development using

systems thinking tools as a new approach. Such research may work if it includes action to implement the systems thinking approach efficacy with the objective of establishing what works and what will not work in other contexts. I recommend the use of participatory action research in the utilisation of the SSM tools and techniques combined with Critical Systems Heuristics as implicit in the formulated theoretical framework for school development.

There is a need for investigation of this phenomenon though the use of a representative sample comprising of a variety of schools consisting of both primary and secondary schools. In recommending the further research based on the formulated systemic leadership theoretical framework for school development, I recommend that such a proposed study needs to establish the merits and demerits of such a proposal. Furthermore, areas impacting on school development need to be identified and the proposed systemic school development framework be applied to those areas to further link such a proposed framework with school development.

A need has been identified for conducting research on the effectiveness of the clusters which are used solely for subject moderation, sothat other areas of strengthening these can be identified.

I have also observed that understanding of systems thinking is a challenge which needs to be overcome by infusing such in the workshop material used for training principals on leadership and management programmes. I therefore believe a study on how this can be done can be conducted. This will be a trajectory for introducing systems theory to principals as leaders of schools. This will also create a platform to ascertain additional challenges of the efficacy of systems thinking approaches to implementation of initiatives which impact on school development.

As proposed in Chapter Six, there are possibilities that the Systemic School Development Framework can be adapted, improved or altered to cater for different school problematic issues and contexts. A simplified approach is considered significant as schools are not on the same wavelength in terms of capacity for managing complex issues.

Recommended further studies need to consider the population needs that are inclusive of urban, semi-urban, and rural and township schools a part of the sample.

This study examined the use of systems thinking by the principals in school development, the understanding of systems thinking, the benefits of using the systems thinking approach and the challenges of using such in school development. The participants expressed their reflections on the use of the systems thinking approach as per the context in which they were working as principals of schools. A study to focus on the use of the systems thinking approach in the different context of circuit by a different circuit manager is necessary considering the challenges that may exist in other contexts and the assumptions, the bias of the researcher.

7.11 Limitations of the study

This study focused on five schools in the Umgungundlovu District. This is obviously a limited target population of the principals which may not represent all the schools in the Umgungundlovu District where systems thinking was used for school development. This makes it difficult to generalise the findings beyond the five schools in which the study was conducted. It is left to the reader to decide how relevant the findings of this case study are to their particular setting. More schools could have produced different research results. The fieldwork was undertaken in a rural setting. As the African schools are found in township and rural areas, this systems thinking approach could also be introduced and incorporated in school development in these areas considering their dynamic and complex nature. The research focused on five aspects, namely the understanding of systems thinking approach, the use, benefits and challenges thereof, which may have not covered other areas in terms of understanding the issues. Despite these limitations, the data gathered from the research contribute to a better understanding of the use of systems thinking in conducting school development.

7.11 Contributions to Study

The question that has been bugging me in this doctoral journey is what contribution will I add to the existing body of knowledge. In the light of the demands made by such a daunting task I have grown and developed in terms of my personal journey. In the course of the journey the thesis has positively answered the primary question. In answering that question the thesis has endeavoured to indicate the benefits of using a systems thinking approach to school development. The study added to the very little that is known in education generally about studies that are conducted from the systems thinking perspective. The study has made attempts to orientate education readers, policy makers and planners about systems thinking as a paradigm and its use in school development. New knowledge has been added by means of the formulated Systemic School Development Framework as a model that is worth being researched. Such a model offers deep insight into the three tier levels that are critical for system wide school development. The provincial, district and school levels are not seen in isolation, as the model bridges that structural gap. The model draws attention to the renewed role that needs to be played by all the key Systemic Leaders at the three levels of the system

in terms of working towards the set goals. The model presupposes that systemic awareness is key to a system-wide school development, which can be achieved by placing Systemic Leadership as the catalyst for mobilising change across all the levels for holistic and sustained school development. Another key element of the model is collective capacity building at all the levels of the education system. Having established that there is a lack of clear understanding of systems thinking, therefore leadership development programmes must be undergirded by systemic thinking.

This study further theorises that schools can develop if collaborative practices between schools are sustained by means of clusters and professional networks of teachers to advance instructional improvement. The practical significance of this study is that it provides insight into processes of implementing a district wide school development framework. Very little is written or researched in systems thinking and its relation to school development. Other aspects that this study revealed are the emerging patterns such as teaching and learning, curriculum development, professional development, networking and clusters, strategic planning and its relation to school development.

7.12 Conclusion

Based on the conclusions and recommendations made in this final chapter of the thesis, I conclude that the research questions were adequately addressed and that a contribution was made to address the research problem. The study confirms that there are more benefits of the efficacy of applying a systems thinking approach in the schooling development. The study has therefore examined the use of a systems thinking approach to school development in terms of understanding systems, its benefits and challenges thereof. The study was based on systems thinking approach with an aim of examining its efficacy for school development. The research improved my understanding, knowledge and skills of systems thinking and became an eye opener considering the strengths for use in school development. It also became a journey of self- discovery and learning on a whole range of issues pertaining due to the academic demands it put on my basic knowledge of concepts such as systems thinking, the systems thinker, systems tools, systemic education reform, school development to mention a few. As the academic rigour put by the thesis increased, it challenged me to introduce the knowledge and skills of systems thinking in a new job where I am responsible

for strategic planning at the level of the District, whilst also working with other new schools where I am training a few principals on school development planning. As a result my own perspective in terms of my approach to my work, career and leadership has improved significantly due to the influence of understanding systems thinking as a lens. In the beginning of this thesis the question was posed: How do school principals utilise the systems thinking approach to school development? Based on the findings that emanated from this research, I can confirm that principals can make use of the knowledge, skills of systems thinking approach in conducting school development. In the light of the demands made on principals to be lifelong learners and practitioners, there are opportunities for building their capacity as systems thinkers with the requisite knowledge and skills to gain a better understanding of dynamic, complex and messy situations. Empowerment and capacity-building programmes can be incorporated with the systems thinking lens to equip principals, SGBs and SMTs as part of the scaling up approach to the different levels and areas of the education system. By means of training and mentoring the District and Circuit officials can be better equipped to support the schools. These three levels, the district, the circuit and school can begin to work towards a shared vision and approach to school development. With the morale purpose to engage in this programme of continuous learning all the stakeholders can ensure that these tri-level institutions derive purpose in working towards being learning organisations. At the core of the anticipated operations will be system thinkers and practitioners who are steeped in understanding the dynamics and complex nature and messy issues facing institutions. Without this alignment at all the tri levels, attempts to develop schools will have no sustainable effect, will lack the element of ownership, and the required synergy, the holistic and integrated approach needed to handle systemic issues.

The purpose of this study was to examine the use of the systems thinking approach to school development, where a case of five selected principals was used at Umgungundlovu District. The findings, conclusions and recommendations of this study could serve as a point of departure in addressing the systemic issues of education reform that are attached to school development.

While I do not claim that principals were capable of understanding systems thinking and using systems tools, I can argue that conducting research on the latter can be of benefit utilising a holistic systemic school development framework. This study has attempted to

create dialogue and space for discourse on the efficacy of systems thinking approaches to school development and it is hoped it can add value to the process of empowering principalship programmes and also principals as beneficiaries of such programmes with systemic awareness skills.

8. REFERENCES

Abednia, A., Hovassapian, A., Teimournezhad, S., & Ghanbari, N. (2013). Reflective journal writing: Exploring in-service EFL teachers' perceptions. *System, 41* (3), 503-514.

Ackermann, F. (2012). Problem structuring methods _in the Dock': Arguing the case for Soft OR. *European Journal of Operational Research*, *219*(3), 652-658.

Ackoff, R. L. (1991). Science in the systems age: beyond IE, OR, and MS. In *Facets of Systems Science* (pp. 325-335). Springer US.

Ackoff, R. L., Ackoff, R. L., & Emery, F. E. (2005). *On purposeful systems: An interdisciplinary analysis of individual and social behaviour as a system of purposeful events*. Transaction Publishers.

Adam, F. & Wagid, Y. (2005). In defense of deliberative democracy: Challenging less democratic school governing body practices. *South African Journal of Education*, *25* (1), 25-33.

Adam, T., & de Savigny, D. (2012). Systems thinking for strengthening health systems in LMICs: need for a paradigm shift. *Health Policy and Planning, 27* (4), iv1-iv3.

Adelman, H. S., & Taylor, L. (2007). Systemic change for school improvement. *Journal of Educational and Psychological Consultation, 17* (1), 55-77.

Ainscow, M., Beresford, J., Harris, A., Hopkins, D., Southworth, G. & West, M. (2013). *Creating the conditions for school improvement: a handbook of staff development activities.* Routledge.

Ainscow, M., Booth T. & Dyson A (2004).Understanding and developing inclusive practices in schools: a collaborative action research network. *International journal of inclusive education, 8* (2), 125-139.

Albert, S. & Grzeda, M. (2015). Reflection in Strategic Management Education, *Journal of Management Education, 39* (5), 650-669.

Aluko, R. F. (2009). The impact of an Advanced Certificate in Education (ACE) Program on the professional practice of graduates. *The International Review of Research in Open and Distributed Learning, 10* (4).

Amagoh, F. (2008). Perspectives on organizational change: systems and complexity theories. *The Innovation Journal: The public sector innovation journal*, *13* (3), 1-14.

Amponsah, S. (2014). The use of Student Teams Achievement Division as a teaching strategy in English first additional language in KwaZulu-Natal. Unpublished doctoral dissertation, University of South Africa, Pretoria.

Anderson, G. L. (2009). *Advocacy leadership: Toward a post-reform agenda in educa*tion. Routledge

Anderson, V. & Johnson L. (1997). *Systems Thinking Basics: From Concepts to Causal Loop*s. Pegasus Communications: Waltham MA.

Apple, M.W. (2013). *Education and Power.* Routledge.

ASCD (2013). The Principalship. *Educational Leadership*, *70* (7).

Ash, P. B., & D'Auria, J. (2012). *School systems that learn: Improving professional practice, overcoming limitations, and diffusing innovation*. Corwin Press.

Atun, R. (2012). Health systems, systems thinking and innovation. *Health policy and planning*, *27* (4), 4-8.

Babie, E. & Mouton, J. (2001). *The practice of social research.* Cape Town: Oxford University Press.

Badillo, I., Flores, M., Morales, O., & Tejeida, R. (2011). *Supply Chain Management from a Systems Science Perspective*. INTECH Open Access Publisher.

Bagobiri, G. A. R. B. A., Asimiran, S. O. A. I. B., & Basri, R. A. M. L. I. (2013*). Principals" Leadership Attributes: A predictor for Secondary School Effectiveness.*

Bagobiri, G. A. R. B. A., Asimiran, S. O. I. B. & Basri, R. A. M. L. I. (2015). *The Relationship between the Engagement, System Thinking, Leading Learning, Self-Awareness and Students" Outcomes in Niger State Secondary Schools.*

Bailey, C. A. (2007). *A Guide to Qualitative Field Research*. Sage Publications.

Balle, M. (1994). *Managing with Systems Thinking. Making Dynamics work for you in business decision making*. London: McGraw-Hill Book Company.

Banathy, B. H. (1991). *Systems Design of education: A journey to create the future.* Educational Technology.

Banathy, B. H. (1992). *A Systems view of Education: Concepts and principles for effective practice*. Educational Technology.

Banathy, B. H. (2013). *Designing social systems in a changing world*. Springer Science & Business Media.

Banathy, B. H., & Jenlink, P. M. (2003). Systems inquiry and its application in education. *Handbook of research for educational communications and technology*, 37-58.

Bantwini, B. D. (2010). How teachers perceive the new curriculum reform: Lessons from a school district in the Eastern Cape Province, South Africa. *International journal of educational development, 30* (1), 83-90.

Bardoel, E. A., & Haslett, T. (2006). Exploring ethical dilemmas using the ~~"d~~rifting goals" archetype. *Journal of Management Education*, *30*(1), 134-148.

Barge, J. K., & Fairhurst, G. T. (2008). Living leadership: A systemic constructionist approach. *Leadership, 4* (3), 227-251.

Barr, J., & Saltmarsh, S. (2014). ~~"I~~t all comes down to the leadership" The role of the school principal in fostering parent-school engagement. *Educational Management Administration & Leadership, 42* (4), 491-505.

Barth, R. (1990).*Improving schools from within: teachers, parents and principals can make a difference*. San Francisco: Jossey bass.

Barton, J., Emery, M., Flood, R. L., Selsky, J. W., & Wolstenholme, E. (2004). A maturing of systems thinking? Evidence from three perspectives. *Systemic Practice and Action Research, 17* (1), 3-36.

Baruth, G. D. (2013). *Exploring the experiences and challenges faced by school governing bodies in secondary schools in the province of KwaZulu Natal*. Unpublished doctoral dissertation, University of South Africa, Pretoria.

Batra, A., Kaushik, P., & Kalia, L. (2010). System thinking: Strategic planning. *SCMS Journal of Indian Management*, *7* (4), 5-12.

Basden, A., & Wood-Harper, A. T. (2006). A philosophical discussion of the root definition in soft systems thinking: an enrichment of CATWOE. *Systems Research and Behavioral Science*, *23*(1), 61-87.

Baskerville, R., Pries-Heje, J., & Venable, J. (2009, May). Soft design science methodology. In *proceedings of the 4th international conference on design science research in information systems and technology* (p. 9). ACM.

Bashiri M, & Tabrizi M.M. (2010). Supply chain design: A holistic approach. *Expert Systems with Applications 37* (1), 688–693.

Baxter, J. & Eyles, J. (1997). *Evaluating qualitative.*

Beare, H. (2001). *Creating the future school*. Psychology Press.

Beare, H., & Slaughter, R. (1994). *Education for the twenty-first century*. Psychology Press.

Beatriz, P., Deborah, N., & Hunter, M. (2008). *Improving School Leadership, Volume 1 Policy and Practice: Policy and Practice* (1). OECD publishing.

Beer, M., & Eisenstat, R. A. (2000). The silent killers of strategy implementation and learning. *Sloan Management Review*, *41*(4), 29-40.

Beinhocker, E. D., & Kaplan, S. (2002). Tired of strategic planning. *The McKinsey Quarterly, 2*, 1-7.

Bell, L. (2002). Strategic planning and school management: full of sound and fury, signifying nothing? *Journal of Educational Administration*, *40* (5), 407-424.

Bell, S., & Morse, S. (2013). How people use rich pictures to help them think and act. *Systemic Practice and Action Research*, *26*(4), 331-348.

Benson, T.A. (2010). *Developing a Systems Thinking Capacity in Learners of All Ages*.

Bentley, T., & Miller, R. (2003). *Possible Futures: Four Scenarios for Schooling in 2030*.

Bergman, M.M., Bergman, Z. & Grovett, S. (2011). The Difference and Application of the Exploratory Model of School Dysfunctions. *South African Journal of Education. 31*, 461-474.

Bertalanffy, L., von (1969). General systems theory and psychiatry—an overview. *General systems theory and psychiatry,* 33-46.

Bertalanffy, L., von (1972). The history and status of general systems theory. *Academy of Management Journal, 15*(4), 407-426.

Bertram, C. A. (1999). *Conceptualising whole school development: examining the approaches of non-government organisations to school development in South Africa.* Unpublished doctoral dissertation, University of Natal, Pietermaritzburg.

Bertram, C. (2004). *Understanding research: learning guide and reader.* (2nd Ed.) Pietermaritzburg: University of KwaZulu-Natal.

Bertram, C. & Christiansen, I. (2014). *Understanding Research: An introduction to reading research.* Pretoria, Van Schailk.

Betts, F. (1992). How Systems thinking applies to education. *Educational Leadership, 50* (3), 38-41.

Bez, M. R., Flores, C. D., Fonseca, J. M., Maroni, V., Barros, P. R., & Vicari, R. M. (2012). Influence Diagram for selection of pedagogical strategies in a multi-agent system learning. In *Advances in Artificial Intelligence–IBERAMIA 2012* (621-630). Springer Berlin Heidelberg.

Bhengu, T.T. & Gounden, R. (2014). School Leadership Role in Creating a Learning Organisation: Perspectives from Primary School Teachers and School Management *International Educational Science, 2* (3)

Bhengu, T.T. & Mkhize, B.N. (2013). Principals' instructional leadership practices in improving learner achievement: Case studies of five secondary schools in the Umbumbulu area. *Education as Change*, *17* (1), 33-47.

Biggs, R. O., Rhode, C., Archibald, S., Kunene, L. M., Mutanga, S. S., Nkuna, N. & Phadima, L. J. (2015). Strategies for managing complex social-ecological systems in the face of uncertainty: examples from South Africa and beyond. *Ecology and Society, 20* (1), 52.

Bipath, K. Creating a supportive learning environment for the ACE school leadership programme at the University of Pretoria.

Bisschoff, T. C. & R Mestry, (2009). Financial school management explained: Pearson.

Bjorkman, C. (2008). *Internal Capacities for School Improvement: Principals views in Swedish Secondary Schools*. Unpublished doctoral dissertation, Umea Universities.

Blase, J., & Blase, J. (2000). Effective instructional leadership: Teachers' perspectives on how principals promote teaching and learning in schools. *Journal of Educational Administration, 38* (2), 130-141.

Bless, Higson –Smith, C. & Sithole, S.L. (2013). *Fundamentals of social research methods. : An African perspective.* (5th Ed.). Claremont: Juta.

Boardman, J., & Sauser, B. (2006, April). System of Systems-the meaning of. In *System of Systems Engineering, 2006 IEEE/SMC International Conference on* (6-pp). IEEE.

Boardman, J. & Sauser, B. (2008). *Systems Thinking: Coping with 21st Century Problems*. CRC Press Taylor & Francis Group: Boca Raton LA.

Boggan, J. P. (2014). *Focus and Priority Schools: How Principals Enact Leadership Responsibilities to Increase Student Achievement in Selected Mid-Western* Counties.

Bolden, R., Hawkins, B., Gosling, J. & Taylor, S. (2011). *Exploring leadership: individual, organizational*, and *societal perspectives*. Oxford University Press.

Bond, N. (2014). *Teacher Leaders as Professional Developers.* The Power of Teacher Leaders: Their Roles, Influence, and Impact. New York, Routledge.

Borgman, C.L. (1986). The user‘s manual mental model of an information retrieval system: an experiment on a prototype online catalog, *International Journal on Man-Machine Studies, 24,* 47-64.

Botha, R. J. (2012). The role of management and governance in effective school based management South African schools. *Journal of the International Society for Teacher Education, 16* (2).

Bottoms, G., & Schmidt-Davis, J. (2010). The Three Essentials: Improving Schools Requires District Vision, District and State Support, and Principal Leadership. *Southern Regional Education Board (SREB)*.

Boudah, D.J. (2011). *Conducting educational research: Guide to completing a major project.* Los Angeles: Sage.

Bowen, G. A. (2009). Document analysis as a qualitative research method. *Qualitative Research Journal*,
9 (2), 27-40.

Breen, R. L. (2006). A practical guide to focus-group research. *Journal of Geography in Higher Education,*
30 (3), 463-475.

Briggs, A. R., Morrison, M., & Coleman, M. (2012). *Research methods in educational leadership and management.* Sage Publications.

Broadhead, P., & Cuckle, P. (2002). Starting with learning: new approaches to development and improvement planning in primary schools. *Research papers in education*, *17* (3), 305-322.

Broadhead, P., Hodgson, J., Cuckle, P., & Dunford, J. (1998). School development planning: moving from the amorphous to the dimensional and making it your own. *Research Papers in Education, 13* (1), 3-18.

Brooke-Smith, R. (2002). Paul Clarke. Learning Schools, Learning Systems. *Journal of Educational Change*, *3* (1), 81-83.

Brown, S.L. & Eisenhardt, K.M. (1997). The art of continuous change: Linking complexity theory and time-paced evolution in relentlessly shifting organizations. *Administrative Science Quarterly,* (42), 1-34.

Bryk, A. S., Sebring, P. B., Allensworth, E., Easton, J. Q. & Luppescu, S. (2010). *Organizing schools for improvement: Lessons from Chicago*. University of Chicago Press.

Bryman, A. (2004). *Social research methods* (2nd Ed.) Oxford: Oxford University Press.

Byrne, E., & Sahay, S. (2007). Participatory design for social development: A South African case study on community-based health information systems. *Information Technology for Development*, *13* (1), 71-94.

Brynteson, R. (2006). *Once Upon a Complex Time: Using Stories to Understand Systems*. Sparrow Media Group: Farmington MN.

Buckle Henning, P., & Chen, W. C. (2012). Systems thinking: Common ground or untapped territory? *Systems Research and Behavioral Science*, *29* (5), 470-483.

Buckle Henning, P., Wilmhurst, J., & Yearworth, M. (2012, May). Understanding systems thinking: an agenda for applied research in industry. In *Proceedings of the 56th Annual Meeting of the ISSS-2012, San Jose, CA, USA*.

Bui, H., & Baruch, Y. (2010). Creating learning organizations: a systems perspective. *The Learning Organization, 17* (3), 208-227.

Bunning, C. R. (1992). Effective strategic planning in the public sector: some learnings. *International Journal of Public Sector Management, 5* (4).

Burch, P., & Spillane, J. (2004). *Leading from the middle: Mid-level district staff and instructional improvement.* Chicago: Cross City Campaign for Urban School Reform.

Burns, D. (2007). *Systemic action research: A strategy for whole system change*. Policy Press.

Burrell, G., & Morgan, G. (1979). *Sociological paradigms and organisational analysis* (248). London: Heinemann.

Bush, T. (2007). Educational leadership and management*: Theory, policy, and practice*. *South African Journal of Education, 27* (3), 391–406.

Bush, T. (2008). *Leadership and management development in education*. Sage Publications.

Bush, T. (2009). Leadership development and school improvement: contemporary issues in leadership development. *Educational Review, 61*(4), 375-389.

Bush, T., Jourbert, R., Kiggundu, E. & Van Rooyen, J. (2010). *Managing teaching and learning in South African schools.* International Journal of Educational Development, *30* (2).

Bush, T. (2011). *Leadership in the Early Years: Making a Difference. Educational Management and Leadership,* (3), 287-288.

Bush, T., Briggs, A. R., & Middlewood, D. (2006). The impact of school leadership development: evidence from the ‗new visions' programme for early headship. *Journal of in-service education, 32* (2), 185-200.

Bush, T. & Glover, D. (2003). *School Leadership: Concepts and Evidence. National College for School Leadership* (NCSL), retrieved 20 March, 2012, from http://www.ncsl.org.uk/literaturereviews.

Bush, T. & Jourbert, R. (2004, May). *Education management development and Governor training in Gauteng*: *An overview*. Paper presented at the *EMASA Conference*, Port Elizabeth.

Bush, T., Duku, N., Glover, D., Kiggundu, E., Kola, S., Msila, V. & Moorosi, P. (2007). *The Zenex ACE*: *School leadership Research:* First Interim Report, Pretoria, and Department of Education.

Bush, T. Kiggundu, E. & Moorosi, P. (2011). Preparing new principals in South Africa: the ACE: School Leadership Programme. *South African Journal of Education, 31* (1), 31–43.

Bush, T., Joubert, R., Kiggundu, E. & Van Rooyen, J. 2010. Managing teaching and learning in South African schools. *International Journal of Educational Development 30* (2), 162–168

Bush, T. & Middlewood, D. (2013). *Leading and managing people in education*. Sage.

Cabrera, D. A. (2006). *Systems thinking*. Unpublished doctoral dissertation: Cornell University.

Cabrera, D. (2006, June). *Boundary critique: A minimal concept theory of systems thinking*. In Proceedings of the 50th Annual Meeting of the International Society for the Systems Sciences, North America.

Cabrera, D., Colosi, L., Lobdell, C. (2008). Systems Thinking. *Evaluation and Program Planning, 31* (3), 299-310.

Cabrera, D., & Trochim, W. (2006). *A theory of systems evaluation. Systems evaluation and evaluation systems whitepaper series.*

Cao, G. (2007). The pattern-matching role of systems thinking in improving research trustworthiness. *Systemic Practice and Action Research*, *20*(6), 441-453.

Carrim, N., & Keet, A. (2005). Infusing human rights into the curriculum: the case of the South African Revised National Curriculum Statement: research article: general. *Perspectives in Education: Postmodern (Narrative) Career Counselling and Education: Special Issue 2*, 23, 99.

Carr, W., & Kemmis, S. (2003). *Becoming critical: education knowledge and action research*. Routledge.

Carter, S. C. (2000). *No Excuses: Lessons from 21 High-Performing, High-Poverty Schools*. *Heritage Foundation*, 214 Massachusetts Avenue, NE, Washington, DC 2002.

Carter, M.W. & Price, C.C. (2001). *Operations research a practical introduction.* CRC, Boca Raton.

Carter, K., Bond, K. & Franey, T. (2006). *Facilitating enquiry-based leadership and learning in Networked Learning Communities; perspectives from the National College for School Leadership in England*.

Clarke, K. C. (2014). *The Identification of Successes and Barriers in Establishing Professional Learning Communities from Principals' Perspectives.*

Checkland, P. (1981). *Systems thinking, systems practice.* Wiley: Chichester.

Checkland, P. B. (1984). Systems thinking in management: the development of soft systems methodology and its implications for social science. In *Self-Organization and Management of Social Systems* (pp. 94-104). Springer Berlin Heidelberg.

Checkland, P. (1999). *Systems thinking, systems practice; Soft systems methodology: a 30-year Retrospective.* West Sussex, England: John Wiley and Sons.

Checkland, P. (1999). *Systems thinking. Rethinking management information systems*, 45-56.

Checkland, P. (2000). Soft systems methodology: a thirty year retrospective. *Systems Research and Behavioral Science, 17*, S11-S58.

Checkland, P., & Poulter, J. (2006). *Learning for action: a short definitive account of soft systems methodology and its use for practitioner, teachers, and students* (Vol. 26). Chichester: Wiley.

Checkland, P., & Poulter, J. (2010). Soft systems methodology. In *Systems approaches to managing change: A practical guide* (pp. 191-242). Springer London.

Checkland P, & Scholes, J. (1990). *Soft systems methodology in action.* Chichester, West Sussex: New York: Wiley.

Checkland, P., & Scholes, J. (1999). *Soft systems methodology in action: a 30-year retrospective*. Chichester; New York: Wiley.

Chetty. D. (1992) School efficiency and effectiveness: Pointers for educational transformation in South Africa, paper presented to the *Economics of Education Conference*, University of Cape Town.

Chirema, K. D. (2007). The use of reflective journals in the promotion of reflection and learning in post-registration nursing students. *Nurse education today*, *27* (3), 192-202.

Chikoko, V., Naicker, I., & Mthiyane, S. (2015). School leadership practices that work in areas of multiple deprivation in South Africa. *Educational Management Administration & Leadership*.

Chinsamy, B. (2013). Improving learning and learner achievement in South Africa through the district office: The case of the district development support programme. *Section 1 Policy debates and issues: Context, contests and contradictions*, 185.

Chisholm, L. (2003). The state of curriculum reform in South Africa: The issue of Curriculum 2005. State of the nation. *South Africa, 2004*, 268-289.

Chisholm, L. (Ed.) (2004). *Changing class: Education and social change in post-apartheid South Africa.* (267-292). London: Zed Books.

Chisholm, L. (2005). The politics of curriculum review and revision in South Africa in regional context. *Compare: A Journal of Comparative and International Education*, *35* (1), 79-100.

Choy, S., & Lidstone, J. (2013). Evaluating leadership development using the Most Significant Change technique. *Studies in Educational Evaluation, 39* (4), 218-224.

Chrispeels, J. (2004). *Learning to lead together: The promise and challenge of sharing leadership.* Thousand Oaks: Sage Publications

Christie, P., Duku, N. & Gallie, M. (2010*). Researching the need: School Leadership and Quality of Education in South Africa.*

Chu, H., & Cravens, X. C. (2012). Principal professional development in China: Challenges, opportunities, and strategies. *Peabody Journal of Education*, *87* (2), 178-199.

Churchman, W. (1968). *The Systems Approach.* New York: Delhi.

Churchman, W. (1970). Operations research as a profession. *Management Science, 17,* B37–B53.

Cobb, C. G. (2003). *From quality to business excellence: A systems approach to managemen*t. ASQ Quality Press.

Coe, K., Carl, A. & Frick, L. (2010). Lesson study in continuing professional teacher development: A South African case study. *Act Academic*, *42* (4), 206-230.

Cohen, L., Manion, L. & Morrison, K. (2011). (7th ed) *Research Methods in Education.* London, *Routledge*.

Cohen-Sayag, E., & Fischl, D. (2012). Reflective Writing in Pre-Service Teachers' Teaching: What Does It Promote? *Australian Journal of Teacher Education, 37* (10), 2.

Conner-Greene, P.A. (2000). Making connections: Evaluating the effectiveness of journal writing in enhancing student learning. *Teaching of Psychology*, 27 (1), 44-46.

Cooper, D. R., & Schindler, P. S. (2008). *International Edition: Business Research Methods.* 10th Ed. New York, McGraw-Hill.

Copland, M. A. (2003). Leadership of inquiry: Building and sustaining capacity for school improvement. *Educational evaluation and policy analysis, 25* (4), 375-395.

Craith, D. N. (2003). The School Development Planning Initiative (SDPI)-primary: Some reflections on the changing role of the teacher in policy action. *Irish Educational Studies*, *22* (2), 17-35.

Creemers, B. P. M. (2002). From school effectiveness and school improvement to effective school improvement: Background, theoretical analysis, and outline of the empirical study. *Educational Research and Evaluation Theory 8* (4), 343-362.

Creswell, J. W., Plano Clark, V. L., Gutmann, M. L., & Hanson, W. E. (2003). Advanced mixed methods research designs. *Handbook of mixed methods in social and behavioral research*, 209-240.

Creswell, J.W. (2007). *Qualitative inquiry and research design: choosing among five approaches.* (2nd Ed.) Thousand Oakes CA: Sage Publications.

Creswell, J.W. (2008). *Research design: qualitative, quantitative, and mixed methods approaches* (3rd Ed.) Los Angeles: Sage Publications.

Creswell, J. W., & Clark, V. L. P. (2007). *Designing and conducting mixed methods research.* Thousand Oakes CA: Sage Publications.

Crotty, M. (2003). *The foundation of social research: Meaning and perspective in the research process.* Thousand Oaks CA: Sage.

Cuckle, P.; Dunford, J.; Hodgson, J. & Broadhead, P. (1998a). Governor involvement in development planning; from tea parties to working parties. *School Leadership and Management, 18* (1).

Cuckle, P.; Broadhead, P.; Hodgson, J. & Dunford, J. (1998b). Development planning in primary schools a positive influence on management and culture. *Educational Management and Administration, 26* (2), 185- 195.

Daellenbach, H.G. (2002). *Hard or Soft OR. Problem Structuring Methods, Critical Systems Thinking: A Primer.* Unpublished Paper, University of Canterbury, New Zealand.

Daellenbach, H. G. (2001). Hard OR, soft OR, problem structuring methods, critical systems thinking: A primer. In *Conference Twenty Naught One of the Operational Research Society of New Zealand*.

Daggett, W. R. (2008). Preparing US Schools for the 21st Century. *International Center for Leadership in Education.*

Daly, A.L & Finnigan, K.S. (2010). A bridge between worlds: understanding network structure to understand change strategy. *Journal of Educational Change, 11*(2)111-138.

Datnow, A., & Castellano, M. (2003). *Leadership and success for all*. In J. Murphy & A. Datnow (Eds.), Leadership for school reform: Lessons from comprehensive school reform designs (pp. 187–208). Thousand Oaks, CA: Corwin Press.

D‘Auria, J. (2015). Learn to avoid or overcome leadership obstacles. *Phi Delta Kappan, 96* (5), 52-54.

David, F. R. (2011). *Strategic management: Concepts and cases* (13th ed.). Upper Saddle River, NJ: Pearson.

Davids, J. (2011). *The effectiveness of school governing bodies in Gauteng.* Unpublished doctoral dissertation, University of Johannesburg, Johannesburg.

Davies, B. (2011). *Leading the strategically focused school: Success and sustainability*. Sage.

Davies, B. & Ellison, L. (1992). *School Development Planning*. Harlow: Longman.

Davies, B. J. & Davies, B. (2004). Strategic leadership. *School leadership & management, 24* (1), 29-38.

Davies, B., & Ellison, L. (2003). *The new strategic direction and development of the school: Key frameworks for school improvement planning*. Routledge.

Davis, B., & Sumara, D. (2008, October). Educational Innovation and Complexity 2.0: Some Implications for AISI. In *Colloquium on Large Scale Improvement Implications for AISI*.

Davis, L. J. (2009). *Using soft systems methodology to develop lean supply in construction projects*. RCOM A, 12.

Day, M., & Thatcher, J. (2009). ―I'm really embarrassed that you're going to read this…”: Reflections on using diaries in qualitative research. *Qualitative Research in Psychology*, *6* (4), 249-259.

De Clercq, F. (2007). School monitoring and change: a critical examination of Whole School-Evaluation. *Education as change*, *11* (2), 97-113.

De Clerq, F. (2008). Teacher quality, appraisal and development: The flaws in the IQMS. *Perspectives in education, 26* (1), 7-18.

De Clercq, F. (2010). Meta-analysis of South African education policy studies: how have we fared so far and what needs to be expanded. *Journal of Education, 49*, 91-112.

De Clercq, F., & Phiri, R. (2013). The challenges of school-based teacher development initiatives in South Africa and the potential of cluster teaching. *Perspectives in Education, 31* (1), 77-86.

Degago, A.T. (2007). Using reflective journals to enhance impoverished practicum placements: a case in teacher education in Ethiopia. *Teaching Education*, *18* (4), 343-356.

Dempster, N., & Anderson, C. (1997, July). Strategic planning in schools. In *Meeting the Challenges of Primary Schooling* (p. 33). Routledge.

Dempster, N., Kruchov, C., and Distant, G., (1995). School Development Planning: An International Perspective, in Hargreaves, D. and Hopkins, D., (Eds) *Development Planning for School Improvement,* London: Cassell. pp 25-36.

Dempster, N., Lovett, S. & Fluckiger, B. (2011). *Strategic to Develop School Leadership: A Select Literature Review*.

Dent, E. B. (1999). Complexity science: A worldview shift. *Emergence*, *1*(4), 5-19.

Denton, M., & Vloeberghs, D. (2003). Leadership challenges for organisations in the New South Africa. *Leadership & Organization Development Journal*, *24*(2), 84-95.

Denzin, N. K., & Lincoln, Y. S. (2009). Qualitative research. *Yogyakarta: Pustaka Pelajar*.

Denzin, N. K., & Lincoln, Y. S. (2011). *The Sage Handbook of qualitative research*. Sage.

Depress, B.R. (2013). *Systemic Thinking and Education Leadership: Some Considerations Systemic Thinking and Education Leadership: Some Consideration.* University of British Columbia: Okanagan.

De Savigny, D., & Adam, T. (2009). Systems thinking for health systems strengthening. World Health Organization.

De Vos, A. S., Delport, C. S. L., Fouché, C. B., & Strydom, H. (2011). *Research at grass roots: A primer for the social science and human professions.* Van Schaik Publishers.

Dhlamini, J.T. (2009). *The Role of IQMS to Measure and Improve Teaching and Learning in South African Further Education and Training Sector.* Unpublished doctoral dissertation, University of South Africa, Pretoria.

Dichaba, M. (2013). *The perspectives of in-service teachers on the challenges of the cascade model.*

Dichaba, M. M., & Mokhele, M. L. (2012). Does the cascade model work for teacher training? Analysis of teachers‘ experiences. *International Journal of Educational Sciences, 4* (3), 249-254.

Drago-Severson, E., Maslin-Ostrowski, P., & Hoffman, A. M. (2012). Resisting Fragmentation Calling for a Holistic Approach to Professional Practice and Preparation for Educational Leaders. *Journal of Research on Leadership Education*, *7* (1), 44-77.

Drucker, P. F. (1999). *Leadership challenges for the 21st century.*

Drummond, M. J., Hart, S. & Swann, M. (2013, March). An Alternative Approach to School Development: the children are the evidence. *In Forum Symposium Journals, 55* (1), 121-132).

DuFour, R. (2004). What is a ―Professional Learning Community"? *Educational Leadership 6*1(8), 6-12.

DuFour, R. & DuFour, R. (2008). *Revisiting Professional Learning Communities at Work TM: New Insights for Improving Schools*. Solution Tree Press.

DuFour, R. DuFour, R., Eaker, R., & Many, T. (2006). *Learning by doing.* Bloomington, IN: Solution Tree.

DuFour, R. & Fullan, M. (2013). *Cultures Built to Last: Systemic PLCs at Work TM*. Solution Tree Press.

DuFour, R. & Mattos, M. (2013). How do principals really improve schools? *Educational Leadership, 70* (7), 34-40.

Durrheim, K., & Terre Blanche, M. (1999). Research in practice. *Cape Town: Cape Town*.

Ebersöhn, L. (2015). Making sense of place in school-based intervention research. *Contemporary Educational Psychology, 40*, 121-130.

Earl, L., Katz, S., Elgie, S., Ben-Jaafar, S., & Foster, L. (2006). *How networked learning communities work*. Toronto: Aporia Consulting Ltd.

Easterby-Smith, M., Thorpe, R., & Lowe, A. (2002). Management research methods. *London: Sage Publications Examinership-Friel Stafford, Available from www. liquidation. ie*.

Eden, C., & Ackermann, F. (2006). Where next for problem structuring methods. *Journal of the Operational Research Society*, 766-768.

Elias, A.A. (2008). Towards a shared systems model of stakeholders in environmental conflict. *International Transactions in Operational Research 15* (2), 239–253.

Emery, M. (2000). The current version of Emery's open systems theory. *Systemic Practice and Action Research*, *13*(5), 623-643.

Emery, F. & Trist, E. (1965). The Causal Texture of Organisational Environments. *Human Relations, 181*, 21–32.

Emes, M. R., Bryant, P. A., Wilkinson, M. K., King, P., James, A. M., & Arnold, S. (2012). Interpreting ―systems architecting". *Systems Engineering*, *15*(4), 369-395.

Erlandson, B.P. & Edwards, S. (1993). The role of information in helping adolescent girls with their life concerns. *School Library Media Quarter 22*, 25-30.

Espejo, R. (2004). The footprint of complexity: the embodiment of social systems. *Kybernetes*, *33*(3/4), 671-700.

Eyler, J., Giles Jr, D. E., Stenson, C. M., & Gray, C. J. (2001). *At a glance: What we know about the effects of service-learning on college students, faculty, institutions and communities,* 1993-2000.

Faizah, A.M. (2008). The use of reflective journal in outcome based education during the teaching practicum. *Malaysian Journal of ELT Research*, *4*, 32-42.

Farrah, M. (2012). Reflective journal writing as an effective technique in the writing process. *An-Najah University Journal for Research*, *26* (4), 997-1025.

Ferlie, E. (2007). Complex organisations and contemporary public sector organisations. *International Public Management Journal, 10* (2), 153-165.

Fertig, M. (2000). Old wine in new bottles? Researching effective schools in developing countries. School *Effectiveness and School Improvement, 11* (3), 385-403.

Fiksel, J. (2006). Sustainability and resilience: toward a systems approach. *Sustainability: Science Practice and Policy*, *2*(2), 14-21.

Fioretti, G., and B. Visser. 2004. ―A cognitive interpretation of organizational complexity". *Emergence: Complexity & Organizations, Special Double Issue, 6* (1-2), 11-23.

Firestone, W.A. (1993). Alternative arguments for generalizing from data as applied to qualitative research. *Educational Researcher, 22*, 16-23.

Fiscus, D. (2013). Life, Money, and the Deep Tangled Roots of Systemic Change for Sustainability. *World Futures*, *69*(7-8), 555-571.

Fisher, D. & Frey, N. (2011). Graphic novels: What elementary teachers think about their instructional value? *Journal of Education*, 23-35.

Fitzgerald, L. A. (1999). Why there's nothing wrong with systems thinking a little chaos won‘t fix? A critique of modern systems theory and the practice of organizational change it informs. *Systemic Practice and Action Research, 12* (3), 229-235.

Fleyfel, M. (2010). Final Project. *Signature*, *3* (Q2), Q1.

Flick, U. (1998). *An Introduction to Qualitative Research,* London, Sage.

Flood, R. L. (2010). The relationship of _systems thinking‘ to action research. *Systemic Practice and Action Research, 23*(4), 269-284.

Flood, R. L., & Carson, E. (2013). *Dealing with complexity: an introduction to the theory and application of systems science*. Springer Science & Business Media.

Florio- Ruane, S. (1991). Conversation and narrative in collaborative research, in: Stories *live tell: normative and dialogue in education.* Witherell, C. & Noddings, N. (Eds) New York: Teachers College Press, pp. 234-256.

Floyd, S. & Lane, P. (2000). Strategizing Throughout the Organisation: Management Role Conflict in Strategic Renewal. *Academy of Management Review*, *251,* 154–77.

Floyd, S. & Woolridge, B. (1992). Middle Management Involvement in Strategy and its Association with Strategic Type: A Research Note. *Strategic Management Journal, 13* (special issue), 53–168.

Forrester, J.W. (1994). Systems dynamics, systems thinking, and soft OR. *System Dynamics, 10*2 (3), 245-255.

Fragouli, E., & Ibidapo, B. (2015). Leading in crisis: leading organizational change & business development. *Business and Management, 7* (3).

Freire, P. (1970). *Pedagogy of the Oppressed.* New York: Continuum.

Fuenmayor, R. (1991). The roots of reductionism: a counter –onto-epistemology for a systems approach. *Systems Practice, 4* (5).

Fullan, M. (2004a). *Leading the way from whole school reform to whole system reform.* IARTV.

Fullan, M. (2004b). *Leadership & sustainability: System thinkers in action.* Corwin Press.

Fullan, M. (2005, June). Turnaround leadership. *In The Educational Forum, 69* (2), 174-181.

Fullan, M. (2006). Leading professional learning. *School Administrator*, *63* (10), 10.

Fullan, M. (2009). Large-scale reform comes of age. *Journal of educational change, 10* (2-3), 101-113.

Fullan, M. (2010a). *All systems go: The change imperative for whole system reform.* Corwin Press.

Fullan, M. (2010b). *The moral imperative realized.* Corwin Press.

Fullan, M. (2010c). The Big Ideas behind Whole System Reform. *Education Canada, 50* (3), n3.

Fullan, M. (2011). Choosing the wrong drivers for whole school reform. *In Seminar Series 204*. 79-105.

Fullan, M., & Barber, M. (2010). Building blocks for education: Whole System Reform. *Final Report*.

Fullan, M., Cuttress, C., & Kilcher, A. (2009a). *The Challenge of Change: Start School Improvement Now!* 9.

Fullan, M., Cuttress, C., & Kilcher, A. (2009b). The principal and change. *The Challenge of Change: Start School Improvement Now!* 55.

Gay, G., & Howard, T. C. (2000). Multicultural teacher education for the 21st century. *The Teacher Educator*, *36* (1), 1-16.

Gephart, R. (1999). Paradigms and research methods. *Research Methods Forum* 4 Summer.

Gerring, J. (2012). *Social Science methodology: a unified framework.* 2nd ed. Cambridge: Cambridge University Press.

Gerring, J., & Skaaning, S. E. (2013). A concept-driven approach to measurement: The Lexical Scale. In *APSA 2013 Annual Meeting Paper*.

Giesecke, J., & McNeil, B. (2004). *Transitioning to the learning organization*.

Gilbert, D. J. (2013). Collaborative competence: Redefining management education through social construction. *Journal of Psychological Issues in Organizational Culture*, *4*, 26-43.

Gilson, L., Hanson, K., Sheikh, K., Akua Agyepong, I., Ssengooba, F., & Bennett, S. (2011). Building the field of health policy and systems research: social science matters. *PLoS Medicine*, *8* (8), 1017.

Gharajedaghi, J. (2011). *Systems thinking: Managing chaos and complexity: A platform for designing business architecture.* Elsevier.

Glaser, B., & Strauss, A. (1967). The discovery of grounded theory. *London: Weidenfeld and Nicholson*.

Glewwe, P. & Kremer, M. (2006). Schools, teachers, and education outcomes in developing countries. . *Handbook of the economics of education,* 2, 945-1017.

Goede, R., & de Villiers, C. (2003, September). The applicability of grounded theory as research methodology in studies on the use of methodologies in IS practices. In *Proceedings of the 2003 annual research conference of the South African institute of computer scientists and information technologists on Enablement through technology* (pp. 208-217). South African Institute for Computer Scientists and Information Technologists.

Goldberg, J. & Markoczy, L. (2000). Complex rhetoric and simple games. *Emergence, 2* (1), 72-100.

Goldman, I., Mathe, J. E., Jacob, C., Hercules, A., Amisi, M., Buthelezi, T. & Sadan, M. (2015). Developing South Africa‘s national evaluation policy and system: First lessons learned. *African Evaluation Journal, 3* (1), 9-pages.

Gomm, R. (2008). *Social research methodology: a critical introduction.* (2nd Ed). New York: Palgrave MacMillan.

Gomm, R., Hammersely, M, & Foster, P. (2000). *Case Study and generalization*, in *Case study method.* R. Gomm, R., Hammersley, M., & Foster, P. Eds., London: Sage. pp. 98-115.

Graham, W. (2003). Action and research: A soft systems approach to organisational development. In *Proceedings of the 9th Australian and New Zealand Systems Society Conference*. Australian and New Zealand Systems Society (ANZSYS).

Grant-Lewis, S. & Naidoo, J. (2004). Whose theory of participation? School governance policy and practice in South Africa. *Current Issue in Comparative Education, 6*, 100-112.

Grant-Lewis, S. & Naidoo, J. (2006). School governance and the pursuit of democratic participation: Lessons from South Africa. *International Journal of Educational Development, 26*, 15-427.

Gray, J., & Wilcox, B. (1995). *Good school, bad school: Evaluating performance and encouraging improvement*. Buckingham: Open University Press.

Green, L.W. (2006). Public Health Asks of Systems Science: To Advance Our Evidence-Based Practice, Can You Help Us Get More Practice-Based Evidence? *American Journal of Public Health, 96* (3), 1-4.

Green, P.G. (2013). *A Systems Approach to the Evaluation of an Academic Department as Service Provider at a University of Technology*. Unpublished doctoral dissertation, University of KwaZulu–Natal, Westville.

Green, W. (2014). Foundation phase teacher provision by public higher education institutions in South Africa. *South African Journal of Childhood Education, 1*(1), 109-121. McKinsey Report.

Green, P. & Hardman, S. (2014). Service quality evaluation: a systems thinking approach. *Journal Social Science, 39* (2), 169-177.

Greiman, B., & Covington, H. (2007). Reflective thinking and journal writing: Examining student teachers' perceptions of preferred reflective modality, journal writing outcomes, and journal structure. *Career and Technical Education Research*, *32* (2), 115-139.

Grenier, L. (1998).*Working with indigenous knowledge: a guide for researchers*. Ottawa International Development Centre.

Greyson, J. (2007, July). Systemic economic instruments for energy security and global security. In *NATO Science Programme Advanced Research Workshop* (pp. 4-7).

Gronn, P. (2003). *The new work of educational leaders: Changing leadership practice in an era of school reform.* Sage

Guba, E.G. & Lincoln, Y.S. (1998). *Fourth Generation evaluation.* Newbury Park: Sage.

Guthrie, G. (2010). Basic research methods: An entry to social science research. New Delhi: Sage Publications.

Haar, J. & Foord, K. (2013). *Professional Learning Communities*. Routledge.

Habegger, S. (2008). The Principal's Role in Successful Schools: Creating a Positive School Culture. *Principal, 88* (1), 42-46.

Haines, S. (1999). *The Manager"s Pocket Guide to Systems Thinking and Learning*. HRD Press: Amherst MA.

Haines, S. (2000). *The systems thinking approach to strategic planning and management*. CRC Press.

Hairon, S., Goh, J. W. P., & Lin, T. B. (2014). Distributed leadership to support PLCs in Asian pragmatic Singapore schools. *International Journal of Leadership in Education*, *17* (3), 370-386.

Hallinger, P. & Heck, R. H. (2010). Collaborative leadership and School Improvement; Understanding the Impact on School capacity and student learning. *School Leadership and Management 30* (2), 95-110.

Hallinger, P. & Heck, R. H. (2011). Conceptual and methodological issues in studying school leadership effects as a reciprocal process. *School Effectiveness and School Improvement, 22* (2), 149-173.

Hallinger, P. & Lee, M. (2014). Mapping instructional leadership in Thailand: Has education

Hallinger, P., Lee, M., & Ko, J. (2014). Exploring the impact of school principals on teacher professional communities in Hong Kong. *Leadership and Policy in Schools*, *13* (3), 229-259.

Hampel, R. & Isaacs, J. (2006). *Equip Impact –Case Study*.

Hanna, D. (1997). *The organization as an open system*. In A. Harris, N. Bennett, & M. Preedy (Eds.), Organizational effectiveness and improvement in education (pp. 13±21). Philadelphia, PA: Open University Press

Hanna, D., Hanna, D. & Latchem, C. (2013). *Leadership for 21st Century Learning: Global Perspectives from International Experts.* Routledge:

Harber, C., & Muthukrishna, N. (2000). School effectiveness and school improvement in context: The case of South Africa. *School Effectiveness and School Improvement*, *11* (4), 421-434.

Hargreaves, A. (2013). *Push, pull and nudge: The future of teaching and educational change. In Preparing Teachers for the 21st Century* (pp. 217-236). Heidelberg: Springer.

Hargreaves, A. & Braun, H. (2013). *Data–driven improvement and accountability*. Boston College: National Education Policy Center. Retrieved October, 24, 2013.

Hargreaves, A., & Fullan, M. G. (1992). *Understanding teacher development*. Teachers College Press, 1234 Amsterdam Avenue, New York, NY 10027.

Hargreaves, A., & Goodson, I. (2006). Educational change over time? The sustainability and non-sustainability of three decades of secondary school change and continuity. *Educational administration quarterly, 42* (1), 3-41.

Hargreaves, A., Halász, G., & Pont, B. (2007). School leadership for systemic improvement in Finland. *Paris: Organization for Economic Cooperation and Development*.

Hargreaves, D. H., & Hopkins, D. (1991). The Empowered School: The Management and Practice of School Development. *London: Cassell*, *148*.

Hargreaves, M. B., & Podems, D. (2012). Advancing Systems Thinking in Evaluation. A Review of Four Publications. *American Journal of Evaluation, 33* (3), 462-470.

Hargreaves, A. & Shirley, D. (2009). *The Fourth Way.* Thousands Oakes, CA: Corwin.

Haque, M. S. (2004). Governance based on partnership with NGOs: implications for development and empowerment in rural Bangladesh. *International Review of Administrative Sciences*, *70* (2), 271-290.

Harris, A. (2013). *Distributed school leadership: Developing tomorrow's leaders*. Routledge.

Harris, A. (2004). Distributed Leadership and School Improvement Leading or Misleading? *Educational Management Administration & Leadership, 32* (1), 11-24.

Harris, A., Adams, D., Jones, M. S. & Muniandy, V. (2015). System effectiveness and improvement: the importance of theory and context. *School Effectiveness and School Improvement, 26* (1), 1-3.

Harris, A., Chapman, C., Muijs, D., Russ, J., & Stoll, L. (2006). Improving schools in challenging contexts: Exploring the possible. *School Effectiveness and School Improvement, 17* (4), 409-424.

Harris, A. & Chrispeels J. (2008). *International Perspectives on School Improvement.* London, Routledge Falmer.

Harris, A., Day, C., Hopkins, D., Hadfield, M., Hargreaves, A., & Chapman, C. (2013). *Effective leadership for school improvement*. New York: Routledge.

Harris, A., & Jones, M. (2010). Professional learning communities and system improvement. *Improving Schools*, *13* (2), 172-181.

Harris, A. & Lambert, L. (2003). *Building leadership capacity for school improvement.* McGraw-Hill Education (UK).

Harwell, R.M. (2011). Research design in qualitative /quantitative /mixed methods. In *The Sage handbook for research in education pursuing ideas as the keystone of exemplary inquiry.* 2nd ed. Thousand Oaks: Sage, pp 147-163.

Hawe, P., Shiell, A., & Riley, T. (2009). Theorising interventions as events in systems. *American journal of community psychology, 43* (3-4), 267-276.

Haynes, N. M., Emmons, C. L., Gebreyesus, S., & Ben-Avie, M. (1996). The School Development Program Evaluation Process. In J. P. Comer & N. M. Haynes & E. T. Joyner & M. Ben-Avie (Eds.), *Rallying the whole village: the Comer process for reforming education*. New York, NY: Teachers College Press.

Heck, R. H. (2011). Conceptualizing and conducting meaningful research studies in education. The Sage handbook for research in education: Engaging ideas and enriching inquiry, 373-392

Henning, E. (2004). *Finding your way in qualitative research.* Pretoria: Van Schaik Publishers.

Henning, E.; Van Rensburg, W. & Smit, B. (2004). *Finding your way in qualitative research.* Pretoria: Van Schaik.

Henning, P.B. & Wan-Ching Che, (2012). Systems Thinking: Common Ground or Untapped Territory? Systems Research and Behavioral Science. S*ystemic Research 29*, 470–483.

Hewitt, E. (2015). Building bridges: the use of reflective oral diaries as a qualitative research tool. *International Journal of Research & Method in Education*, 1-15.

Heyer, R. (2004). *Understanding SOR: The Methods, their appreciation and its future in the Defence setting.*

Heystek, J. (2004). School governing bodies – the principal's burden or the light of his/her life. *South African Journal of Education 24* (4), 308–312.

Heystek, J. (2006). School governing bodies in South Africa: Relationships between principals and parent governors, a question of trust? *Educational Management Administration & Leadership, 34*, 473-486.

Hitchcock, G. & Hughes, D. (2001). *Research and Teacher: A qualitative introduction to research.* Pretoria: Van Schaik.

Hjorth, P., & Bagheri, A. (2006). Navigating towards sustainable development: A system dynamics approach. *Futures*, *38* (1), 74-92.

Hlomuka, D. I. (2014). *Foundations for learning campaign: A framework for effective implementation of the campaign towards sustainable learning environment.*

Hlongwane, T. S., & Mestry, R. (2013). Empowering Teacher Teams to Implement the Integrated Quality Management Systems in South African Secondary Schools. *Journal of Social Science, 37* (3), 269-277.

Hoadley, U., Christie, P. & Ward, C. L. (2009). Managing to learn: Instructional leadership in South African secondary schools. *School leadership and management, 29* (4), 373-389.

Hoffman, L. P. (2009). Educational leadership and social activism: A call for action. *Journal of Educational Administration and History, 41*(4), 391-410.

Hofstee, E. (2006). *Constructing a good dissertation: A practical guide to finishing a Masters. MBA or PhD on Schedule*. Johannesburg: EPE, 129-130.

Holland, J. H. (2006). Studying complex adaptive systems. *Journal of Systems Science and Complexity, 19* (1), 1-8.

Holwell, S. (2000). Soft systems methodology: other voices. *Systemic Practice and Action Research, 13*(6), 773-797.

Honig, M. (2004). Crafting coherence: How schools strategically manage multiple, external demands. *Educational Researcher, 33* (8), 16–30

Hooge, E. & Honingh, M. (2014). Are School Boards aware of the educational quality of their schools? *Educational Management Administration & Leadership.*

Hopkins, D. (1995). *Developmental Planning for School Improvement*. A & C Black.

Hopkins, D. (2003). Instructional leadership and school improvement. *Effective leadership for school improvement,* 55-71.

Hopkins, D., Beresford, J. & West, M. (1998). Creating the Conditions for Classroom and Teacher Development, *Teachers and Teaching*, 4, 115-140.

Hopkins, D., Harris, A., Stoll, L. & Mackay, T. (2011). School and system improvement: State of the art review. In International Congress of School Effectiveness and School Improvement, Limassol, Cyprus, 6th January 2011.

Hopkins, D., & Higham, R. (2007). System leadership: mapping the landscape. *School leadership and management*, *27* (2), 147-166.

Howard, R.A. & Matheson, J.E. (1981). Probalistic Reasoning in Intelligent Systems: networks of plausible inference. Springer science and business media.

Huber, S. G. (2008). School development and school leader development: New learning opportunities for school leaders and their schools. *International handbook on the preparation and development of school leaders*, 173-175.

Hung W. 2008. Enhancing systems-thinking skills with modelling. *British Journal of Educational Technology, 39* (6), 1099–1120.

Hung, D., Lee, S. S., & Teh, L. W. (2015). *Scaling from the Perspectives of Policymakers and Practitioners from Singapore.* In Scaling Educational Innovations (pp. 31-50). Springer Singapore.

Hussain, I. (2015). Subjective performance evaluation in the public sector evidence from school inspections. *Journal of human resources, 50* (1), 189-221.

Jacelon, C.S. & Imperio, K., (2005). Participant diaries as a source of data in research with older adults. *Qualitative health research*, *15* (7), 991-997.

Jackson, M. C. (2001). Critical Systems thinking and Practice. *European Journal of Operational Research,* 128, 233-244.

Jackson, M. C. (2003). *Systems thinking: Creative holism for managers*. Chichester: John Wiley and Sons.

Jackson, M. C. (2009). Fifty years of systems thinking for management. *Journal of the Operational Research Society,* S24-S32.

Jackson, M. C., & Keys, P. (1984). Towards a system of systems methodologies. *Journal of the operational research society*, 473-486.

Jacobson, M. & Wilensky, U. (2006). Complex systems in education: scientific and education importance and implications for the learning sciences. *The Journal of the Learning Sciences 15* (1), 11–34.

Jagannathan, S. (2001). The role of nongovernmental organizations in primary education: A study of six NGOs in India.

James, M., & McCormick, R. (2009). Teachers learning how to learn. *Teaching and teacher education*, *25* (7), 973-982.

Jeet, K., & Dhir, R. (n.d.). MaCO: A Tool for Aiding Management of Cost Overrun of a Software Development Project.

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), 01-15.

Jita, L. C. & Ndlalane, T. C. (2009). Teacher clusters in South Africa: opportunities and constraints for teacher development and change. *Perspectives in Education, 27* (1), 58-68.

Johanson, J. E. (2009). Strategy formation in public agencies. *Public Administration, 87* (4), 872-891.

Johnson, B. & Christensen, L. (2012). *Educational research: Quantitative, qualitative, and mixed approaches.* (4th Ed.) Los Angeles: Sage Publications.

Johnson, D. W., & Johnson, F. P. (2004). The Power of Mental Models. *Moving Upward Together: Creating Strategic Alignment to Sustain Systemic School Improvement*, (1), 103.

Jones, L., Stall, G. & Yarbrough, D. (2013). The importance of professional learning communities for school improvement. *Creative Education, 4* (5), 357.

Joseph, R. (2003). *Formative research on a design theory to facilitate systemic change in public school districts.* Unpublished doctoral dissertation, Indiana University.

Joseph, R. & Reigeluth, C. M. (2010). The systemic change process in education: A conceptual framework. *Contemporary Educational Technology*, *1* (2), 97-117.

Jones, J., Bosch, O., Drack, M., Horiuchi, Y., & Ramage, M. (2009). On the design of systems-oriented university curricula. The Research Reports of Shibaura Institute of Technology. *Social Sciences and Humanities, 43* (1), 121-130.

Jugmohan P 2010. Mentoring and Teacher Leadership: Kwazulu-Natal Principals Speak.

Kani, B. Z. (2000). *A case study of the school development functions of a school governing body in a historically disadvantage secondary school.* Unpublished doctoral dissertation, Vista University, Johannesburg.

Kannapel, P. J. (2000). Standards-based reform and rural school improvement: Similarities, differences, prospects for the future. *Rural Education Issue Digest*.

Karagiorgi, Y., & Symeou, L. (2006). Teacher professional development in Cyprus: Reflections on current trends and challenges in policy and practices. *Journal of in-service education*, *32* (1), 47-61.

Kauffman, S. (1994). *The origins of order: self-organization and selection in evolution*. Oxford University Press: New York.

Kauffman, S. A. (1995). *At home in the universe*. Penguin: London.

Kay, J. J. & Foster, J. (1999, June). *About teaching systems thinking.* In Proceedings of the HKK Conference (pp. 165-172).

Keegan, M., & Nguyen N.C. (2011). *Systems Thinking, Rural Development and Food Security*: Key Leverage Points for Australia's Regional Development and Population Policy. Migration Australia (launch issue),
*1 (*1), 50–64.

Keene, A. (2000). Complexity theory: the changing role of leadership. *Industrial and Commercial Training*, *32*(1), 15-21.

Kendal, N. (2015). *What is a 21st Century Brand? New Thinking from the Next Generation*. Kogan Page: London.

Kersbergen, K. & Van Waarden, F. (2004). ―Governance" as a Bridge between Disciplines: Cross-disciplinary Inspiration Regarding Shifts in Governance and Problems of Governability, Accountability and Legitimacy, *European Journal of Political Research, 43*, 143–72.

Kershav, B. (2006). *The Role of School Leaders to Influencing the Implementation of the Integrated Quality Management System: Tasks, opportunities and constraints: A Case study of Two Gauteng Schools*. Unpublished master's thesis, University of Witwatersrand, Johannesburg.

Khamba, N. (2006). *Social welfare delivery: a case of government funded NGOs in Worcester* .Unpublished doctoral dissertation, University of the Western Cape, Stellenbosch.

Khan, A. (2012). Instructional management of a private and a government secondary school principal in Northern Pakistan. *International Journal of Educational Development, 32* (1), 120-131.

Kielhofner, G. (1995). *A model of human occupation: Theory and application* (2nd Ed.). Baltimore, MD: Williams and Wilkins.

Koch, T. (2006). Establishing rigour in qualitative research: the decision trail. *Journal of advanced nursing*, *53* (1), 91-100.

Kok, I, Rabe, A., Swarts, P., van der Vyver, C. & van der Walt, J.L. (2010). The Effectiveness of a Course for Helping Educators Cope with the demands of IQMS. *African Education Review*.

Krasny, M., & Tidball, K. (2008). *Systems theory in environmental education: Participation, self-organization, and community interactions.* In American Educational Research Association Annual Meeting, New York.

Krauss, S. E. (2005). Research paradigms and meaning making: A primer. *The qualitative report*, *10*
(4), 758-770.

Krefling, L. (1991). Rigor in qualitative research. The assessment of trustworthiness. *The American Journal of Occupational Therapy, 43* (3), 214.

Kriek, J. & Grayston, D. (2009) _A holistic professional development model for South African physical science teachers‘, *South African Journal of Education 29*, 185–203.

Krol, C. A. (1996). Preservice Teacher Education Students' Dialogue Journals: What Characterises Students' Reflective Writing and a Teacher's Comments.

Krueger, R.A. (1998). *Focus groups: a practical guide for applied research.* Thousand Oakes: Sage Publications.

Kruger, S. (2003). Paradigm shifts and other prerequisites to facilitate the institutionalising of strategy in South African organisations. *Acta Commercii*, *3*, p-56.

Kumar, R. (2005). *Research methodology: A step-by-step guide for beginners.* (2nd Ed.) London: Sage Publications Ltd.

Kvale, S. (1996). *Interviews.* London: Sage Publications.

Lai, G., & Calandra, B. (2010). Examining the effects of computer-based scaffolds on novice teachers‘ reflective journal writing. *Educational Technology Research and Development, 58* (4), 421-437.

Lambert, L. (2003). *Leadership capacity for lasting school improvement*. ASCD.

Lander, R. & Eckholm, (1998). *School Evaluation and Improvement*, in A. Hargreaves, M. Fullan & D. Hopkins, (Eds) International Handbook of Educational Change. Part 2 London, Kluwer Academic Publishers.

Lane, D. C. (2000). Should system dynamics be described as a_hard‘ or _deterministic‘ systems approach? *Systems Research and Behavioral Science, 17* (1), 3-22.

Lane, D. C., & Oliva, R. (1998). The greater whole: Towards a synthesis of system dynamics and soft systems methodology. *European Journal of Operational Research*, *107* (1), 214-235.

Langill, S. (1999). Indigenous knowledge. A resource kit for sustainable development researchers in dryland Africa. *Ontario, People, Land and Water Initiatives, International Development Research Centre (IDRC)*.

Laszlo, A., & Krippner, S. (1998). Systems theories: Their origins, foundations, and development. *Advances in psychology-Amsterdam-*, *126*, 47-76

Leask, M., Terrell, I., & Terrell, I. (2014). *Development planning and school improvement for middle managers*. Routledge.

Ledington, P., & Donaldson, J. (1997). Soft OR and management practice: A study of the adoption and use of soft systems methodology. *Journal of the Operational Research Society*, 229-240.

Lee, A. (2009). Health-promoting schools: evidence for a holistic approach to promoting health and improving health literacy. *Applied Health Economics and Health Policy, 7* (1), 11–17.

Lee, I. (2007). Preparing pre-service English teachers for reflective practice. *ELT journal, 61* (4), 321-329.

Lee, D. & Lee, W. O. (2013). A professional learning community for the new teacher professionalism: The case of a state-led initiative in Singapore schools. *British Journal of Educational Studies, 61* (4), 435-451.

Leedy, P. D. & Ormond, J. E. (2005). *Review of the related literature. Practical research: Planning and design.* New Jersey: Pearson Education.

Legotlo, M.W. (2014). *Challenges and Issues facing the Education System in South Africa*. Africa Institute of South Africa.

Leigh Sanzo, K., Sherman, W. H., & Clayton, J. (2011). Leadership practices of successful middle school principals. *Journal of Educational Administration, 49* (1), 31-45.

Leithwood, K., Harris, A., & Hopkins, D. (2008). Seven strong claims about successful school leadership. *School leadership and management*, *28* (1), 27-42.

Leithwood, K., Harris, A., & Strauss, T. (2010*). Leading school turnaround: How successful leaders transform low-performing schools*. John Wiley & Sons.

Leithwood, K., Jantzi, D., & McElheron-Hopkins, C. (2005). Parent participation in school improvement planning. Toronto, Canada: Canadian Education Association.

Lekalakala, M. T. (2006). *Problems experienced by school governing bodies in the execution of their financial management task: A case study.* Unpublished doctoral dissertation, University of South Africa, Pretoria.

Levine, R. B., Kern, D. E., & Wright, S. M. (2008). The impact of prompted narrative writing during internship on reflective practice: a qualitative study. *Advances in health sciences education, 13* (5), 723-733.

Lewis, S. G., & Naidoo, J. (2004). Whose theory of participation? School Governance policy and practice in South Africa. *Current Issues in Comparative Education, 6* (2), 100-112.

Li, L., Hallinger, P. & Walker, A. (2015). Exploring the mediating effects of trust on principal leadership and teacher professional learning in Hong Kong primary schools. *Educational Management Administration& Leaders*hip, 1-23

Liljenberg, M. (2015). Distributing Leadership to establish developing and Learning School Organisations in the Swedish Context. *Educational Management Administration and Leadership 43*(1), 152-170.

Lilly, J., Peacock, A., Shoveller, S. & Struthers, D. R. (2014). *Beyond levels: alternative assessment approaches developed by teaching schools:* research report.

Lincoln, Y.S. & Guba, E.G. (1985). *Naturalistic Inquiry.* Beverly Hills: Sage Publications.

Lincoln, Y. S., & Guba, E. G. (2013). *The constructivist credo.* Left Coast Press.

Lincoln, Y. S., Lynham, S. A., & Guba, E. G. (2011). Paradigmatic controversies, contradictions, and emerging confluences, revisited. *The Sage handbook of qualitative research,* 4, 97-128.

Looyen, R. (2000). *Co-operative school governance: from policy to practice.* Unpublished master‘s thesis, Pretoria: University of South Africa.

Lopez, J. (2010*). Review of All Systems Go: The Change Imperative for Whole System Reform* by Michael Fullan. Education Review, 13.

Lovett, S., Dempster, N. & Flückiger, B. (2015). Personal agency in leadership learning using an Australian heuristic. *Professional Development in Education, 41* (1), 127-143.

Luckett, K. (2001). A proposal for an epistemically diverse curriculum for South African higher education in the 21st century. *South African Journal of Higher Education, 15* (2), 49.

Luckett, S. (2004). Environmental paradigms, biodiversity conservation, and critical systems thinking. *Systemic Practice and Action Research, 17* (5), 511-534.

Luckett, S., & Grossenbacher, K. (2003). A critical systems intervention to improve the implementation of a district health system in KwaZulu–Natal. *Systems Research and Behavioral Science*, *20*(2), 147-162.

Luhmann, N. (1995). *Social Systems.* Stanford, CT: Stanford University Press.

Lunenburg, F. C. (2013). Why School Reform efforts have failed: school reform needs to be based on a set of core principles. *National Forum of Educational Administration and Supervision Journal 31* (1), 55-63).

Maani, K. (2013). Decision-making for climate change adaptation: a systems thinking approach. *Report for the National Climate Change Adaptation Research Facility, Griffith University, Queensland, Australia*.

Maani, K., & Cavana, R. Y. (2007). *Systems thinking, system dynamics: Managing change and complexity*. Prentice Hall.

Maani, K & Maharraj, V. (2004). Links between systems thinking and complex decision-making. *System Dynamics Review 20* (1), 21–48.

Mabasa, L.T. & Themane, M.J. (2002). Stakeholder participation in school governance in South Africa. *Perspectives in Education 20* (3), 111–116.

McLaren, T. S., Vuong, D. C. H., & Grant, K. (2007). Do you know what you don‘t know? Critical reflection and concept mapping in an information systems strategy course. *Communications of the Association for Information Systems*, *20*, 892-908.

Macpherson, R. (2009). *The professionalization of educational leadership: Implications of recent international policy research in leadership development for Australasian education systems.*

MacGilchrist, B. & Mortimore, P. (1996) ‗The Impact of School Development Plans in Primary Schools‘. *School Effectiveness and School Improvement 8* (2), 198–218.

Mackenzie, N., & Knipe, S. (2006). Research dilemmas: Paradigms, methods and methodology. *Issues in educational research*, *16* (2), 193-205.

Mahlangu, V. P. (2014). Strategies in Managing Township Schools in South Africa: Management through Partnerships. *Journal Social Science, 38*(2), 175-183.

Maloney, C. & Konza, D. (2011). A case study of teachers' professional learning: Becoming a community of professional learning or not? *Issues in Educational Research, 21*(1), 75-87.

Mansour, N., Heba, E. D., Alshamrani, S., & Aldahmash, A. (2014). Rethinking the theory and practice of continuing professional development: Science teachers‘ perspectives. *Research in Science Education, 44*(6), 949-973.

Mangin, M. M. & Dunsmore, K. (2014). How the framing of instructional coaching as a lever for systemic or individual reform influences the enactment of coaching. *Educational Administration Quarterly.*

Mantzoukas, S. (2005). The inclusion of bias in reflective and reflexive research A necessary prerequisite for securing validity. *Journal of Research in Nursing*, *10*(3), 279-295.

Mapotse, T. A. (2012). *The teaching practice of senior phase Technology Education teachers in selected schools of Limpopo Province: an Action Research study* .Unpublished doctoral dissertation.

Maqsood, T., Walker, D., & Finegan, A. (2007). Extending the ―knowledge advantage": creating learning chains. *The Learning Organization, 14*(2), 123-141.

Maqsood, T., & Finegan, A. D. (2009). A knowledge management approach to innovation and learning in the construction industry. *International Journal of Managing Projects in Business, 2*(2), 297-307.

Maqsood, T., Finegan, A. D., & Walker, D. H. (2001). Five case studies applying soft systems methodology to knowledge management.

Maqsood, T., Finegan, A. D., & Walker, D. H. (2003). A soft approach to solving hard problems in construction project management.

Maraj, K. (2000). The role of school governing bodies in the transformation of education in South Africa (Unpublished doctoral dissertation, Rand Afrikaans University; Johannesburg).

Marchionini, G. & Teague, J. (1987). Elementary student's use of electronic information services: an exploratory study. *Journal of Research on Computing in Education 20*,139-155.

Maree, K. (2007). *First Steps in research*. Pretoria: Van Schaik.

Maringe, F. & Moletsane, R. (2015). Leading schools in circumstances of multiple deprivation in South Africa Mapping some conceptual, contextual and research dimensions. *Educational Management Administration & Leadership, 43*(3), 347-362.

Marlar, L. A. (2015). Principal Mental Models and Perceptions of Distributed Leadership (Unpublished doctoral dissertation, University of Tennessee, Tennessee) .

Marquardt, M. (2011). *Building the learning organization: Achieving strategic advantage through a commitment to learning*. Nicholas Brealey Publishing.

Marshal, C. & Rossman, G.B. (1999). *Designing qualitative research.* (3rd Ed.) Thousand Oaks: Sage Publications.

Martin, M. (2005). Reflection in teacher education: how can it be supported?. *Educational Action Research*, *13*(4), 525-542.

Masinde, M. & Masinde, W. (2006). A systems thinking framework for quality assurance in transnational education-the case of Kenya. In Paper for 1ST International UNISTAFF Conference and workshop at Kenyatta University.

Massell, D., & Goertz, M. (1999). *Local strategies for building capacity: The district role in supporting instructional reform.* Paper presented at the annual meeting of the American Educational Research Association, Montreal, Canada.

Mathews, D. (2010). *Improving learning through whole-school evaluation: moving towards a model of internal evaluation in Irish post-primary schools.* Unpublished doctoral dissertation, National University of Ireland; Maynooth.

Mathews. L.G. & Jones, A. (2008). Using Systems Thinking interdisciplinary learning outcomes: Recollections on a Pilot Study in Land Economics. University of North Carolina Asherville. *Issues in Integrative Studies. 26*, 73-104.

Mathonsi, V. (2004). Democratization of School Education. *The Educator"s Vaice 20*.

Matshe, P. F. A. (2014). Challenges of Parental Involvement in Rural Public Schools in Ngaka Modiri Moleme District of North West Province (South Africa). *International Journal of Humanities*, *Social Sciences and Education, 1*(6), 93-103.

Maura, R. (2008). *A focus group groupie: my experience in using focus groups for criminological research.* Acta Criminologia: CRIMSA Conference 3, 122-134.

Maynard, B. R. (2009). Social service organizations in the era of evidence-based practice: The learning organization as a guiding framework for bridging science to service. *Journal of Social Work*.

Mazibuko, D. M. (2000). The role of Non-Governmental Organisations (NGO‘s) in educational advancement in developing countries: The South African Experience. *Journal of International Cooperation in Education*,
3 (1).

Maxwell, J. A. (2012). *Qualitative research design: An interactive approach: An interactive approach*. Sage.

Mazomba, M. A. (2013). The role of developmental support groups (DSG's) in implementing integrated quality management system (IQMS) in selected secondary schools in Libode circuit.

Mbalathi, T. (2010). *A Critique of the Implementation of WSE Policy in Limpopo Province*. Unpublished doctoral dissertation, University of Limpopo, Turfloop.

Mbokazi, Z. (2013). *Successful school leadership practices in challenging contexts: Case studies of three township secondary schools.* Unpublished doctoral dissertation, University of the Witwatersrand, Johannesburg.

Mbulawa, Z. (2012). *Evaluation of the impact of the Integrated Quality Management System IQMS in the Province of the Eastern Cape: The case of selected schools in the Mdantsane area 2008 to 2011*. Unpublished doctoral dissertation, University of Fort Hare; Fort Hare.

McCaslin, M. L., & Scott, K. W. (2003). The five-question method for framing a qualitative research study. *The Qualitative Report*, *8* (3), 447-461.

Mchunu, B. S. (2006). *A systems approach to IQMS implementation in Vulindlela circuit*: a study in reflection in Vulindlela West Ward. Unpublished master‘s thesis, University of KwaZulu-Natal, Durban –Westville.

Mchunu, H. T. (2014). *Linking appraisal with professional development in the integrated quality management system in South African schools.* Unpublished doctoral dissertation, University of Johannesburg, Johannesburg.

Mccartney, E. (1999). Barriers to collaboration: an analysis of systemic barriers to collaboration between teachers and speech and language therapists. *International Journal of Language & Communication Disorders*, *34*(4), 431-440.

McMillan, J. H., & Schumacher, S. (2014). *Research in education: Evidence-based inquiry*. Pearson Higher Education.

McNamara, C. (1999). *Thinking about Organisational Systems*. Minneapolis, Minnesota: Authenticity Consulting.

McNamara, G., & O'Hara, J. (2008). *Trusting schools and teachers: Developing educational professionalism through self-evaluation,* (Vol. 8). Peter Lang.

McQuillan, P. J. (2008). Small-School Reform Through the Lens of Complexity Theory: It's" Good to Think With". *The Teachers College Record*, *110*(9), 1772-1801.

Meadows, D. (1998). System Dynamics meets the press. *System Dynamics Review, 5* (1) 69-80.

Meadows, D. (2008). *Thinking in Systems: A Primer*. Chelsea Green Publishing: White River Junction VT.

Merriman, S.B. (1998). *Qualitative research and case study application in education.* San Francisco: Jossey Bass.

Mestry, R. (2006). The functions of school governing bodies in managing school finances. *South African Journal of Education, 26*(1), 27-38.

Mestry, R. (2006). Financial accountability: the principal or the school governing body? *South African Journal of Education, 24*(2), 126-132.

Mestry, R. (2005). *Budgeting.* In: Anderson, L. and Lumby, J. (Eds). Managing Finance and External Relations in South African Schools. London: Commonwealth Secretariat.

Mestry, R. and Bisschoff, T.C. (2009). Financial School Management Explained, (3rd Ed). Cape Town: Pearson Education.

Mestry, R., & Bodalina, K. (2015). The Perceptions and Experiences of School Management Teams and Teachers of the Management of Physical Resources in Public Schools. *Educational Management Administration & Leadership*, 1741143214549972.

Mestry, R. & Verster, J. (2014). The Motivation for Corporate Institutions to Invest Funds in Public Schools. *Mediterranean Journal of Social Sciences, 5* (23), 176.

Middlewood, D., & Parker, R. (2005). *Creating a learning school*. London: SAGE.

Midgley, G. (1996). What is this thing called CST? In R. L. Flood & N. R. A. Romm (Eds.), Critical systems thinking: Current research and practice (pp. 11–24). New York and London: Plenum Press.

Midgley, G. (2000). *Systemic Intervention: Philosophy, Methodology, and Practice*. New York: Kluwer Academic/Plenum.

Midgley, G. (2003*). Systems Thinking*. Thousand Oaks: SAGE.

Midgley G. (2006). Systemic Intervention for Public Health. *American Journal of Public Health,*
96 (3), 33-39.

Midgley, G., & Ochoa-Arias, A. (2004). *Community operational research: OR and systems thinking for community development*. Kluwer Academic/Plenum Publishers: New York, USA.

Miller-Grandvaux, Y., Welmond, M., & Wolf, J. (2002). Evolving partnerships: The role of NGOs in basic education in Africa.

Mingers, J. (2000a). *The contribution of critical realism as an underpinning philosophy for OR/MS and systems*.

Mingers, J. (2000b). Variety is the spice of life: combining soft and hard OR/MS methods. *International Transactions in Operational Research*, *7*(6), 673-691.

Mingers J.C. (2006). Realising Systems Thinking: Knowledge and Action in Management Science. Springer: New York, USA. *Journal of the Operational Research Society, 51* (11), 1256-1270.

Mingers, J. and Taylor, S. (1992). The Use of Soft Systems Methodology in Practice. *Journal of Operational Research Social Science,* 43, 321-332.

Mitchell, C. & Jonker, D. (2013). Benefits and challenges of a teacher cluster in South Africa: The case of Sizabantwana. *Perspectives in Education, 31* (4), 100-113.

Mji, L.K. (2011). *Investigating Factors Inhibiting the Implementation of Integrated Quality Management Systems in a South African School.* Unpublished master‘s thesis, Rhodes University, Rhodes.

Mkhwanazi, S. (2013). Teacher Professional Learning: An Analysis of Teachers‘ Views on Their Professional Content Knowledge. *Journal of Social Science, 37* (2), 179-187.

Mkhwanazi, S. (2014). Crossing the Past Political Boundary: Teacher Professional Learning in a South African Reform Context. *Mediterranean Journal of Social Sciences, 5* (10), 425.

Mncube, V. (2009). Perceptions of the principal‘s role in democratic school governance in South Africa. *Journa*l *of Educational administration and History, 41* (1), 29-43.

Mncube, V. (2012). Stakeholders‘ perceptions and experiences of learners‘ involvement in democratic school governance in South Africa. *Journal of Sociology and Social Anthropology*, (3), 135-143.

Mncube V.S., Naicker, I. , & Nzimakwe, T.I. (2010). Professional development of school principals in South Africa: Their needs and aspirations. *Journal of Education Studies, 9* (1), 119-138.

Mncube, V. S. & Makhasane, S. (2013). The dynamics and intricacy of budgeting in secondary schools in Lesotho: Case studies of three high schools. *Africa Education Review, 10* (2), 347-363.

Mnisi, N. & Prew, M. (2001). *Evaluation of Soshanguve School Development Project: A Partnership between Gauteng Department of Education and Link Community Development.*

Mntambo, C. (2009). *The Use of Systems Thinking for School Improvement*: *Reflecting on the Implementation of the Integrated Quality Management Systems (IQMS) in the Sweetwaters Ward.* Unpublished master's thesis, University of KwaZulu-Natal, Westville.

Moloi, K. (2007). An overview of education management in South Africa. *South African Journal of Education*, *27* (3), 463-476.

Mokhele, M. L. (2011). *Teachers" perspectives on continuing professional development: a case study of the Mpumalanga Secondary Science Initiative (MSSI) project.* Unpublished doctoral dissertation, University of South Africa, Pretoria.

Mokhele, M. L. (2014). Reaching Consensus on "Best Practices" of Professional Development: A Critical Review of Literature. *Mediterranean Journal of Social Sciences, 5*(27P1), 411.

Mokhele, M. L. & Jita, L. C. (2010). South African teachers' perspectives on continuing professional development: a case study of the Mpumalanga Secondary Science Initiative. *Procedia-Social and Behavioral Sciences, 9*, 1762-1766.

Moonsammy-Koopasammy, L. I. (2012). *The role of principals as instructional leaders: implications for effective teaching and learning.* Unpublished doctoral dissertation, University of Johannesburg, Johannesburg.

Moos, L., & Johansson, O. (2009). The international successful school principalship project: success sustained? *Journal of Educational Administration, 47* (6), 765-780.

Morgan, P. (2005). *The idea and practice of systems thinking and their relevance for capacity development*. Maastricht: European Centre for Development Policy Management.

Morgan, D.L & Scunnell, A. U. (1998). *Planning focus groups: focus group kit 2.* Thousand Oakes: Sage Publications.

Morrison, R. (2013). Educational leadership and change: structural challenges in the implementation of a shifting paradigm. *School Leadership & Managemen*t, *33* (4).

Morse, J. M., Barrett, M., Mayan, M., Olson, K., & Spiers, J. (2008). Verification strategies for establishing reliability and validity in qualitative research. *International journal of qualitative methods*, *1* (2), 13-22.

Moswela, B. (2010). Instructional Supervision in Botswana Secondary Schools: An Investigation. *Educational Management Administration & Leadership, 38* (1), 71-87.

Motsamai, M. J., Jacobs, L. & de Wet, C. (2011). Policy and Practice: Financial Management in Schools in the Mafeteng District of Lesotho. *Journal Social Science, 26* (2), 105-116.

Moorosi, P. (2012). Mentoring for school leadership in South Africa: diversity, dissimilarity and disadvantage. *Professional development in education, 38* (3), 487-503.

Moorosi, P. (2013). Constructing a leader‘s identity through a leadership development programme An intersectional analysis. *Educational Management Administration & Leadership*,

Moorosi, P., & Bush, T. (2011). School leadership development in Commonwealth countries: Learning across the boundaries. *International studies in educational administration, 39* (3).

Mthiyane, S. E., Bhengu, T. T. & Bayeni, S. D. (2014). The Causes of School Decline: Voices of School Principals and Circuit Managers in KwaZulu-Natal, South Africa. *Journal Social Science, 41* (2), 295-304.

Mourshed, M., Chijioke, C. & Barber, M. (2010). *How the world"s most improved school systems keep getting better.* London, McKinsey & Co.

Mouton, J. (2001).*How to succeed in your master"s and doctoral studies.* Pretoria: Van Schaik Publishers.

Mpungose, N.P. (2011). *Exploring the use of complexity approach in strategic management by the Kwazulu-Natal Department of Education.* Unpublished master's thesis, University of KwaZulu-Natal, Durban –Westville.

Mpungose, J. E. & Ngwenya, T. H. (2014). Managing Teacher Performance and its appraisal: dilemmas of school principals. *The Public, 62*, 75.

Msila, V. (2010). Rural school principals' quest for effectiveness: lessons from the field. *Journal of Education, 48,* 169-189.

Msila, V. (2013). Teacher-Learners' Search for Relevance: Lessons from a Principals' Leadership/Management Qualification in South Africa. *International Journal Education Science,*
5 (4), 443-452.

Msimango, R.J. (2009). *A systems perspective pedagogical leadership.* Unpublished master's thesis, University of KwaZulu-Natal, Durban Westville.

MSTP, (1998). *Development Planning for Schools*. Gauteng Department of Education: A workshop for school management teams. Johannesburg, GDE.

Mtapuri, O. (2014). Teachers' perceptions of the integrated quality management system: lessons from Mpumalanga, South Africa. *South African Journal of Education, 34* (1), 1-14.

Muhammad, M., Wallerstein, N., Sussman, A. L., Avila, M., Belone, L., & Duran, B. (2014). Reflections on Researcher Identity and Power: The Impact of Positionality on Community Based Participatory Research (CBPR) Processes and Outcomes. *Critical Sociology*.

Muijs, D., Harris, A., Chapman, C., Stoll, L. & Russ, J. (2004). Improving schools in socioeconomically disadvantaged areas–A review of research evidence. *School effectiveness and school improvement,*
15 (2), 149-175.

Murphy, P. E. (2013). *Tourism: A Community Approach (RLE Tourism)*. Routledge.

Myende, P. (2013). Sustaining school-community partnerships through effective communication. *Journal of Community Communication and Information Impact, 18,* 76-94

Myende P. & Chikoko, V. (2014). School-University Partnership in a South African rural Context: Possibilities for an Asset-based Approach. *Journal of Human Ecology, 46* (3), 249-259.

Naidu S., Joubert, R., Mestry, R, Mosoge, J. & Ngcobo, T. (2008). *Education Management and Leadership: A South African Perspective*. Cape Town: Oxford University Press Southern Africa.

Netshitahame, N.E. & Van Vollenhoven, W.J. (2002). School Safety in rural schools: are safe schools as safe as we think they are? *Journal of Education, 22* (4), 313-318.

Neuman, W.L. (2005). *Social research methods; qualitative and quantitative approaches.* (6th Ed.) Boston: Pearson Education Inc.

Neurmesrki, C.M. (2013). Rethinking Instructional Leadership, A Review: What do we know about Principal, teacher, and Coach Instructional leadership, and where should we go from here? *Educational Administration Quarterly 49* (2), 310- 347.

Ng, H. M. (2001). A model on continuous professional development of school leaders, *International Studies in Educational Administration, 29* (2), 73–87.

Ngcobo, T. (2008, September). *Towards Leadership for School Cultures Associated with Good Academic Performance in South African Township Secondary Schools: The "Power" of Organic Emergence, Diversity and Servic*e. In CCEAM Conference, Think Globally Act Locally: A Challenge to Education Leaders
(pp. 8-12).

Ngesi, M. J. (2003). *A study of systematic processes influencing educational change in a sample of IsiZulu medium schools*. Unpublished doctoral dissertation, University of Natal, Pietermaritzburg.

Ngidi, D.P. (2004). Educators' perceptions of the efficiency of school governing bodies. *South African Journal of Education 24* (4), 260–263.

Ngwenya, T. H. & Mpungose, J. E. (2014). *Managing teacher performance and its appraisal: dilemmas of school principals.*

Ngulube, P. (2005). Research procedures used by Master of Information Studies students at the University of Natal in the period 1982- 2002 with special reference to their sampling techniques and survey response rates: a methodological discourse. *The International Information & Library Review, 37* (2), 127-143.

Nguyen, N. C., & Bosch, O. J. (2013). A systems thinking approach to identify leverage points for sustainability: a case study in the Cat Ba Biosphere Reserve, Vietnam. *Systems Research and Behavioral Science, 30* (2), 104-115.

Nguyen, N. C., Graham, D., Ross, H., Maani, K., & Bosch, O. (2012). Educating systems thinking for sustainability: Experience with a developing country. *Systems Research and Behavioral Science*, *29* (1), 14-29.

Nguyen, T. V., Bosch, O. J., Nguyen, N. C., & Nguyen, T. Cover Page: Using the Evolutionary Learning Laboratory approach to establish World First Model for Integrated Governance of Haiphong, Vietnam.

Nkabinde, Z. P. (1997). *An analysis of educational challenges in the new South Africa.* University Press of America.

Nkosi, M. (2014). Ukuthwala –Bride abduction" and Education: Critical Challenges and Opportunities Faced by School Principals in Rural Kwazulu-Natal. *Journal of Social Science, 41* (3), 441-454.

O'Callaghan Jr, W. G. (2004). Think Like Peter Senge: Applying His Laws of Systems Thinking to Identify Patterns That Shape Behavior. *School Administrator*, *61*(10), 26.

Oliga, J. C. (2007). *Power, ideology, and control*. Springer Science & Business Media.

O'Neill, G. (2013). The Influence of Self-Efficacy on Principals' Capacity to Lead in Low Socioeconomic Status Schools.

Ono, Y. & Ferreira, J. (2010). A case study of continuing teacher professional development through lesson study in South Africa. *South African Journal of Education, 30* (1), 59-74.

Osei-Owusu, B., & Kwame Sam, F. (2012). Assessing the role of School Management Committees (SMCs) in improving quality teaching and learning in Ashanti Mampong

municipal basic schools. *Journal of Emerging Trends in Educational Research and Policy Studies, 3* (5), 611-615.

Ossimitz, G. (1997). *The development of systems thinking skills using system dynamics modeling tools.*

Painter-Morland, M. (2008). Systemic leadership and the emergence of ethical responsiveness. *Journal of Business Ethics, 82* (2), 509-524.

Pang, N.S. & Pisapia, J. (2012). The Strategic thinking skills of Hong Kong school leaders: Usage and effectiveness. *Educational Management Administration and Leadership, 40* (3), 343-361.

Pansiri, N. O. (2008). Instructional Leadership for Quality Learning An Assessment of the Impact of the Primary School Management Development Project in Botswana. *Educational Management Administration & Leadership*, *36* (4), 471-494.

Patching, D., (1990). *"Practical Soft Systems Analysis*", Pitman.

Patton, M. Q. (1990). *Qualitative evaluation and research methods,* 2nd ed. Newbury Park: Sage.

Patton, M. Q. (2002). Two decades of developments in qualitative inquiry a personal, experiential perspective. *Qualitative Social Work, 1* (3), 261-283.

Pemberton, J. D., & Stonehouse, G. H. (2000). Organisational learning and knowledge assets-an essential partnership. *The learning organization*, *7*(4), 184-194.

Peters, T. (1987). *Thriving on chaos: Handbook for a management revolution.* New York: Harper Perennial.

Peters, T. (1992). *Liberation management: Necessary disorganization for the nanosecond nineties*. London: Macmillan.

Pepper, A. (2002). Leading professionals: A science, a philosophy and a way of working. *Journal of Change Management, 3* (4), 349-360.

Petersen, G. J., & Fusarelli, L. D. (2008). Systemic leadership amidst turbulence: Superintendent-school board relations under pressure. The future of school board governance: Relevancy and revelation, 115-134.

Peurach, D. J. (2011). *Seeing complexity in public education*: *Problems, possibilities, and Success for All.* New York: Oxford University Press.

Peurach, D. J. & Glazer, J.L. (2012). Reconsidering replication: New perspectives on large-scale school improvement. *Journal of Education Change.*

Peurach, D. J., Glazer, J. L., & Lenhoff, S. W. (2014). The Developmental Evaluation of School Improvement Networks. *Educational Policy.*

Phorabatho, T. A. (2013). *Managing continuing professional development of teachers for curriculum change implementation.* Unpublished doctoral dissertation, University of South Africa: Pretoria.

Pillay, I. (2014). *Teachers' experiences of curriculum change in two under-resourced primary schools in the Durban area*. Unpublished master‘s thesis, University of South Africa: Pretoria.

Pinar, W. F. (2013). *International handbook of curriculum research*. Routledge.

Pisapia, J. (2009). *The Strategic leader: New tactics for a globalizing world.* Charlotte, NC: Information Age.

Pisapia, J., Reyes-Guerra, D., & Coukos-Semmel, E. (2005). Developing the leader‘s strategic mindset: Establishing the measures. *Leadership Review*, *5* (1), 41-68.

Pisapia, J., Reyes-Guerra, D. (2007). *The strategic thinking questionnaire (STQ).* Defray, Beach, Florida: Strategic Leadership International.

Pollack, J. (2006). Pyramids or silos: Alternative representations of the systems thinking paradigms. *Systemic Practice and Action Research, 19* (4), 383-398.

Pollitt, C. (2003). Joined-up Government. A Survey. *Political Studies Review, 11,* 34–49.

Pont, B.; Nusche, D.; Hopkins, D. (2008). Improving School Leadership. Volume 2: *Case Studies on Systemic Leadership.*

Porter, T., & Córdoba, J. (2009). Three views of systems theories and their implications for sustainability education. *Journal of Management Education*, *33*(3), 323-347.

Potgieter, J.M., Visser, P.J., Van der Bank, A.J., Mothata. M.S. & Squelch, J.M. (1996). *Understanding the South African School"sAct. What Public School Governors need to know?* Pretoria: Department of Education.

Prain, V. (2014). ANNE EDWARDS. *Adapting to Teaching and Learning in Open-Plan Schools, 205.*

Presley, A., & Meade, L. (2002). The role of soft systems methodology in planning for sustainable production. *Greener Management International*, *2002*(37), 100-110.

Prestige, J.W. (2013). *The Use of Systems Thinking Tools for School Improvements*. Unpublished doctoral dissertation, Auburn University, Alabama.

Prew, M. (2007). Successful principals: why some principals succeed and others struggle when faced with innovation and transformation. *South African Journal of Education, 27* (3), 447-462.

Prew, M. (2009). Community Involvement in School Development. *Educational Management, Administration and Leadership. 37* (6), 824-846.

Pring, R. (2000). Editorial: educational research. *British Journal of Educational Studies, 48* (1), 1-9.

Prinsloo, P., Sladeb, S. & Galpinb, F. (2010). A phenomenographic analysis of student reflections in online learning diaries. *Systemic Practice and Action Research 23* (4), 269-284.

Punch, K.F. (2004). *Introduction to .social research: quantitative and qualitative approaches.* London; Sage Publications.

Qian, H., & Walker, A. (2013). How principals promote and understand teacher development under curriculum reform in China. *Asia-Pacific Journal of Teacher Education*, *41* (3), 304-315.

Quatro, S.A., Waldman, D.A, Galvin, B.M. (2007). Developing holistic leaders: Four domains for leadership development and practice. *Human Resource Management Review 17* (4), 427–441.

Rabiee, F. (2004). Focus-group interview and data analysis. *Proceedings of the nutrition society*,
63 (4), 655-660.

Raman, S. R. & Ramachander, S. (2002). Metaphors and Managers: New Ways of Thinking and Seeing. *Economic Times.*

Ramango, S. P. (2014). *Teachers" experiences of continuing professional development in a secondary school in Tembisa.* Unpublished doctoral dissertation, University of South Africa, Pretoria.

Ramothwa, N. (2010). *Investigating the extent to which the implementation of the no-fee policy impacts on access to quality education in Gauteng*, *South Africa*. Unpublished masters thesis, University of the Witwatersrand, Johannesburg.

Rampa, S. H. (2010). A customised total quality management framework for schools. *Africa Education Review, 7*(1), 199-217.

Reed, G. (2006). *Leadership and Systems Thinking.* Retrieved July, 2015, from: au.cf.ml./au/awc/awegate/daudau/ree_mjo6.

Reigeluth, C. M. (2004, April). Chaos theory and the sciences of complexity: Foundations for transforming education. In *annual meeting of the American Educational Research Association, San Diego, CA*.

Rethmeier, K. A. (2010). Innovation for healthcare reform: Creating opportunities to explore, expand and excel. *Journal of Management & Marketing in Healthcare*, *3* (2), 150-162.

Resnick, L.B. (2009). Nested Learning Systems for the thinking curriculum. *Educational Researcher,*

Resnick, L. B. & Klopfer, L.E. (Eds). (1989). *Toward the Thinking Curriculum: Current cognitive research (ASCD Yearbook).* Alexandria, VA: Association for Supervision and Curriculum Development.

Resnick, L. B., & Spillane, J. P. (2006). *From individual learning to organizational designs for learning*. In L. Verschaffel, F. Dochy, M. Boekaerts, & S. Vosniadou (Eds.), Instructional psychology: Past, present and future trends. Sixteen essays in honor of Erik De Corte (pp. 259–276). Oxford, UK: Pergamon.

Retna, K. S. (2010). The learning organisation: A school's journey towards critical and creative thinking. *The Asia-Pacific Education Researcher, 16* (2).

Retna, K. S., & Pak Tee, N. (2006). The challenges of adopting the learning organisation philosophy in a Singapore school. *International Journal of Educational Management*, *20* (2), 140-152.

Roberts, J. (n.d.) *Research on School Development*. Johannesburg: JET.

Robinson, V.M., 2010. From instructional leadership to leadership capabilities: Empirical findings and methodological challenges. *Leadership and Policy in Schools*, *9* (1), 1-26.

Röling, N. R., & Wagemakers, M. A. (1998). Social learning for sustainable agriculture.

Rosenholtz, S. J. (1991). *Teachers" workplace: The social organization of schools*. New York, NY: Teachers College Press.

Rotherham, A.J. & Willingham. (2009). 21st Century Skills: The Challenges Ahead. *Teaching for the 21st Century, 67* (1), 16-21.

Rudge, D. W., & Howe, E. M. (2009). An explicit and reflective approach to the use of history to promote understanding of the nature of science. *Science & education*, *18* (5), 561-580.

Salner, M. (1999). *Beyond Checkland and Scholes: Improving SSM*. Paper presented at International Conference of the System Dynamics Society, Wellington, New Zealand.

Sambumbu, A.T. (2010). *The Implementation of an IQMS in Queenstown District Schools: Experiences from the Isibane Circuit*. Unpublished master's thesis, University of Fort Hare, Fort Hare.

Samuels, M. L., Taylor, S., Shepherd, D., van der Berg, S., Jacob, C., Deliwe, C. N., & Mabogoane, T. (2015). Reflecting on an impact evaluation of the Grade R programme: Method, results and policy responses. *African Evaluation Journal,* 3(1), 10-pages.

Sankaran, S., Hou Tay, B., & Orr, M. (2009). Managing organizational change by using soft systems thinking in action research projects. *International Journal of Managing Projects in Business*, *2*(2), 179-197.

Saunders, M., Lewis, P., & Thornhill, A. (2012). *Research methods for business students.* (6th ed.) Harlow: Pearson.

Seale, C., Gobo, G., Gubrium, J. F., & Silverman, D. (Eds.). (2004). *Qualitative research practice*. Sage.

Schley, W., & Schratz, M. (2011). Developing leaders, building networks, changing schools through system leadership. In *International handbook of leadership for learning* (pp. 267-295). Springer Netherlands.

Schunk, D. H. (2008). Metacognition, self-regulation, and self-regulated learning: Research recommendations. *Educational psychology review*, *20* (4), 463-467.

Schwandt, T. A., Lincoln, Y. S., & Guba, E. G. (2007). *Judging interpretations: but is it rigorous? Trustworthiness and authenticity in naturalistic evaluation.* New directions for evaluation, 2007 (114), 11-25.

Scotland, J. (2012). Exploring the philosophical underpinnings of research: Relating Ontology and Epistemology to the Methodology and Methods of the Scientific, interpretive, and Critical Research Paradigms. *English Language Teaching.*

Scott, D., Cooper, A., & Swartz, S. (2014). 'Cascading participation _and the role of teachers in a collaborative HIV and Aids curriculum development project. *South African Journal of Education*,
34 (2), 1-15.

SDPI, (1999). *School development planning: An introduction for second level schools*. Government of Ireland: Education and Science.

SDPI, (2003). *The process of school development planning*. [Online] Available URL: http://www.sdpi.ie/blue_book/new_Process_of_SDP.html.

Seddon, J., & O'Donovan, B. (2010). Why aren't we all working for Learning Organisations? *AMED e-Organisations and People*, *17* (2).

Sekaran, U. (2003). *Research methods for business: a skills building approach.* (4th Eds) Southern Illinois: John Wiley & Sons.

Senge, P. (1999). *The Fifth Discipline: The Art and practice of the learning organization.* New York: Doubleday.

Senge, P. (2006). *The fifth discipline: The art and practice of the learning organization*. New York:
Doubleday.

Senge, P. M. (2014). *The dance of change: The challenges to sustaining momentum in a learning organization*. Crown Business.

Senge, P., Cambron-McCabe, N., Lucas, T., Smith, B. & Kleiner, A. (2000). *Schools that learn: A fifth discipline fieldbook for educators, parents, and everyone who cares about education.* New York: Doubleday.

Senge, P. M., & Sterman, J. D. (1992). Systems thinking and organizational learning: Acting locally and thinking globally in the organization of the future. *European journal of operational research, 59* (1), 137-150.

Shaked, H. & Schechter, C. (2013). *Systems school leadership: Exploring new emerging construct*. Manuscript submitted for publication.

Shaked, H. & Schechter, C. (2013). Seeing wholes: The concept of systems thinking and its implementation in school leadership. *International Review of Education. 59* (6), 771-791.

Sharil, W. N. E. H., & Majid, F. A. (2010). Reflecting to Benefit: A Study on Trainee Teachers' Self-Reflection. *International Journal of Learning*, *17* (8).

Shaw, M. L., & Gaines, B. R. (1998). A research-based masters program in the workplace. *Proceedings of WCCCE*, *98*.

Shenton, A. K. (2014). Just why do we need school libraries? Some ideas from students. *New Library World, 115* (3-4), 140-159.

Sherwood, D. (2002). *Seeing the Forest for the Trees: A Manager"s Guide to Applying Systems Thinking.* Nicholas Brealey Publishing: Boston.

Sheppard, M. (2004). *Appraising and using social research in the human services: An introduction for social work and health professionals*. Jessica Kingsley Publishers.

Sibuyi, F.T. (1997). *Parental involvement in the governance of Nyeleti High School*. Unpublished master's thesis, University of the Witwatersrand: Johannesburg.

Silins, H. C. (1994). The relationship between transformational and transactional leadership and school improvement outcomes. *School effectiveness and school improvement*, *5* (3), 272-298.

Silins, H., & Mulford, B. (2002). Schools as learning organisations: The case for system, teacher and student learning. *Journal of Educational Administration*, *40* (5), 425-446.

Silverman, D. (2010). *Doing qualitative research.* (3rd Ed.) Los Angelos: Sage Publications.

Sister, L.F. (2004).*The Role of School Management Teams in School Improvement.* Unpublished master's thesis, Nelson Mandela University, Nelson Mandela Metropolitan.

Skidmore, D. (2004). *Inclusion: The Dynamic Of School Development: The Dynamic of School Development*. McGraw-Hill Education (UK).

Smith, T. (1999). Making the world safe for democracy in the American century. *Diplomatic History*, *23*(2), 173-188.

Smith, A. C., & Humphries, C. E. (2004). Complexity theory as a practical management tool: A critical evaluation. *Organization Management Journal, 1* (2), 91-106.

Smithson, J. (2008). Focus groups. *The Sage handbook of social research methods*, 357-370.

Snape, D., & Spencer, L. (2003). The foundations of qualitative research. *Qualitative research practice: A guide for social science students and researchers*, *11*.

Sofo, F., Fitzgerald, R., & Jawas, U. (2012). Instructional leadership in Indonesian school reform: overcoming the problems to move forward. *School Leadership & Management, 32* (5), 503-522.

Southworth, G. & H. du Quesnay. (2005). School leadership and system leadership: Essays. *The Educational Forum* Winter *69* (2), 212–220.

Spillane, J. P. (1996). School districts matter: Local educational authorities and state instructional policy. *Educational Policy, 1*(1), 63–87.

Spreen, C. A., & Vally, S. (2010). Outcomes-based education and its (dis) contents: Learner-centred pedagogy and the education crisis in South Africa. *Southern African Review of Education with Education with Production*, *16* (1), 39-58.

Stablein, R., & Nord, W. (1985). Practical and emancipatory interests in organizational symbolism: A review and evaluation. *Journal of Management*, *11*(2), 13-28.

Stacey, R. (1996). *Complexity and creativity in organizations.* San Francisco: Berrett-Koehler Publishers.

Stake, R.F. (1994). *Case Studies: Handbook of qualitative research.* NK Denzin and Y.S. Lincoln, eds. Thousand Oakes, Sage.

Starr, K., & White, S. (2008). The small rural school principalship: Key challenges and cross-school responses. *Journal of research in rural education, 23* (5), 1-12

Steele, C. (2014). Systems Thinking Professional Learning Communities: The Principal‘s Role in Implementation of Literacy Collaborative.

Sterman J. (2000). *Business Dynamics: Systems Thinking and Modeling for a Complex World*. Irwin McGraw-Hill: New York.

Stewart, J., & Ayres. R., (2001). Systems theory and policy practice: an exploration. *Policy Sciences*,
34 (1), 79-88.

Steyn, G. M. (2015). Creating a teacher collaborative practice in a South African primary school: The role of the principal. *Journal of Asian and African Studies, 50* (2), 160-175.

Steyn, G. M. (2014). Exploring the status of a professional learning community in a South African primary school.

Steyn, G. M. (2013). Building professional learning communities to enhance continuing professional development in South African schools. *Anthropologist, 15* (3), 277-289.

Sterling, S. (2003). *Whole Systems Thinking as a basis for paradigm change in education: Explorations in the context of sustainability*. Unpublished doctoral dissertation, University of Bath.

Stilglitz, J.E. (2002).towards a new paradigm for development: strategies, policies and processes. *Applied econometrics and international development, 2* (1), 116-122.

Stoll, L. (2015). *Three greats for a self-improving school system: pedagogy, professional development and leadership: teaching schools R&D*. Network national themes project 2012-14: Spring 2015.

Stroh, D. P. (2009). Leveraging grantmaking: Understanding the dynamics of complex social Systems. *The Foundation Review*, *1*(3), 9.

Styhre, A. (2002). Non-linear change in organizations: Organization change management informed. *Leadership & Organization Development Journal, 23* (5/6), 343-351.

Sun, Hechuan, Bert PM Creemers & Rob De Jong (2007). Contextual factors and effective school improvement. *School effectiveness and school improvement, 18* (1), 93-122.

Supovitz, J. A., & Taylor, B. S. (2005). Systemic Education Evaluation Evaluating the Impact of Systemwide Reform in Education. *American Journal of Evaluation*, *26* (2), 204-230.

Swanson, R.C., Cattaneo, A.; Bradley, E.; Chunharas, S.; Atun, R.; et al., (2012). Rethinking health systems strengthening: key systems thinking tools and strategies for transformational change. *Health Policy and Planning, 27* (iv), 54-61.

Taggart, B., & Sammons, P. (1999). Evaluating the impact of a raising school standards initiative. In *Enhancing Educational Excellence, Equity and Efficiency* (pp. 137-165). Springer Netherlands.

Tang, C., (2002, July). Reflective diaries as a means of facilitating and assessing reflection. In *Quality conversations: Proceedings of the 29th HERDSA Annual Conference Perth* (pp. 7-10).

Tangen, D., & Mercer, L. (2012). International pre-service teachers' self-confidence in critical reflective thinking and writing through an intercultural Patches program. *TESOL in Context*, *22* (1), 56.

Taole, M. J. (2013). Exploring Principals‘ Role in Providing Instructional Leadership in Rural High Schools in South Africa. *Studies of Tribes and Tribals, 11* (1), 75-82.

Tappin, E. (2000). *Challenge and change–International capacity building intervention and Tuvalu NGOs*. Retrieved September, 30, 2013.

Tate, W. (2013). Managing leadership from a systemic perspective. *Centre for Progressive Leadership, A White Paper, January*.

Taylor, N. (2007). Equity, efficiency and the development of South African schools. In *International handbook of school effectiveness and improvement* (pp. 523-540). Springer Netherlands.

Taylor, N., Muller, J., & Vinjevold, P. (2003). *Getting schools working: Research and systemic school reform in South Africa.* Pearson South Africa.

Terre Blanche, M., Durrheim, K., & Kelly, K. (2006). First steps in qualitative data analysis. *Research in practice: Applied methods for the social sciences*, 320-344.

Terreblanche, M., Durrheim, K. & Painter, D. (2006). *Research in practice: Applied methods for the social sciences.* (2nd Ed.) Cape Town. University of Cape Town Pres.

Testa, M. R., & Sipe, L. J. (2006). A systems approach to service quality tools for hospitality leaders. *Cornell Hotel and Restaurant Administration Quarterly*, *47*(1), 36-48.

Theisohn, T., & Lopes, C. (2013). *Ownership Leadership and Transformation: Can We Do Better for Capacity Development*. Routledge.

Thompson, A. A., Strickland, A. J., & Gamble, J. A. (2010). *Crafting and executing strategy: The quest for competitive advantage* (17th ed.). New York, NY: McGraw-Hill.

Thoonen, E. E., Sleegers, P. J., Oort, F. J., & Peetsma, T. T. (2012). Building school-wide capacity for improvement: the role of leadership, school organizational conditions, and teacher factors. *School effectiveness and school improvement, 23* (4), 441-460.

Thornton, B., Shepperson, T., & Canavero, S. (2007). A systems approach to school improvement: Program evaluation and organizational learning. *Education*, *128* (1), 48.

Thornton, B., Peltier, G. & Perreault, G. (2010). Systems Thinking: A Skill to improve student achievement. *A Journal of Educational Strategies, Issues and ideas.*

Thorsena, C.A. & DeVoreb, S. (2013). Analyzing reflection on/for action: A new approach Reflective Practice: *International and Multidisciplinary Perspectives, 14* (1), 88-103.

Tikly, L. & Ngcobo, T. (2005). *The Role of Community in Supporting Effective Leadership for Change in Historically Black Schools in South Africa*. Paper presented to the British Educational Leadership, Management and Administration Society, Kent's Hill Training and Conference Centre, Milton Keynes.

Tobin, G. A., & Begley, C. M. (2004). Methodological rigour within a qualitative framework. *Journal of advanced nursing*, *48* (4), 388-396.

Togneri, W., & Anderson, S. E. (2003). *Beyond islands of excellence: What districts can do to improve instruction and achievement in all schools*. Washington, DC: The Learning First Alliance and the Association for Supervision and Curriculum Development.

Togo, M. (2009). *A Systems Approach to mainstreaming environment and sustainability in universities; the case of Rhodes University; South Afric*a. Unpublished doctoral dissertation, Rhodes University, Rhodes.

Togo, M., & Lotz-Sisitka, H. (2013). Exploring a systems approach to mainstreaming sustainability in universities: a case study of Rhodes University in South Africa. *Environmental Education Research, 19* (5), 673-693.

Travers, C. (2011). Unveiling a reflective diary methodology for exploring the lived experiences of stress and coping. *Journal of Vocational Behavior*, *79*(1), 204-216.

Trinh, C. T., Ha, T. M., Bosch, O. J., & Nguyen, N. C. (2015, June). *Using a Systems Approach to Improve the Lives of Women Smallholder Farmers in the Northern Mountainous Region of Vietnam.* The Eight Vietnam Economist Annual Meeting, held 9th-10th June at Thai Nguyen City, Vietnam

Tsiakkiros, A., & Pashiardis, P. (2002). Strategic planning and education: the case of Cyprus. *International Journal of Educational Management, 16* (1), 6-17.

Tsotetsi, S., Van Wyk, N., & Lemmer, E. (2008). The experience of and need for training of school governors in rural schools in South Africa. *South African Journal of Education, 28* (3), 385-400.

Tuytens, M. & Devos, G. (2014). The problematic implementation of teacher evaluation: Is it school failure or governmental pitfall? *Educational Management.*

Tyler, R.W. (2013).*Basic principles of curriculum and instruction.* University of Chicago press.

Ulrich, W. (1983). Critical Heuristics of Social Planning. Haupt, Bern.

Ulrich, W. (1988). Systems thinking, systems practice and practical philosophy: A program of research. *Systems Practice, 1*, 137-153.

Ulrich, W. (1998). Systems Thinking as if People Mattered: Critical Systems Thinking for Citizens and Managers (Working Paper No. 23). University of Lincoln: Lincoln.

Ulrich, W. (2003). Beyond methodology choice: Critical systems thinking as critically systemic discourse. *Journal of the Operational Research Society, 54*, 325- 342.

Vally, S., Motala, E., & Ramadiro, B. (2009). *Revolutionizing Pedagogy: Education for Social Justice Within and Beyond Global Neo-Liberalism*, 41.

Van den Berg, G. J. (2001). Duration models: specification, identification and multiple durations. *Handbook of econometrics*, *5*, 3381-3460

Van der Berg, S. (2007). Apartheid's enduring legacy: Inequalities in education. *Journal of African Economies*, *16* (5), 849-880.

Van der Berg, S. (2008). How effective are poor schools? Poverty and educational outcomes in South Africa. *Studies in Educational Evaluation*, *34* (3), 145-154.

Van der Berg, S., Burger, R., Burger, R., Louw, M., & Yu, D. (2006*). Trends in poverty and inequality since the political transition.*

Van der Voort, G.H. (2013*). An Action Learning model to assist Circuit Teams to support School Management Teams towards whole- school development*. Unpublished doctoral dissertation, Nelson Mandela Metropolitan University, Port Elizabeth.

Van der Voort, G., & Wood, L. (2014). Assisting School Management Teams to construct their school improvement plans: an action learning approach. *South African Journal of Education, 34* (3), 01-07.

Van Oers, B. (1998). From context to contextualizing. *Learning and instruction, 8* (6), 473-488.

Van Soelen, A. (2010). *A systems approach to the design of an idealized student enrolment support system for the University of KwaZulu-Natal.* Unpublished doctoral dissertation, University of KwaZulu-Natal, Durban -Westville.

Van Wyk, N., & Lemmer, E. (2007). Redefining home-school-community partnerships in South Africa in the context of the HIV/AIDS pandemic. *South African Journal of Education*, *27*(2).

Van Wyk, C., & Moeng, B. G. (2013). The design and implementation of a strategic plan in primary schools. *International Business & Economics Research Journal (IBER), 13* (1), 137-144.

Verd, J. M. (2004). *Qualitative research methods.*

Wagner, T., Kegan, R., Lahey, L., Lemons, R., Garnier, J., Helsing, D., & Rasmussen, H. (2006). *Change leadership: A practical guide to transforming our schools*. San Francisco, CA: Jossey-Bass.

Wallendorf, M., & Belk, R. W. (1989). Assessing trustworthiness in naturalistic consumer research. *Interpretive consumer research*, *1989*, 69-84.

Walker, D., Steinfort, P., & Maqsood, T. (2014). Stakeholder voices through rich pictures. *International Journal of Managing Projects in Business, 7* (3), 342-361.

Walsh, F. & Gamage, D. (2003). The significance of professional development and practice: towards a better public education system. *Teacher Development, 7* (3), 363–383.

Wasserstein- Warnet, M.M., & Klein, Y. (2000).principals cognitive strategies for changes of perspective I school innovation. *School leadership & management, 20* (4), 435-457.

Webster, K. (2004). *Rethink, refuse, and reduce ... Education for sustainability in a changing world*. Shrewsbury: FSC Publications.

Wellman, C., Kruger, F. & Mitchell, B. (2005). *Research methodologies.* (3rd Ed.) Cape Town: Oxford University Press.

Wetherill, M., Rezgui, Y., Boddy, S., & Cooper, G. S. (2007). Intra-and interorganizational knowledge services to promote informed sustainability practices. *Journal of Computing in Civil Engineering*, *21*(2), 78-89.

Wijesundera, S. (2002). School Improvement: an action–based case study conducted in a disadvantaged school in Sri Lanka. *Educational Action Research, 10* (2), 169-188.

Williams, R. B., Brien, K. & LeBlanc, J. (2012). Transforming Schools into Learning Organizations: Supports and Barriers to Educational Reform. *Canadian Journal of Educational Administration and Policy.*

Williamson, R., & Blackburn, B. R. (2010). Dealing with resistance to change. *Principal Leadership,*
10 (7), 73-75.

Woods, P. A., Bennett, N., Harvey, J. A., & Wise, C. (2004). Variabilities and Dualities in Distributed Leadership Findings from a Systematic Literature Review. *Educational Management Administration & Leadership, 32* (4), 439-457.

Woodward, H. (1998). Reflective journals and portfolios: learning through assessment. *Assessment and Evaluation in Higher Education*. *23* (4), 415-423.

Wrigley, T. (2004). _School effectiveness'. The problem of reductionism. *British Educational Research Journal, 30* (2), 227-244.

Wulczyn, F., Daro, D., Fluke, J., Feldman, S., Glodek, C., & Lifanda, K. (2010*). Adapting a Systems Approach to Child Protection: Key Concepts and Considerations*. UNICEF. New York

Xaba, M. (2006). The difficulties of school development planning. *South African Journal of education,*
26 (1), 15-26.

Xaba, M. I. (2012). A qualitative analysis of facilities maintenance-a school governance function in South Africa. *South African Journal of Education, 32*(2), 215-22.

Xaba, M. I. (2011). The possible cause of school governance challenges in South Africa. *South African Journal of Education, 31*(2), 201-211.

Xulu, S. L. (2009). *Evaluating Poor Educational Performance: The Value of Using a Systems Thinking Approach with Special Reference to Grade 10-12 Classes in Schools in the Samungu Ward*. Unpublished master's thesis, University of KwaZulu-Natal, Westville.

Yin, R. K. (2003). *Applications of case study research.* (2nd Ed.) Thousand Oakes: Sage Publications.

Yoon, S. W., & Kuchinke, K. P. (2005). Systems theory and technology. Lenses to analyze an organization. *Performance improvement*, *44* (4), 15-20.

Zazara, R. (1995). Systems thinking in the classroom. *Curriculum Technology Quarterly, 5* (1).

Zeigler, B. P. (2014). *Object-oriented simulation with hierarchical, modular models: intelligent agents and endomorphic systems*. Academic press.

Zeigler, B. P., Praehofer, H., & Kim, T. G. (2000). *Theory of modeling and simulation: integrating discrete event and continuous complex dynamic systems*. Academic press.

Zweibelson, B. E. (2011). *Incompatible Systems of Logic: Why Design Should Integrate the Mechanistic, Reductionist, and Linear Logic of Military Detailed Planning*. Army command and general stall College fort Leavenworth KS School of advance military studies.

9.0 APPENDICES

Appendix 9.1: Permission to conduct research in the KZN DoE institutions

Department:
Education
PROVINCE OF KWAZULU-NATAL

Enquiries: Sibusiso Alwar Tel: 033 341 8610 **Ref.: 2/4/8/422**

Mr Bongani Sibusiso Mchunu P. 0. Box 135 EDENDALE 3217

Dear Mr Mchunu

PERMISSION TO CONDUCT RESEARCH IN THE KZN DoE INSTITUTIONS

Your application to conduct a pilot and research entitled: **Examining the Use of the Systems Thinking Approach to School Development: a Case Study of Five Schools in Umgungundlovu District,** in the KwaZulu-Natal Department of Education Institutions has been approved. The conditions of the approval are as follows:

1. The researcher will make all the arrangements concerning the research and interviews.
2. The researcher must ensure that Educator and learning programmes are not interrupted.
3. Interviews are not conducted during the time of writing examinations in schools.
4. Learners, Educators, Schools and Institutions are not identifiable in any way from the results of the research.
5. A copy of this letter is submitted to District Managers, Principals and Heads of Institutions where the intended research and interviews are to be conducted.
6. The period of investigation is limited to the period from 01 June 2013 to 30 June 2015.
7. Your research and interviews will be limited to the schools you have proposed and approved by the Head of Department. Please note that Principals, Educators, Departmental Officials and Learners are under no obligation to participate or assist you in your investigation.
8. Should you wish to extend the period of your survey at the school(s), please contact Mr. Alwar at the contact numbers below.
9. Upon completion of the research, a brief summary of the findings, recommendations or a full report / dissertation / thesis must be submitted to the research office of the Department. Please address it to The Director-Resources Planning, Private Bag X9137, Pietermaritzburg, 3200.
10. Please note that your research and interviews will be limited to the schools and institutions in the following District/s of the KwaZulu Natal Department of Education:

Umgungundlovu District

Nkosinathi S.P. Sishi, PhD Head of Department: Education

KWAZULU-NATAL DEPARTMENT OF EDUCATION

*nd Performance

beyond the call of duty

" dedi^d to ®erv j°f

POSTAL: Private Bag X 9137, Pietermaritzburg, 3200, KwaZulu-Natal, Republic of South Africa '
PHYSICAL: Office G25,188 Pietermaritz Street, Pietermaritzburg, 3201. Tel. 033 3418610 Fax: 033 341 8612
EMAIL ADDRESS: sibusiso.alwar@kzndoe.gov.za; CALL CENTRE: 0860 596 363;
WEBSITE: www.kzneducation.gov.za

Appendix 9.2: Letter requesting permission from principal

Umgungundlovu District

166 Jabu Ndlovu Road

Pietermaritzburg

Dear sir/madam

Project topic: **Examining the use of Systems Thinking Approach School Development: A Case of Five Schools in Umgungundlovu District.**

This letter seeks to apply for approval to carry out a study in your school. You are kindly invited as a principal to participate in the interviews and focus discussion groups.

Research Project: PhD studies

Project Aim: To examine the influence of systems thinking approach to school development.

Researcher: BS Mchunu 033-3416404/ 0828321936

Supervisor: Dr. TT Bhengu: 031-2603534 (W)

Research contact: HSSREC Mrs. P, Ximba, 031-2603587

Participants; Principals in Circuit

Conditions for rights of participations

a) Participation is voluntary
b) Participation in focus groups
c) The focus group will be recorded using video records
d) Open and structured interviews will be conducted
e) You will remain anonymous throughout the project, to ensure confidentiality
f) At your discretion, you will allow me to conduct an open & structured interview
g) The findings will be tabled to participants

Declarations:

I…… (Full names of participants) hereby confirm that I understand the contents of this document and the nature of the research project and that I consent to participating in the research project.

I understand that I am at liberty to withdraw from the project any time, should I so desire.

…… ……..

Signature of participant Date

Appendix 9.3: Interview Guide

INTERVIEW SCHEDULE: SYSTEMS THINKING APPRAOCH TO SCHOOL DEVELOPMENT (STADE)

- Semi-structured interview schedule

INTERVIEW SCHEDULE FOR PRINCIPALS OF SCHOOLS

No Questions asked

1. What is your understanding of systems thinking?

2. What are the benefits of using a System Thinking Approach to school development?

Can you relate what you consider as some of the highlights and achievements in terms of developing your school?

3. How do you go about conducting strategic planning for school development?

4. What sort of processes do you engage in terms of arriving at the developing the school improvement plan?

5. How have been involved in curriculum development as part of engagement in systems thinking to school development?

6. How is teaching and learning improved utilising a System Thinking Approach to school development?

7. Drawing from experience as principal working from Systems perspective thinking for approaching school development what can you tell us about the use of system thinking in school development?

In your involvement at circuit and cluster level what can you share as your experience and engagement in systems thinking and its use in school development?

8 How did you work on integrating the three systems, WSE and DAS and IQMS for purposes of school development?

9. What are the areas of whole school that you have developed? What partnerships have you developed and how have they developed the school?

10. What can you attribute as some of your school development achievements? Share your experience handling social issues coming from the environment that affect the school system?

11. In what way have you developed professionally and which programmes are you engaged in for professional development?

12. Share your experiences in working with the school community in school development?

What sort of structures or committees do you work with to that are critical for school development?

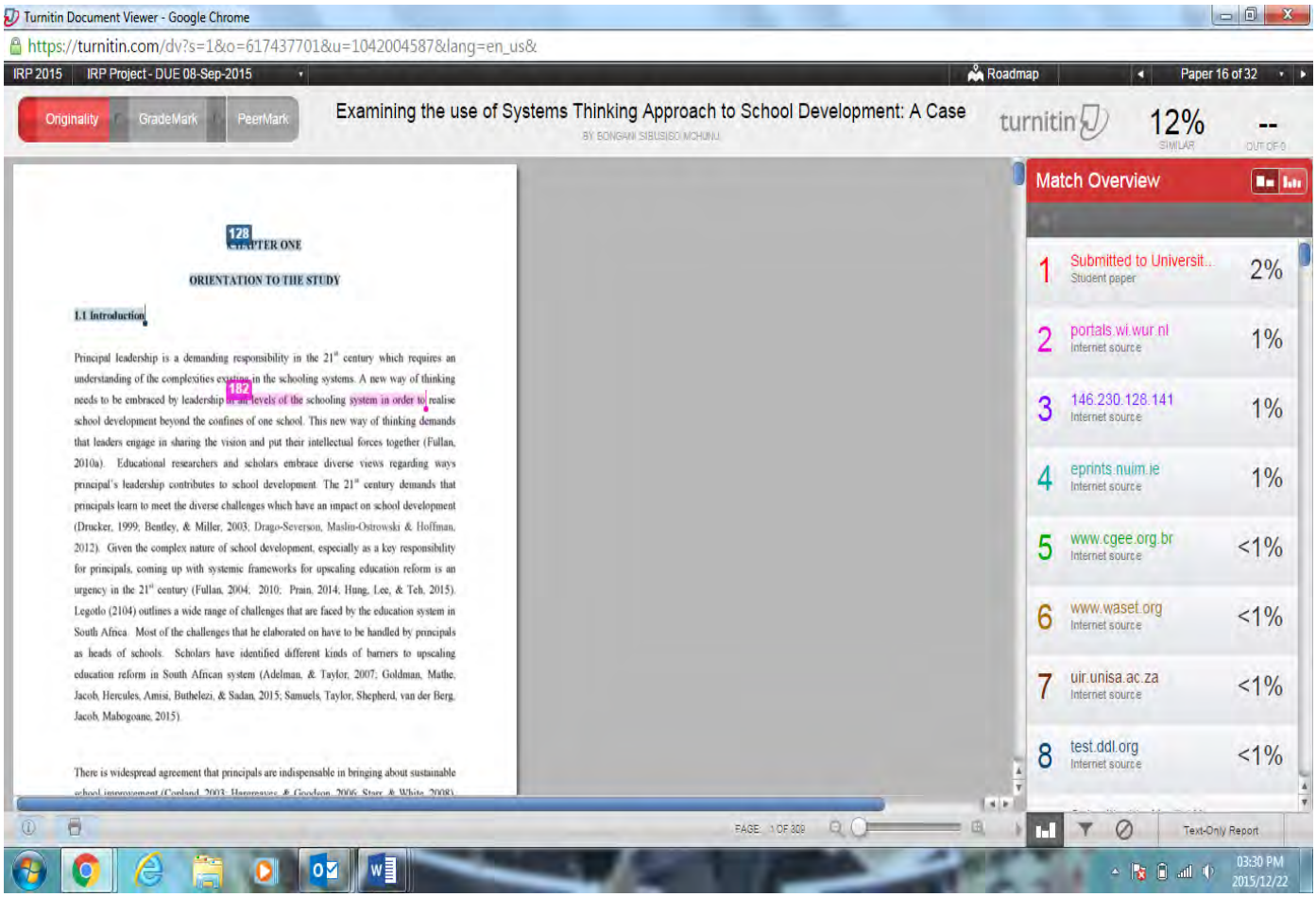
13. In what way has the school developed in infrastructure?

14. How did work on the aspect of improving the extracurricular activities? What sort of challenges did you have in extracurricular activities?

15. Can you show me any of your of records, journals, diaries, pictures, that reflect and support what is considered as school development activities? What are the new things you are doing that contribute to school development?

16. What are some of the challenges of using a System Thinking Approach to school development?

Appendix: 9.4 Turnitin Report



CHAPTER ONE

ORIENTATION TO THE STUDY

1.1 Introduction

Principal leadership is a demanding responsibility in the 21st century which requires an understanding of the complexities existing in the schooling systems. A new way of thinking needs to be embraced by leadership at all levels of the schooling system in order to realise school development beyond the confines of one school. This new way of thinking demands that leaders engage in sharing the vision and put their intellectual forces together (Fullan, 2010a). Educational researchers and scholars embrace diverse views regarding ways principal's leadership contributes to school development. The 21st century demands that principals learn to meet the diverse challenges which have an impact on school development (Drucker, 1999; Bentley, & Miller, 2003; Drago-Severson, Maslin-Ostrowski & Hoffman, 2012). Given the complex nature of school development, especially as a key responsibility for principals, coming up with systemic frameworks for upscaling education reform is an urgency in the 21st century (Fullan, 2004; 2010; Prain, 2014; Hung, Lee, & Teh, 2015). Legotlo (2104) outlines a wide range of challenges that are faced by the education system in South Africa. Most of the challenges that he elaborated on have to be handled by principals as heads of schools. Scholars have identified different kinds of barriers to upscaling education reform in South African system (Adelman, & Taylor, 2007; Goldman, Mathe, Jacob, Hercules, Amisi, Buthelezi, & Sadan, 2015; Samuels, Taylor, Shepherd, van der Berg, Jacob, Mabogoane, 2015).

There is widespread agreement that principals are indispensable in bringing about sustainable