ENHANCING THE PRINCIPAL'S LEADERSHIP ROLE IN THE USAGE OF INFORMATION AND COMMUNICATION TECHNOLOGY AT SCHOOL

By

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DECLARATION

I declare that the thesis, **ENHANCING THE PRINCIPAL'S LEADERSHIP ROLE IN THE USAGE OF INFORMATION AND COMMUNICATION TECHNOLOGY AT SCHOOL,** hereby handed in for the qualification of Doctor of Philosophy at the University of the Free State, is my own independent work and that I have not previously submitted the same work for a qualification at/in another university.

I hereby cede copyright to the University of the Free State.

M.D. Tshelane

January 2015

DEDICATIONS

This thesis is dedicated to

Esther Tshelane (my mother)

and

Reamogetse Tshelane (my daughter)

Who introduced me to the joy of appreciation, enabling

and permitting such a reading to take place today.

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LIST OF ABBREVIATIONS AND ACRONYMS

ACE	Advanced Certificate in Education
CAPS	Curriculum Assessment and Policy Statement
CAT	Computer applications technology
CDA	Critical discourse analysis
CER	Critical emancipatory research
CLS	Critical leadership studies
DBE	Department of Basic Education
DoE	Department of Education
DSG	Development support group
EEA	Employment of Educators Act
FAI	Free attitude interview
ICT	Information communication technology
ICTISE	Information communication technology innovation in school education
IQMS	Integrated Quality Management System
IT	Information Technology
NCS	National curriculum statement
NEPAD	New Partnership for Africa's Development
NGO	Non-Government Organisation
NITEF	National Information Technology Education Framework
PAR	Participatory action research

PESTLE	Political, economic. social, technological, environmental and legal environments
PPEM	Programme planning, evaluation and monitoring
RCL	representative council of learners
RNCS	Revised national curriculum statement
RSA	Republic of South Africa
SAIDE	South African Institute for Distance Education
SA-SAMS	South African Schools Administration Management System
SGB	School Governing Body
SMDG	School Management Governance Developer
SMT	School Management Team
SLT	Sustainable learning team
SWOT	strength, weakness, opportunity, threats
TAM	Technology Acceptance Model
UNESCO	United Nations Organization for Education, Science and Culture

ABSTRACT

The aim of this thesis was to design a framework to enhance the principal's leadership role in the use of information communication technology (ICT) at a school in the Motheo District in the Free State. This thesis consists of five chapters, which are structured as follows: Chapter 1 explains the reasons why I decided to undertake this project. The chapter explains the problem statement, including the aim and objectives of the study and the questions that the project sought to answer. Chapter 2 discusses the theoretical framework, laying the ground for the construction of the conceptual framework, which drove the search for answers to the research questions. Chapter 2 also searches for answers to the questions posed in the related literature, which provided a base for the methodology followed throughout the study. Chapter 3 explains this methodology and how the intervention process implemented in this study was generated from the methodology. Chapter 4 presents the empirical analysis and interpretation of the data, and discusses the findings derived from critical discourse analysis. The final chapter is a systematic summary of the findings and conclusions.

The study makes recommendations for the way principals can adopt and embrace ICT with the aim of motivating teachers to integrate ICT in professional curriculum practice. In this way, teaching and learning can be improved, which, in turn, will enhance learner performance.

In the first part of the study, the results of brief empirical reflections by means of participatory action research show that the inability to activate the principal's role of creating a suitable learning environment, is caused by inadequate technological pedagogical content knowledge, a failure to plan lessons, and an absence of assessment by means of ICT; these causes have a negative impact on the principal's leadership role, and lead, inevitably, to inadequate learner performance.

The second part identifies the support that is required from the principal for professional staff development in ICT, human relations and ICT use in the school, participation in extracurricular and co-curricular activities for ICT integration, and technological

developments in administration – these functions are not supported by the principal's leadership role in the use of ICT. Numerous findings of this study with regard to the common challenges facing ICT integration are consistent with results of other research studies reported in the literature review.

The fascinating and unique aspect of this research project has proven to be the infusion of humanitarian elements in the educational management and leadership field, which has a predominantly positivistic and commercial research flavour and which involves the exercise of leadership according to individualistic approaches. Another unique aspect is the voice of the learner, which has been neglected in other studies: the current study confirmed that the voice of the learner is in fact the curriculum. The study advocates for the consideration of the learner's voice in educational reform and, thus, recommends that this voice, which has often been viewed as "insignificant", is heard.

In conclusion, the thesis argues that leadership does not reside in an individual, but in collective and collaborative relationships; anyone who is (will be) affected by any decision or action taken in an institution earns engagement and involvement. The thesis hopes to offer the school in the Motheo District a framework for enhancing the principal's leadership role in the use of ICT. In this way, the study can contribute to school leadership literature in South Africa and offer useful tips for integrating ICT in the curriculum for teaching and learning, with the ultimate aim of improving learner performance.

OPSOMMING

Die doel van die proefskrif is om ’n raamwerk te ontwerp ten einde ’n skoolhoof in die Motheo-distrik in die Vrystaat se leierskapsrol in die gebruik van inligtingskommunikasie-tegnologie (IKT) te bevorder. Hierdie proefskrif bestaan uit vyf hoofstukke wat soos volg gestruktureer is: Hoofstuk 1 verduidelik die redes waarom die projek onderneem is. Die hoofstuk beklemtoon ook die probleemstelling, insluitend die doel en doelwitte van die studie, en die vrae wat die projek poog om te beantwoord. Hoofstuk 2 bespreek die teoretiese raamwerk wat as grondslag dien vir die konstruksie van die konseptuele raamwerk – dit is die dryfkrag agter die soektog na antwoorde op die navorsingsvrae. Hoofstuk 2 soek ook na antwoorde op vrae soos gevind in die verwante literatuur, wat weer die basis vorm vir die metodologie wat in die studie gevolg is. Hoofstuk 3 verduidelik hierdie metodologie en hoe die intervensieproses wat in die studie geïmplementeer is vanuit die metodologie, gegenereer is. In Hoofstuk 4 word die data empiries ontleed en geïnterpreteer en bevindinge wat uit kritiese diskoersanalise afgelei is, word bespreek. Die laaste hoofstuk verskaf ’n sistematiese opsomming van die bevindinge en gevolgtrekkings.

Die studie beveel aan hoe ‘n skoolhoof IKT op só ’n wyse kan aanwend dat onderwysers besiel word om IKT in die professionele kurrikulumpraktyk te integreer. Op hierdie manier sal onderrig en leer verbeter, wat op sy beurt leerderprestasie sal bevorder.

’n Kort empiriese refleksie is met behulp van deelnemende aksienavorsing in die eerste gedeelte van die studie gedoen. Resultate hiervan toon dat verskeie faktore ’n negatiewe impak op die skoolhoof se leierskapsrol het, naamlik, onvoldoende tegnologiese pedagogiese inhoudskennis, ’n gebrek aan lesbeplanning en assessering deur middel van IKT, en versuim om die skoolhoof se rol in die skep van ’n geskikte leeromgewing te aktiveer. Dit alles lei na ontoereikende leerderprestasie.

Die tweede gedeelte identifiseer die skoolhoof se steun wat vir professionele personeelontwikkeling in IKT, menslike betrekkinge en bydraes tot IKT-gebruik in die skool vereis word. Deelname in buitemuurse en ko-kurrikulêre aktiwiteite vir IKT-integrasie en

tegnologiese ontwikkeling in administrasie word nie deur die skoolhoof se leierskaprol in IKT-gebruik gesteun nie. Talle bevindinge in hierdie studie, wat met die algemene uitdagings rakende IKT-integrasie verband hou, stem ooreen met resultate van ander studies wat in die literatuuroorsig gedek is.

Die fassinerende en unieke aspek van hierdie navorsingsprojek is dat humanitêre elemente vervleg word in die opvoedkundige bestuurs- en leierskapsveld, wat op sigself ’n oorwegend positivistiese en kommersiële navorsingsingesteldheid het en waar leierskap volgens individualistiese benaderings uitgeoefen word. ’n Ander unieke aspek is die erkenning wat aan die leerder se stem gegee word; iets wat in vorige studies ontbreek. Die huidige studie bevestig dat die leerder se stem in werklikheid die kurrikulum is. Die studie doen voorspraak vir die inagneming van die leerder se stem in opvoedkundige hervorming en beveel dus aan dat ons na hierdie stem, wat in sommige opsigte as “onbeduidend” beskou word, luister.

Ter afsluiting voer die proefskrif aan dat leierskap nie in ’n individu gesetel is nie, maar wel in kollektiewe en samewerkende verhoudings, waar almal wat deur enige institusionele besluit of aksie geaffekteer word (sal wees), betrokkenheid in die besluitneming verdien. Die proefskrif hoop om vir die skool in die Motheo-distrik ’n raamwerk te bied om die skoolhoof se leierskapsrol in IKT-gebruik te bevorder. Sodoende kan die studie bydra tot die literatuur oor skoolleierskap in Suid-Afrika en nuttige wenke bied om IKT in die kurrikulum vir onderrig en leer te integreer – met die uiteindelike doel om leerderprestasie te verbeter.

LIST OF RESEARCH OUTPUTS

1. **Participatory action research and the construction of academic identity among postgraduate research students**. TD *The Journal for Transdisciplinary Research in Southern Africa*, 9(3), Special edition, December 2013: 401-429.

2. **Democratic postgraduate student leadership for a sustainable learning environment**. *Journal of Higher Education*. 28(3) 2014: 717-732.

LIST OF PAPERS PRESENTED AT CONFERENCES

Name of organization	Title	Place	Date of conferences	Host
Sustainable Rural Ecologies (SuRLEc)	Enhancing the principal's leadership role in the usage of Information communication technology at school	Qwaqwa	1-3 October 2012	University of the Free State
Southern African Comparative and History of Education Society (SACHES)	Social networking for School Management Teams: A communicative strategy for a sustainable learning environment	Port Elizabeth	30 October-1 November 2012	Nelson Mandela Metropolitan University
Sustainable Learning Environments and Social Justice (SuLE)	Participatory action research and the construction of academic identity among postgraduate research students	Bloemfontein	29-31 October 2013	University of the Free State
UNAM Annual Educational Conference	Social networking for school leaders: Towards critical pedagogy for a sustainable learning	Namibia	10-12 September 2013	University of Namibia
Southern African Comparative and History of Education Society (SACHES)	The need to enhance principals' leadership role in the usage of ICTs in a school: Participatory action research approach	Durban	10-12 August 2014	Blue Waters Hotel Durban

CHAPTER CONTRIBUTION IN BOOKS PUBLISHED

Tshelane, M.D. 2014. Social networking for school management teams, A communicative strategy for a sustainable learning environment. In Wolhuter, C.C. (Ed.) Education and societal dynamics: Possibility for educational change in the Southern African region. Proceedings of 2012 of SACHES Southern African Comparative and History of Education Society conference. Summerstrand Hotel, Port Elizabeth, South Africa. 30 October 2012 to 1 November 2012. (ISBN :978-1-86822-648-1)

DEFINITION OF TERMS

Enhancing

Heighten or intensify qualities, powers or value, or improve or further improve something already of good quality.

Leadership

A practice of communal encouragement in which a person or persons can solicit the assistance and backing of others in the accomplishment of a collective mission.

Information communication technology

Technology "used to transmit, store, create, display, share or exchange by electronic means" (UNESCO, 2004:12). The definition includes technologies such as radio, television, video, interactive whiteboard, DVD, telephone (both fixed and mobile phones), satellite systems, computer and network hardware and software, as well as the equipment and services associated with technologies such as video conferencing.

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CHAPTER 1

ORIENTATION TO THE STUDY

The future is already here – it's just not very evenly distributed.

William Gibson (2006:43)

1.1 INTRODUCTION

This chapter provides an orientation to the research undertaking. It gives an overview of the entire study and outlines reasons and motivation why I undertook the study on school curriculum leadership with a special focus on the use of information communication technologies (ICTs) at schools. The background of the problems relating to curriculum leadership and the use of ICTs in schools is also discussed. The research question, the objectives of the study, delimitation of the study and limitations thereof are outlined, and a summary of the chapters is given.

One of the key features of the 21st century is the rapid development and use of technology, particularly ICT, to facilitate our daily lives; schools have not been immune to this trend. Technology can be used, for example, to enhance and strengthen classroom learning and pedagogy (Kriek & Stols, 2010:439). Research attests that school leadership plays an increasingly significant role in leading change, providing vision and objectives as well as professional development initiatives in the use of ICT to bring about pedagogical change (Razzak, 2013b:3).

However, a common observation in many South African schools, particularly those that serve the disadvantaged, is that not many subject teachers have taken up the challenge of technology in general and ICT in particular to enhance learning and pedagogy. It is unclear why this continues to be the case. If ICTs are of such value, why are they not

adopted by all subject teachers? What could be done to motivate teachers to use ICTs in the classroom? My objective in this study is to explore these and other questions about the use of ICT in schools. In the words of Gibson (2006: 43), the future is already here, but it is not evenly distributed to those who are in desperate need of its benefits.

1.2 MOTIVATION

During my tenure as a teacher over the past 16 years, I noticed that not all teachers are keen to embrace ICT-related pedagogy. I developed an interest in the use of ICTs very early in my teaching career. My participation as a curriculum leader in two schools enabled me to learn and become interested in the use of ICT for both teaching and administration work in the schools. (For the purpose of this study, the "curriculum leader" means the principal of the school.) Using ICT helped with the management of the ever-increasing administrative burden associated with teaching. This is where my interest in encouraging other teachers to use ICT developed.

In South Africa in the early nineteen-eighties the challenge faced by teachers under apartheid[1] education intensified. One of the ways this challenge was expressed was a refusal by teachers' trade unions to allow curriculum leaders to provide "support" to teachers in schools. Indeed, the so-called support was often viewed by teachers' trade unions as unnecessary inspection and monitoring of apartheid education by some of the teachers. Under those circumstances the role of curriculum leaders was not defined clearly. Their ability to support teachers diminished as their opportunities to perform in this role diminished. The area of ICT suffered most, with fewer curriculum leaders being exposed to new trends and developments in the area of leadership that needed to be provided in the use of ICT. I took on the challenge of being a curriculum leader who would drive the ICT agenda in schools. The present study arose, in part, from these struggles to

[1] The former political system in South Africa in which only white people had full political rights and othe people, especially black people, were forced to live apart from white eople, attend separate schools etc.

develop a framework for supporting teachers in the use of ICT for teaching, learning and administration.

The challenge relating to the use of ICT by teachers is further complicated by recent and seemingly rapid changes in curriculum and pedagogy in South Africa. The historical transformation of the South African curriculum has moved from the differing and fragmented curricula characteristic of the apartheid era, to the compromise offered by Report 550, the Interim Syllabus of 1995, and Curriculum 2005. The latter was revised to become the Revised National Curriculum Statement (RNCS) and then the National Curriculum Statement (NCS), which has been replaced by the Curriculum Assessment Policy Statement (CAPS). These changes to the curriculum resulted in uncertainty, a lack of confidence and an absence of strong fundamental pedagogical know-how on the part of curriculum leadership in schools, is in spite of a huge investment by the Department of Education (DoE) in ICTs, as exemplified by their launch of the Thutong portal,[2] which was launched in 2005. The critical question that arises is therefore: Who will provide leadership to teachers on the use of ICTs, and how will this be done? To answer the question, we have to consider the other side of the equation, which relates to understanding the role of curriculum leaders in the use of ICT in schools.

School leaders, particularly principals, need to be aware of government expectations regarding the improvement of teaching and learning. Thus, schools need to offer flexible learning opportunities and improve the efficiency of the core business of the schools, as argued by Gronow (2007:1). Grobler, Bisschoff and Beeka (2012:40) note that school leadership in South Africa, as in other parts of the world, is a complex process characterised by increasing responsibilities and accountability, particularly for the principal. Furthermore, all teachers in the South African context are governed by legislative framework promulgated in Chapter 10 of the South African Constitution (RSA,

[2] Thutong portal is a website that serves as an entrance to other websites. It makes it easier to find sites, because their links are already offered and sometimes categorised. Thutong is the name of the learning management system of the department of Basic Education.

1996:107), the White Paper on the Transformation of Public Services of 1997, the Public Services Regulation of 1999 and 2001, and the Administrative Justice Act of 2000. These legislative frameworks seek to transform the culture of public service delivery, from prescribing service packages to citizens, to placing citizens at the centre of service delivery (Globler *et al*., 2012:41). On the other hand, e-Government in South Africa is faced with numerous challenges, for instance, the South African government is challenged to balance performance in terms of delivering on bridging the digital divide, which it promised to address through citizen awareness and readiness to engage and consume the services (Mtimuney, 2011:1). It is in this context that school leaders should be mindful of and able to use e-Government services, such as South African School Administrative Management Services (SA-SAMS), Edupack, Microscope, Sci-Bono, Microsoft, education E-desk, education websites and know-how, to apply ICT in a pedagogical environment. It is clear that the principal's leadership role regarding the usage of ICT is a critical aspect of leadership, which has to be addressed by educational reformists. If this matter is not addressed, South African public schools will continue to lag behind their international counterparts, and will fail to improve the performance of the vast majority of learners, particularly in township and rural schools. The majority of learners will be left behind in the global arena, which would perpetuate existing educational inequalities and disadvantage learners further.

There seems to be no scientific framework available in South Africa that can serve as a guide for a curriculum leadership role in the use of ICT in schools. It is also evident that political realities and social factors, among other things, have an influence on the role of the contemporary principal. This reality motivated me to undertake this study; I wish to make a contribution with regard to the curriculum leadership discipline.

The research challenge is, therefore, first, to ascertain how the principal's leadership role in the use of ICT can contribute to teacher professional practice, thereby leading to a general improvement of performance at the school. Second, the study aims to determine why ICTs are not adopted by all subject teachers; thereby answering the question of what could be done to encourage teachers to use ICT in the classroom. In an attempt to answer

these questions and others, I take a leaf from Assan and Thomas (2012:14), who emphasise Larry Cuban's point that new technologies do not change schools; but that schools have to change before they can make effective use of new technologies. It is in this context that the implications of the above statement will be my point of departure in my endeavour to search for answers to the questions posed above.

This study was conducted in a public high school in Mangaung, in the Motheo District of the Free State province, South Africa. I accepted the invitation to work with this school, first, because it was at this school that the study was conceptualised. The second reason for accepting the invitation is the history of this school in making significant improvements in the lives of learners in the greater Mangaung area since 1910. The school also passed through the curriculum reform processes fairly recently.

Previously, the curriculum was divided into vocational and academic sections. The subjects taught were Afrikaans, English, Setswana and Sesotho, hygiene, arithmetic, domestic science, geography and history. The vocational section focused on carpentry, woodwork and bricklaying. The curriculum changed after 1994 and, from 1995, the school offered computer literacy programmes to the learners as well as the community, in addition to the formal school curriculum.

The school's performance has not been good in all subjects, and the school has not improved the performance of learners and the physical resources significantly over the past 16 years. For instance, only 80 Grade 10 and 11, and 40 Grade 12 learners registered for computer applications technology (CAT) in 2012 out of a total enrolment of 1 900 learners. This means that only a few learners are exposed to ICT, and there are restrictions regarding their use of the internet at school – only Grade 12 learners were allowed to use the internet, and only for 30 minutes a week. The introduction of HeyMaths! in science and mathematics has created a platform for mathematics and science teachers, at least, to infuse ICT in their lessons. The school was able to produce a 97% pass rate for the first cohort of the CAT subject in 2009, and a 100% pass rate in 2010, however, the pass rate declined to 85% in 2011.

Over the past three years, from 2009 to 2011, on average 43 learners enrolled for Grade 12 annually, though there were only 40 learners in 2012. Two Grade 12 subjects in which learners achieve well below 45% are geography and history, and in the subject with the worst performance, namely, physical sciences, learners achieve an average mark of 33%. While ICT was introduced in 2005 by the Department of Basic Education (DBE), performance in these subjects does not show any signs of improvement. The question thus remains: Can ICTs assist in improving teacher performance?

The National Department of Communication (RSA, 2011:4) acknowledges that technology is a critical element in the development of the economy, and the Department is thus driving a vision that will provide every South African with easy access to the internet through broadband and wireless network connections. In this regard, the late minister of Communication, Roy Padayachie, developed Vision 2020. He argued that the throughput of learners from primary and high schools to universities is a form of exclusion of the vast majority of people from access to ICT, because not every learner has the privilege of entering the science and technology stream. One of the eight Millennium Development Goals adopted by the South African government includes the use of technology as a priority. This goal has been mandated internationally, and involves improving basic education in Africa and ensuring participation in the global world by all major stakeholders at various levels of society (Tsephe, 2008:257). All the initiatives listed above demonstrate the need to ask questions about how leadership in the use of ICT can be provided, and about who will provide such leadership in schools. These questions propelled me to conduct the study, the background of which is outlined below.

1.3 BACKGROUND TO THE STUDY

Since the 1950s and 1960s – the era of large mainframe computers – a great deal of research has been conducted on the effects of computers on learner achievement and how teaching and learning can be improved in this regard (Rebore, 2011:17). It is suggested that, worldwide, school leaders, particularly principals, need to be equipped to integrate ICT into their administrative duties.

I did extensive reading regarding the above-mentioned topic, and this reading serves as the foundation of the research process. I identified a large number of research studies on ICT, and on the general role of the school principal. Examples of the implementation of programmes to initiate ICT in secondary schools reported in the literature include that of the Centre of Informatics at the University of Eduardo Mondlane in Mozambiqe, the Russian Ministry of Education, the Embassy of the Netherlands' World Links for Development Programme and the Acacia Program of the Canada-funded International Development Resource Centre. However, these initiatives were threatened by a lack of leadership for ICT implementation (Mbangwana, 2008:2). The World Bank urged African countries to seize the opportunities offered by the information revolution now, or be crushed by it (Zoho, 2004:1).

Hayes (2007:392) argues, in *Lessons from Australian classrooms,* that strong, coherent leadership is of the utmost importance for ICT implementation. Interviews conducted with teachers by Mentz and Mentz (2002:3) identified a high level of awareness among teachers of the way ICT can enhance the quality of teaching and learning, although the implementation of ICT is hampered by a lack of policy and action plans on the use of ICT, both at school and national level.

The research plan for the current study draws on numerous research reports on the way schools can go about implementing the use of ICT in schools. The literature clearly points to a need to focus on leadership training and ICT programmes, so that teachers can use ICT daily; however, the government has not yet been able to implement ICT in South Africa successfully (Franssila & Pehkonen, 2005:9).

Mentz and Mentz (2002:1) created a sound foundation for research on managing challenges facing the integration of technology in schools in developing countries, especially in the South African context. They suggest that school principals play the primary role of shaping the communication-related vision of teaching and learning within their schools.

According to Mulford (2003:3), recent research indicates that:

- Position-based leadership, meaning the leadership role as an input factor, will always have an impact on learner output;
- Leadership contributes and influences how learners perceive teachers' contributions to their studies; and
- Collective teacher efficacy is a direct variable in the relationship between leadership and teachers.

Furthermore, one of the contextual roles of school principals is that of being scholars, researchers and a lifelong learners (Brunton & Associates, 2003:A-51).

Most of the research on the implementation of ICT has been done in developed countries, and may not be wholly applicable to the South African context. I believe that ICT can be a valuable resource in South African schools, the DBE and the broader educational field. The rapid expansion of ICT in the world, and its use in all circles of work and daily life, has dramatically changed the way we live, the way we conduct business, the way knowledge is constructed, and the way we socialise and share information (Lim, Chai & Churchill, 2011:69). The question thus arises: If ICT has such a serious impact in the world, what is the situation in the 21st century school? It is in response to such questions that this study aims to design a framework that could be used to enhance the curriculum leadership role of principals in the usage of ICT in teaching and learning. Meeting this challenge, especially in township schools, requires an understanding of the curriculum role of the principal.

The Personnel Administrative Measure (PAM) explains the role of the principal as being responsible for providing professional management and leadership in the school, guiding, supervising and offering professional advice on the work of all staff members, confirming reports on teaching, assisting teachers, particularly novices, to develop and achieve educational goals, appraising and regularly reviewing professional work with the aim of improving teaching and learning, and personally engaging in teaching (Brunton & Associates, 2003:C-2; Hindle, 2007:4).

In some schools in South Africa, particularly in the Free State and also in Mangaung township, where the study was conducted, the curriculum role of the principal in the use of ICT is neglected by some curriculum leaders; their daily focus is more on administration and management of general matters, such as leave administration, and problems such as drug abuse and absenteeism. In the case of some principals, their knowledge of teaching has become outdated because they are not actively involved in teaching every day, and some avoid ICT completely (Lunenburg, 2010:1). Lai and Pratt (2004: 470) argue that some principals seem to have inadequate knowledge of the use of ICT in school due to a lack of interest in ICT. In some schools there are no plans for using ICT. For instance, principals focus the attention on Grade 12 pass orientation practices, devoting little time to quality teaching and learning, particularly using ICT (Fink & Resnick, 2010:2).

Although private institutions have given some support to curriculum leaders by providing resources such as learning channels, free licences for Microsoft products, and SchoolNet support programmes, some school timetables are not linked to the programmes on the learning channel and the SchoolNet programme, because some principals do not see the relevance of padding the school timetable with these televised programmes. Many principals lack the necessary support from district officials or are not sure about the type of support they need to be successful in this regard (Bialobrzeska & Cohen, 2003:7).

Increasingly, principals are required to assume leadership responsibilities regarding ICT usage in schools, an area with which they are unfamiliar. Many principals face challenges such as lack of access to ICTs, lack of electricity, lack of pedagogical knowledge on ICTs, inadequate technical skills, lack of software, inadequate knowledge of learning management systems, unfavourable geographical location, unavailability of broadband, low levels of ICT training in their schools, and social problems (e.g. theft), poor economic conditions, little support from the school community, poor infrastructure, and low commitment and willpower on behalf of the principal (Korpelainen, 2011:1). These challenges pose threats for the design of the envisaged framework that was the core of the investigation in this study.

The rapid introduction of numerous policies in South African schools post-1994 has resulted in a great number of educational changes taking place in schools (Yee, 2006:288). It is essential for school leaders, as the drivers of change, providers of vision and developers of initiative in the use of ICT, to cope with these changes.

Although Botswana and countries such as Russia and Nigeria and have embarked on ICT leadership research, they are also still experiencing challenges. In Russia, for example, the implementation of ICT began in the early 1980s, but the following challenges have been reported by Kiryukhin and Tsvetkova (2010:31): a lack of ICT resources, especially for classroom use, and a lack of specific training for teachers who are expected to teach computer classes. Furthermore, learners do not have strong motivation to choose a career in technology.

The same situation has been observed in Nigeria. Olawale, Olayiwola, Wahab, Salami and Sani (2013: 74) report 15 problems militating against the use of ICT in that country. The major problem is, among others, that computer usage, internet access and other tools of ICT are limited to urban areas and that the people in rural areas are yet to learn how to use computers.

Similarly, in Botswana, Totolo (2007:34) suggests that school principals need to change their leadership styles to be transformational in the information era. Many principals have not been prepared for their new role as technology leaders, and therefore struggle to develop both the technical and human resources necessary to achieve ICT outcomes in schools.

The World Summit on the Information Society (WSIS), held in Geneva in 2003, identified the need to capacitate half the people (with the exception of babies and the elderly) in the world to have access to ICT by 2015. However, today few people in the world have access to ICT, leaving the majority, who don’t have access to ICT, marginalised. In Canada, the mandate of principals is to prepare all learners, from kindergarten to Grade 12, to understand, use and apply technology effectively and in an ethical way – a mandate that

has not yet been realised (Flanagan & Jacobsen, 2003:124; Yuen, Law & Wong, 2003:161; Hayes, 2007:392).

A few African countries, such as Botswana, Ghana, Kenya, Namibia, Zambia and South Africa, are forging ahead with trial projects supported by pan-African programmes of the New Partnership for Africa's Development (NEPAD) for ICT initiatives. NEPAD schools, however, are still battling to implement ICTs (Farrell, Isaacs & Trucano, 2006:26; Ryan, 2006:142). In South Africa, for instance, the White Paper on e-Education (RSA, 2004:17) states that "every South African learner in General Education and Training (GET) and in Further Education and Training (FET) bands will be Information and Communication Technology (ICT) capable by 2013" (Bialobrzeska & Cohen, 2003:7; Fink & Resnick 2010:2; Lunenburg, 2010:1). Schools have been provided with computers, principals and teachers received ICT training and the Laptop Initiative was undertaken. The White Paper set the goal that teachers would be ICT compliant by 2010, however, this had not been achieved by 2015.

A model that is widely used by researchers (Van Wyk, 2009:32; Mentz & Mentz 2002:1) and the South African Institute for Distance Education (SAIDE) is the Technology Acceptance Model (TAM), which suggests that for technology to be used it must first be accepted by users. However, the model does not take into account conditions experienced in the majority countries, since majority countries are based on affluent countries (Flanagan & Jacobsen, 2003:123). This constraint on the model is also articulated by Harris *et al.* (2003:14) and Donnelley (2007:3).

The SAIDE project produced a guide for principals in 2003, *Managing ICTs in South Africa,* in collaboration with representatives from SAIDE, the DBE in the Western Cape, Multichoice, SchoolNet SA and two principals. Guidelines for the training of educators were also published in 2007 (Hindle, 2007:1), and the training of principals has been rolled out since 2008 through the Advanced Certificate in Education (ACE) leadership courses presented at several higher-learning institutions. Although the first cohort of principals has completed training, there remains a lack of ICT leadership in schools. This is my rationale for pursuing a study to find ways to enhance the leadership role of the principal in the use

of ICTs from a new theoretical perspective. A clearly defined problem statement is the fundamental starting point of this endeavour.

1.4 STATEMENT OF THE PROBLEM

Today, learners are influenced by technology, and consequently their outlook regarding teaching and learning differs from that of their parents. The contemporary learner is said to be digitally literate and socially aware (Gronow, 2007:2). These learners prefer group work, they are achievement oriented, they are fascinated by technology, they have a short attention span, and are experiential, visual and kinaesthetic in learning. According to Oblinger (2005:39), "they have an information mind-set which focuses on immediacy". They use and communicate via short message service (SMS), mobile phones, chat rooms, MP3 players, tablets, social networks and email. They are able to simultaneously play computer games, watch television and listen to music. The new generation grew up with technology and is competent in a technological world (Elam, Stratton & Gibson, 2007:23). I have noticed that this new type of learner is spread across race, class, socio-economic status, learning space and culture, and requires teaching and learning that is different from "talk and chalk".

On the other hand, the contemporary teacher in South Africa has experienced rapid curriculum reform since 1994. The curriculum has been changed five times in 18 years, leaving some teachers confused and uncertain. South African teachers, armed with their traditional methods of teaching and learning, are compelled by technological developments and other circumstances to change their traditional approach to accommodate the new learner. According to Jita (2004:12),

> *[t]he new curriculum calls for different relationships between teachers and learners on the one hand, and learners and knowledge on the other hand, a relationship that is different from what has been commonly referred to as a "traditional" model of learning.*

Jita (2004:12) argues that these relationships require that classroom processes of teaching and learning be aligned with the overall agenda of social transformation. In agreement with Jita, Wink (2005:79) postulates that the transformation model of education is another name for critical pedagogy. The fundamental belief that drives classroom behaviour is that we must act, we must relate our teaching and learning to real life, we must connect our teaching and learning with our communities, and we must always try to learn and teach so that we grow, with a view to improving the lives of learners. Clearly, it seems that teachers do not reach as many learners as is possible with their traditional methods (Tanner, 2007:7). In most cases, pedagogical encounters lack real-life stimuli for learners, so the link been teachers and learners needs to be enhanced by ICT.

Questions about how the principal's leadership role in the use of ICT can influence teacher professional practice, and what can be done to support and encourage teachers to use ICT in the classroom, remain. Unless these questions are answered, the challenge will remain, namely, lack of achievement and a lack of transformation in South African schools.

The use of computers for teaching and learning in previously disadvantaged schools has proven unsuccessful in many schools, also in Motheo District. Some schools in this district have obtained computers through donations from private institutions and have been running computer literacy classes for learners after hours; these classes take place with limited control by school principals and generally exclude learners who cannot afford the classes, which, as stated above, is contrary the goals of the White Paper on e-Education. Unless school leadership regarding ICT is improved significantly, South African learners will continue to lag in many respects.

South African learners routinely underachieve, despite the availability of adaptable resources (Bloch, 2009:17). Research consistently supports the view that principals play a key role in their schools' transformation towards efficacy. Thus, an empirical exploration into the implementation of ICT in schools is crucial. Sound knowledge and understanding will serve as a foundation for a meaningful and comprehensive solution. I trust that the present study will make a contribution in this regard.

South Africa is a global player in education, and will always be affected by developments in the global arena. However, 20 years into democracy, the country is still marked by tension between two functions of education, namely, that of assuring continuity, and that of fostering change and creativity (Tondeur, Cooper & Newhouse, 2010:296).

Former President Mbeki argued that "[w]e must continue the fight for liberation against poverty, against underdevelopment, against marginalisation … information and technology … is a critically important tool in that struggle" (Mbeki, 2001). However, Bloch and Hibbert (2012:16) claim that, despite the emphasis on education (ICT included), the lack of a truly liberating approach has been the greatest shortcoming in South Africa.

Research has consistently attested that school leadership plays a key role in transformation towards self-efficacy. Numerous research studies have been conducted using the TAM. This model assumes that the decision to adopt or not to adopt technology is an individual responsibility and is vested in the power of the most powerful and central figure in the school, namely the principal. In this model, the principal is seen as the deciding factor for the adoption of ICT (Tella, Tella, Toyobo, Adika & Adeyinka, 2007:8). Although I strongly believe that the leadership role of the principal in the use of ICT is important, this role has an equal impact on the social context of the broader school community. This is the limitation in the TAM, as it does not provide an in-depth account of the importance of the individual in the space. Furthermore, the human element is lacking, which is a matter of concern in this study. Most research studies view curriculum leaders as machines who are used to making changes without acknowledging the existence of people, particularly teachers and learners. Most models see the principal as the sole decision maker and disregard the existence of other important stakeholders. In an attempt to address this gap, the following research aim and objectives are set for the present study.

1.5 AIM AND OBJECTIVES OF THE STUDY

As explained earlier, research suggests that school principals have to demonstrate an understanding of the theoretical underpinnings of the management of complex systems,

including the offering of curriculum through ICT (Flanagan & Jacobsen, 2003:124). Grobler, Bisschoff and Beeka (2012:40) argue that a school principal should be able to take full responsibility for his or her work and, where appropriate, to lead, oversee and be held accountable for the overall governance of ICT processes and systems at his or her school.

The aim of the present study was to explore ways of enhancing the leadership role of a principal in the usage of ICT at school. This aim was further unpacked into the following objectives:

- To understand the role school principals play in the use of ICTs for teaching and learning at school;
- To establish how the principal's leadership role in the use of ICTs contributes to the teachers' professional practice towards the improvement of performance in a school, if at all; and
- To recommend policies and strategies that principals can use to support teachers in the use of ICT in the classroom.

1.6 DELIMITATIONS OF THE STUDY

This study was conducted in one public school in Mangaung township in Free State province, South Africa. I started my teaching career at this school more than 18 years ago, and in 1996 I pioneered a computer literacy project for community development, which was later replaced by CAT and officially incorporated into the school curriculum at the implementation of Curriculum 2005. I continue to have good working relations with the school and I have been involved in Grade 12 camps at the school. When I was invited to the school as a member of the community and former teacher I grasped the opportunity to participate in discussions that could lead to conditions conducive to conducting the study.

The study focuses on the role of the principal in the use of ICTs in the school by means of participatory action research, which is collaborative and fulfils the basic human needs of communication and mutual support in finding the solution to a well-defined real-life

problem (Zuber-Skerrit, 2002:147). A team, lead by five co-researchers who played a crucial role in the operationalisation of the study, was established.

The School Management Team (SMT), consisting of the principal and his deputies and who have a long history of mutual trust, are involved as central figures in the study. One ICT specialist from the DBE, three parents from the School Governing Body (SGB), all 54 teachers on staff, one member representing local faith-based organisations and 80 learners from two Grade 10 and 11 classes, plus 80 parents, were involved. The learner leadership component, namely, ten representatives of the Council of Learners, also participated in the above-mentioned coordination team. The methodology employed will be discussed in detail in Chapter 3.

1.7 LIMITATIONS OF THE STUDY

This study was undertaken in one school; thus the findings cannot be generalised in any way. The intention was to make a contribution by profiling the school under study in order to understand how the principal's leadership role in the use of ICT contributes to teacher professional practice. The main aim was to improve the situation in the relevant school, which may contribute lessons to other, similar contexts. It should also be noted that the research approach is completely different from popular approaches of the modernist, positivist reading of the development of education and society, of which the underlying rationale is that management and leadership are controllable, and instruction predetermined, uniform, predictable and largely behaviourist in outcome (Medjahed, Benatallah, Bougeuettaya, Ngu & Elmagarid, 2003:16). In particular, I argue that it is important to apply democratic approaches and equality principles to matters of social interest so as to bridge the gap between theory and practice. Thus, it is proper for me to declare my position in this project in order to make the reader aware of this limitation: I am subjective in the research process and do not intend to claim any stance of objectivity.

1.8 FEASIBILITY OF THE STUDY

Permission to conduct this study was granted by the school, and my long history of positive relations with the school provided for a positive reception from them; thus, the school was fairly accessible. A course on research capacity development through peer review sessions organised for Master's and doctoral students by the University of the Free State refreshed my research skills. Workshops organised for the coordinating team of the study were held at the school. This team also served as a resource on information regarding ICTs and educational leadership at the school.

1.9 SIGNIFICANCE OF THE STUDY

Through this study I seek to understand how the principal's leadership role in the use of ICT can contribute to teachers' professional practice; thereby I hope to make a contribution to the field of curriculum studies, particularly curriculum leadership. I wish to make a contribution by providing new ways of motivating practising teachers to take up the responsibility of improving their teaching practices through the use of ICT. The implementation of ICT in the world has become a new reality for educators; South Africa is also affected by this development. New developments in curriculum change have been experienced mostly by curriculum leaders, particularly principals, who must lead these developments.

Furthermore, this study makes a contribution to understanding the actual leadership role in practice. The development in the current dispensation require the curriculum leadership role to be clearly defined so that all stakeholders understand and provide support to the principal, enabling her/him to execute the task fully.

1.10 ORGANISATION OF THE STUDY

The thesis is organised according to the structure that follows:

Chapter 1

Chapter 1 provides a general overview of the study, including the significance of the study, problem statement, aims of the study and its limitations.

Chapter 2

This chapter provides a logical presentation of the theoretical framework, followed by the conceptual framework and the related literature study.

Chapter 3

The chapter contains the scope of the study, the research approach, namely, a qualitative study, the research methodology, and the data analysis and findings.

Chapter 4

Chapter 4 comprises the presentation, interpretation and discussion of results and the application of the literature framework. The results will be communicated, as will the critical analysis of findings, interpretation of findings in relation to the literature, and the research problem.

Chapter 5

This chapter includes a summary of the important findings, conclusions, the recommendations, and further research suggestions.

1.11 CONCLUSION

An orientation to the research project and an overview of the entire study has been provided, including the outline of the study. This was followed by the reasons and motivation for undertaking this project. It was also demonstrated that the study is centred on school curriculum leadership with a special focus on the use of ICTs in schools. The motivation and the background to the statement of the problem and the rationale were discussed. The research aim and objectives were explained; delimitation and limitations of the study were mentioned, and an outline of the chapters provided.

CHAPTER 2

LITERATURE REVIEW

Go as far as you can see, and when you get there
you will be able to see farther.

Ziglar (2001:186)

2.1 INTRODUCTION

This study sought to develop a framework to enhance the principal's leadership role in the use of ICT at a school. This chapter focuses mainly on the conceptual framework that is informed by community cultural wealth, the four major models for integrating ICT in teaching and learning, and critical emancipatory research (CER). The six cultural capitals will be discussed briefly in a general context. CER, as a lens underpinning the study, will be described. The background, origin, principles and objectives of CER will be explained, followed by the reasons for using CER.

Literature on leadership is based on four main viewpoints: (i) scientific view of leadership; (ii) instrumental view of leadership; (iii) humanistic view of leadership; and (iv) critical leadership studies. Leader, leadership, principal and ICT as operational concepts in the study are defined below. The literature review was extended to gain an understanding of the content and actual quality of the leadership practiced by school principals regarding the use of ICT (as indicated in Chapter 1). The 12 performance standards of quality assurance and the system/school models of ICT as organising principles are incorporated in the literature review. The literature review also assisted in interpreting the theoretical constructs and empirical data generated and reported in Chapter 3, and presented in Chapter 4, to reach a conclusion.

The argument in this study is motivated by reflection on the journey of colonialism and apartheid and the way these philosophies used education to engineer educational inequalities that impacted the lives of the majority of people in South Africa adversely. The

fundamental motive of the study is based on the view that education can be used as an important instrument in the struggle for freedom and human progress.

This view is captured best by Moses Kotane (cited in Motlanthe, 2013:12):

> *Proper education is a mirror in which woman or man sees the world around her or him and learns to understand it. The right kind of education enables woman or man to see what the world has been, what it is, and how it can change to suit her or him or her/his way of living.*

Thus, to identify the type of literature that can assist in achieving the objectives of the study within the broad scope of leadership and ICT studies available in a massive amount of curriculum literature, the literature relevant for this study was reviewed critically. Ziglar (2001:186) suggests that you should "go as far as you can see, and when you get there you will be able to see farther".

2.2 CONCEPTUAL FRAMEWORK

This study is positioned in a conceptual framework that views the improvement of contemporary teaching and learning as dependent on the use of ICT, which can strengthen learning for learners, and can be influenced by the professional curriculum leadership role of a principal in a school. This conceptual framework is shaped by the community cultural wealth approach of Yosso, the system models for measuring ICT integration in teaching and learning, and the CER theory developed from Habermas and the Frankfurt School of critical theory (Lin, Wang & Lin, 2012:97; Luna & Prieto, 2009:217; Mahlomaholo, 2009:13). This framework informs the researcher's beliefs and involves the following:

1. Teaching and learning content that focuses on a particular area of the curriculum that learners might normally find difficult can be simplified by using ICT. Some schools do not have laboratories; however, teachers and learners can use videos or CD-ROMs, or can download some of the experiments from websites to illustrate their lessons.

2. Second, this study could use ICTs available in the school community that are underutilised. Though it is understandable that ICT alone does not enhance learning, it can help learners to learn in a sustainable and enjoyable way and with the same avid concentration and commitment they exhibit for computer games (Ellis, 2013:104). Cell phones can also be used to teach and learn optimally.
3. ICT could trigger changes in activities, curriculum and interpersonal relationships in the learning environment, in which the sociocultural setting and cognition shape and are shaped by ICT tools.
4. Integrating ICT into teaching is not something that can be forced upon teachers. The more freedom teachers are allowed, the more likely they are to give it a try.
5. The contemporary teacher is a global citizen whose agency is critical. Teachers should be permitted to become agents of change.
6. A critical-leader approach seems to be more suitable for influencing teachers to create communities in a learning environment, in which both learners and teachers use a range of ICT tools to co-construct knowledge.

2.2.1 Community cultural wealth

Yosso's interpretation of community cultural wealth in relation to varieties of capital-validated emancipation of Chicana/Chicano people can be applied to a variety of other communities. Yosso identifies six components that reside within diverse communities in general and Chicana/Chicano people in particular (Larrotta & Yamamura, 2011:76). These six components culturally validate strength, linguistic capital, resistant capital, navigation capital, social capital, familial capital and aspirational capital (Yosso, 2006:23). To possess linguistic capital is to possess skills and tools developed through communication experiences in more than one language. Resistant capital comprises the value, knowledge, and tools used to nurture oppositional behaviour that challenges and stands in opposition to equality (Fuchs, 2012:694). Navigational capital is concerned with the skills needed to navigate through unfamiliar or non-inclusive environments. Familial and social capital refers to knowledge and understanding nurtured and passed on through relationships with networks of family and friends. To have aspirational capital is to have

high expectations, to stay focused on one's goals and to remain resilient regardless of perceived barriers and real hardships (Larrotta & Yamamura, 2011:76). These types of capital are not only important to ensure day-to-day survival, but also to understand how the leadership role of a principal can be enhanced by the use of ICT in a school by drawing on community cultural wealth (Burciaga & Erbstein, 2010:4). The community cultural wealth approach of Yosso (2006) is significant for this study because the different forms of capital are consistent and community cultural wealth permitted the research themes to observe their complexity and mystical nature.

2.2.2 Models for measuring ICT integration in teaching and learning

According to Bhasin (2012:131) there are many models for measuring ICT integration in teaching and learning; the models can be grouped into four categories. These categories are the learning-orientated micro model, the ICT-orientated model, the system or school model and the population model. These models are described briefly below.

2.2.2.1 Learning-orientated micro model

This model addresses teachers' pedagogical concerns. Attention is on innovation, thus it is often referred to as the concern-based adoption model. This model is composed of three key dimensions: stage of concern, level of use, and innovation configuration. The stage of concern dimension describes how teachers perceive an innovation and how they feel about it. The level of use dimension identifies what a teacher is doing or not doing in relation to the innovation. Finally, the innovation configuration dimension refers to the operational forms innovation can take (Lin & Lin, 2012:98, Bhasin, 2012:133).

2.2.2.2 ICT-orientated micro model

This model emphasises teachers' ICT competence or proficiency. The competence can be seen in the Apple Classroom of Tomorrow (ACOT) model, which defines three stages of teachers' technology efficiency: survival, mastery, and impact, and the five phases that a teacher must progress through: entry, adoption, adaptation, appropriation and invention.

2.2.2.3 Population model

This model is based on the diffusion of innovation theory, which states that technological innovation is communicated through particular channels among members of a social system (Lin & Lin, 2012:98). The stages through which technology passes are knowledge, persuasion, decision, implementation and confirmation. The assumption is that adopters are identified as either innovators, early adopters, early maturity, late maturity or laggards. This model also includes the assertion that perceived usefulness and perceived ease of use represent beliefs that could influence teachers' attitudes towards final ICT use in teaching and learning.

2.2.2.4 System/school technology model

Unlike the models described above, this model focuses on the school as a whole, and is intended to be used by policy makers and school planners. It aims to assess the status of the school in terms its use of ICT to support learning. For instance, the technology maturity model lists five challenges faced by the school when teachers try to empower themselves through using technology, namely, vision, planning, support, literacy, and communication. The model defines specific steps and products that ensure that goals and objectives defined in the technology plan are translated into projects (Yuen, Law & Wong, 2003:160; Wang, 2008:412; Lin & Lin, 2012:98; Bhasin, 2012:131). Tondeur, Van Keer, Van Braak and Valcke (2007:213) argue that team development and the professionalism of principals and teachers are necessary conditions for improving teaching and learning. The first condition involves the development of a shared vision concerning how ICT is to be used for teaching and learning. School principals are in a position to create the conditions necessary to develop a shared ICT policy. This model assumes that the success of ICT integration depends partly on factors at school level. In this respect, the first purpose of the study is to understand the role of the school principal in the use of ICT.

2.2.3 Critical emancipatory research theory

Cohen, Manion and Morrison (2011:37) state that, until the early 19th century, it had been argued that a satisfactory account of management and leadership research is given by a modernist, positivist reading of the development of education and the society. This is because the underlying rational of the early 19th century is based on the view that management and leadership are controlled, and controllable, instructional, predetermined, uniform, predictable and largely behaviourist in outcome. However, an alternative empirical paradigm suitable for this study can be employed in an educational management and leadership discipline, particularly in professional curriculum practice or teaching and learning. For this study, CER, rooted in critical theory, was used. This lens enabled the researcher to apply a CLS approach (which will be explained in detail later in this chapter) to elements of an organisational system.

The existence of wealth in the human race or the community, more specifically in the excluded voices of parents (particularly women), learners, teachers, community members and non-teaching staff in the school environment, in relation to managerial issues must be recognised; it is important that such voices are taken very seriously and accepted and respected (Yosso, 2005:74; Liou, Antrop-Gonzàlez & Cooper, 2009:536). Second, critical leadership theory was used to understand the curriculum leadership role of a school principal in the use of ICT. We wish to determine how humans relate in an environment of inequality within a context of unequal power relations, particularly in a school, because critical leadership theory is committed to social justice, peace, and equality. Critical leadership studies inspire hope in people and offer an emancipatory response to gender, class, and power oppression, so as to improve the social and economic lives of the community (Yosso, 2005:75; Liou *et al*., 2009:536). The views above acknowledge the contradictory nature of education, in which schools are often largely subjugated and marginalised while maintaining the potential to liberate and empower communities (Yosso, 2005:74; Liou *et al*., 2009:536). Figure 2.1 below illustrates the basic conceptualisation of the study, which demonstrates the context from which the study was approached.

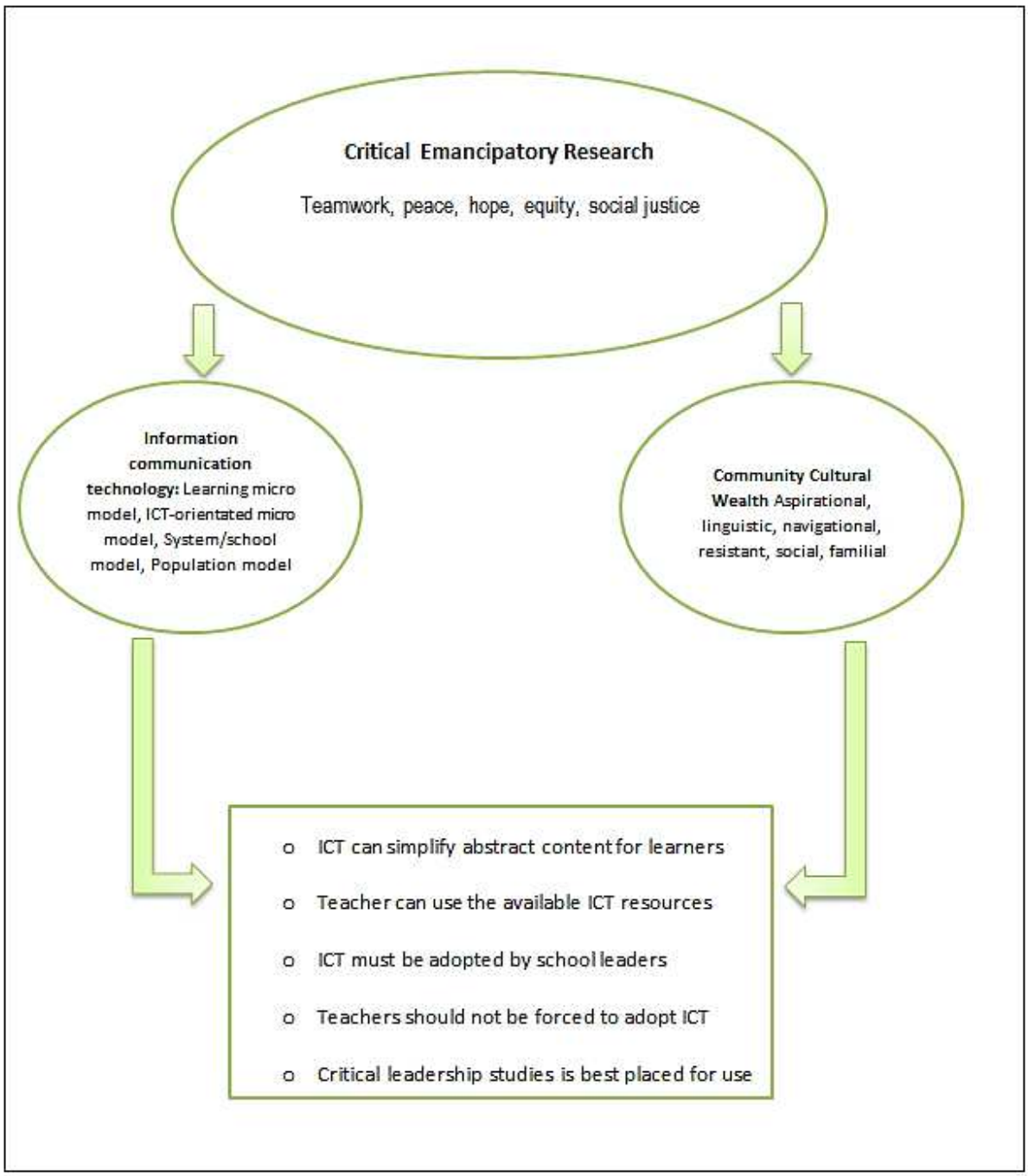

Figure 2.1: Conceptual Framework

2.3 THEORETICAL FRAMEWORK

In CER, every human being is important; the assumption is that we are shaped by the society from which we come (Foulger, 2010:135). Thus, CER embodies CLS. CLS challenges hegemonic views in the mainstream literature, which take for granted that leaders are the people in charge who make decisions, whilst followers are those who merely carry out the orders from above (Collinson, 2012:89). In particular, the researcher wants to emphasise that it is important to apply democratic approaches and equality principles to matters of social interest to social justice and fairness. The intention of undertaking the study is not merely to understand the situation and phenomena, but also to change the situation, so that a significant contribution can be made, thus validating the contribution in the existing body of knowledge, as mentioned earlier. It is also imperative to first reflect briefly on positivist and interpretivist thinking, to justify why critical leadership theory is seen as relevant for this study.

Positivist and interpretivist paradigms involve interpreting and comprehending phenomena through two different lenses (Cohen *et al.,* 2011:31). Cohen *et al.* (2011:31) argue that positivists believe in,

> *objectivity, measurability, predictability, controllability, patterning the construction of laws and rules of behaviour, and ascription of causality; the interpretive paradigm strives to understand the world in terms of its actors.*

Positivist and interpretivist paradigms omit the human element – they do not regard social behaviour as important, and consequently this study provides additional insight in ICT leadership. Positivists and interpretivists are essentially technicists, who seek to understand and render efficient situations rather than to question or change them (Cohen *et al.,* 2011:32). As stated by Mahlomaholo (2009:4):

> *This raises a fundamental question about the proper relationship between the researcher and researched participants and the disparity of power and voice which characterise in many settings.*

The phenomenologist researching human experiences requires typically human research methodologies and strategies and should go further and deeper and be more critical of human conditions (Mahlomaholo & Netshandama, 2010:4).

CER assisted and enabled a literature review in a broader context, inclusive of stakeholders in the school community, such as parents, learners, teachers, community members and non-teaching staff in management and leadership circles. CER clarified a deeper understanding of the impact on discourses of power and knowledge dialectics that underpin human conditions, particularly curriculum leadership in a school (Collison, 2012:88).

2.3.1 Background and origins of critical emancipatory research

CER developed from a movement of sociologists, anthropologists, social psychologists and cultural critics, who were influenced by the thinking of Hegel and Marx (Popkewitz & Fendler, 1999:50). CER has its origins in the Frankfurt School, and the main figures associated with critical theory are Adorno, Habermas, Horkheimer, Marcuse and Marx. The theory emerged around the 19th century, at the Institute for Social Research in Frankfurt, Germany (Brenner, 2009:198; Hongwana, 2009:37). According to Brenner (2009:199), "[o]ne of the main points to be emphasized is the historical specificity of any approach to critical emancipatory theory, leadership or urban". Marx and the Frankfurt School emerged during previous phases of capitalism in the mid- to late 19th century and Fordist-Keynesian theories in the mid-20th century, but these ideas have now been superseded by the restless, creatively destructive forward-motion of capitalist development. Briefly, critical theory is intensely practical and political, with an agenda to bring about a just, egalitarian society of collective freedom, and to challenge power relations (Popkewitz & Fendler, 1999:53). CER theorists emphasise that the search for knowledge should always be based on a desire to improve the quality of human life. This is emphasised by Steinberg and Kincheloe (2010:140), who state that critical theory is a moral construct designed to reduce human suffering in the world. Thus, in critical-

theoretical context, everyone is granted dignity regardless of his or her location in society. This can best be described by critical approaches to leadership in education.

2.3.2 Principles and objectives of critical emancipatory research

The objectives of CER is to identify undesirable occurrences in communities, and to establish a need to address this root source, particularly in areas of oppression or domination, which may be manifested in different forms and degrees of intensity (Watson & Watson, 2011a:68). For instance, oppression based on class, race, gender, age, and creed are undesirable to CER, and warrants a need to identify and change the root cause (Ebersohn & Ferreira, 2012:31). Although South Africa has been free from apartheid for more than 20 years, some township schools are still under-resourced, lag behind schools in predominantly “white” suburbs, and experience digital exclusion (Razzak, 2014b:63). Some teachers do not attempt to use ICT in teaching and learning because teacher agency is not inspired (Van der Berg & Moses, 2011:3). This translates into educational inequalities that are endured by previously disadvantaged learners. It is therefore the researcher’s intention to apply CER in this study to address the role the school principal should play in the use of ICT in a school.

One of the main principles of CER is promoting emancipation. This principle is justified by a perception of the world as imperfect and unjust and by the belief that research should address this imperfection and aim to improve the status quo. Stahl, Tremblay and LeRouge (2011:2) argue that emancipation means that more people can achieve their potential to a greater degree, while Larrotta and Yamamura (2011:76), Mahlomaholo (2012:7) and Nkoane (2012:98) see emancipation as all conscious attempts by human reason to free people from pseudo-natural constraints. For instance, critical scholars often focus on matters of power and control and the influence of technology on the distribution of power (Stahl *et al.*, 2011:2; Melber, 2013:111). Thus, emancipatory intention has implications for epistemology and research strategy. For instance, the use of focus groups can support emancipation of all individuals involved in research because each participant brings his or her own experiential insights, which may change as he or she learns of other

participants' experiences and insights. Thus, through CER, the conditions conducive to enhancing the leadership role of the principal can be addressed. CER enables participants to reflect critically on their own situations as co-researchers.

CER advocates the following principles: peace, hope, equality, team spirit and social justice. Thus CER changes people's hearts and minds, liberating them and meeting the needs of real life (Ledwith, 2007:599). This principle indicates that CER is based on an anti-oppressive ideology, which can result in change through understanding and reflection. The relationship that is established allows for reflection on action taken and progress made. The participatory nature of this research can translate into the understanding that people must be equal participants in society, have equal opportunities to use computers in school and have equal access to the internet. It means people should be able to share all the resources in the school community. Thus, the role of school leaders will have to centre on inspiring hope in the people, through equitable distribution of resources, in order to achieve social justice (Watson & Watson, 2011:67).

2.3.3 Reasons for using critical emancipatory research

The research agenda in CER is based on two main rationales. The first and fundamental rationale is collective empowerment and emancipation of people from restrictions and domination by particular interests and powers, control, oppression and marginalisation (Nkoane, 2013:2). The aim in this regard is to change or transform the status quo and to attain a free and more conscious school community, particularly in matters of school administration and the use of ICTs (Edwards-Groves, Brennan Kemmis, Hardy & Ponte, 2010:44). Thus, the relationship between researcher and the participants would lead to cordial behaviour, respect and humanitarianism (Pillay & Saloojee, 2012:43). The support of each member counts because it is built on mutual respect, thus enhancing participants' confidence (Mahlangu, 2011:240). In CER, researchers have a duty to avoid arrogance and to practice humility in working with participants, and should respect participants as partners and equals who can make a significant contribution to the research project.

The second fundamental rationale from a research perspective is to establish and test the assumption of emancipation potentials and capability experience through CER (Watters & Comeau, 2010:11). This is done by reflective ideological analysis of particular historical situations or through dialogue with and action of those who collaborate with others who are engaged in resistance and struggles for liberation (Eruera, 2010:8). It involves freeing oneself from restrictions and domination. It is important that ordinary people themselves are involved in research; therefore it is research both for and by the people. The role of the researcher in this research project is to facilitate this process on the basis of equality, and the important task is to contribute to the reflexivity of the struggle and transformative efforts, a transformation built upon conscientious people. The actions and behaviour of the research may thus contribute to language creation, as new concepts can clarify the transformation that is anticipated. By using CER in cooperation with the co-researchers, the realisation of the CER goals of equal rights, social justice, freedom, and respect (Makoelle, 2012:240) is possible. Finally, CER can create a space for people to empower themselves (Nkoane, 2013:3).

2.3.4 Conceptualisation of leadership

There are different definitions of the concept leadership, which are given in the section on the definition of concepts later in this chapter (Hardy, Palmer & Phillips, 2013:34). These definitions have reinforced conceptual confusion and vagueness (Alvesson & Spicer, 2012a:372). Some scholars exhibit a more positive outlook for leadership studies, particularly with the introduction of distributed leadership (Spillane, Diamond, Burch, Hallett, Jita & Zoltners, 2002:732; Spillane, Diamond & Jita 2003:534; Jita, 2010: 852). However, the quest to find leadership that is distributed throughout the organisation makes matters worse, since it implies nearly anything and everything can be viewed as leadership. The assumption in this approach is that influencing your boss ("upward leadership"), working with co-workers ("peer leadership") and even motivating yourself ("self leadership") are all types of leadership (Alvesson & Spicer 2012b:370). This has resulted in a blunted application of the concept. What commonly runs through the definition of leadership is "influence". Although this common aspect might begin to capture

a widespread sense of what leadership really means, ambiguities remain. This is amplified by Alvesson and Spicer's (2012b:370) questions: Does leadership mean influencing task objective, culture, group maintenance, identification? Does it also influence resistance? People have different assumptions about leadership, and whether it actually exists in organisations. One way of considering this large source of literature is to identify some of the deeper underlying paradigmatic assumptions contained in the literature.

2.3.5 Theoretical approaches to leadership in education

Leadership studies have been conspicuously quiet about its own underlying paradigm assumptions (Ryan, 1998:258). However, some studies refer to the dominance of a positivistic paradigm and the recent emergence of the alternative interpretive or social constructivist paradigm (Fairhurst & Grant, 2010:182). Brown (2004:85) argues that critical social theory portrays a practical and theoretical approach to emancipation through education. She suggests that people must develop an ontological vocation, a theory of existence that views people as participants, not objects, who are constantly reflecting and acting on the transformation of their world, so that it can become a more equitable place for all to live in. For a deeper understanding of the critical approaches to leadership in education, it is my opinion that we should acknowledge other theories dominant in the educational leadership terrain. Thus, a brief discussion of the scientific theory, instrumental theory, and humanistic theory, and a more detailed description of the critical theory follow.

2.3.5.1 Scientific view of leadership

Gunter (2001:95) states that, "[s]cientific position seeks to measure the causal impact of head-teachers as leaders on follower behaviour, functions, and emotions, and on student learning outcomes." This means that statistical evidence can be used to measure the performance of the leader. Knowledge production lies more with commercial consultancies than with professional researchers at universities or research units. Leadership theories that focus on factors such as traits (qualities and characteristics), style (what leaders do),

contingency (variable in situations), transactions (leader and followers) and transformation (supporting subordinates intellectually) will always be used in an educational leadership framework, yet consciousness, whereby people perceive the social, political, and economic contradictions, and act against the oppressive elements, are also at play (Brown, 2004:86). Human relations cannot be subjected to statistical measurement as if they are mere objects that can be manipulated in a science laboratory, as positivists claim.

2.3.5.2 Instrumental view of leadership

The instrumental framework holds the view that productive systems and cultures designed to enable site-based performance management can be operationalised. Occupants of positions are viewed as leaders and the conduct of effective leaders is described. This view has become very popular through management by objectives in the field of business, and is supported by Kaser and Halbert (2009:14), who state that systems will enable teachers and leaders to have a deeper interconnectedness and be better equipped to deal with challenges. Clearly, this view human beings to instruments that can be used to measure performance. This view has limitations, because human beings are not objects but social beings who cannot be subjected to expectations to perform as instruments.

2.3.5.3 Functionalist (scientific and instrumentalist) view of leadership

Functionalism assumes that leadership is an objective “phenomenon” amenable to scientific inquiry, and that leadership is primarily grounded in shared interests relating to the system’s functioning and survival (Alvesson & Spicer, 2012b:370). However, over time, researchers moved from focusing on the leader, to paying attention to the follower (Bligh, Kohles & Meindl, 2011:510). Functionalists assume that leadership is something that exists independently in the world, and is located in a web of casual relationships. Functionalists assume leadership can be known in a value-free way through what is claimed to be the rigorous application of scientific methods. The aim of functionalists was to increase “effectiveness” and “efficiency”. According to Alvesson and Spicer (2012b:371) several research studies on leadership have been conducted with this paradigm, and have

rendered contradictory and somewhat inconclusive results. Other assumptions of this paradigm are that it is possible to identify a distinct, coherent essence of leadership, that leadership exists only as a perception, and that leadership is not available in scientific constructs. Functionalists reify leadership as a thing that can be printed and measured. Alvesson and Spicer (2012b:171) argue that the functionalist assumption is blind to the way the construct of leadership may mean radically different things in different situations, and consequently what is seen as leadership and what is not is often an open question.

2.3.5.4 Humanistic view of leadership

The humanistic view of leadership is based on a narrative biographical epistemology through which principals can tell their own stories of what it feels like to lead and exercise leadership in particular settings over time (Dunn & Muller, 2007:345). Gunter (2001:96) agrees with Dunn and Muller that, "[t]he perceived realities of doing the job, combined with how the tensions and dilemmas that are encountered and worked through in real time, can be revealed". This approach is officially tolerated in most instances, as it can be used to validate national standards. However, due to policy constraints, emphasis is on immediate results, which renders the humanistic approach less preferable, and more often criticised on the basis of subjectivity. The above-mentioned views on leadership have a narrow belief that "the world needs leaders who change others" (Dunn & Muller, 2007:15).

It can be concluded that neither humanistic, nor instrumentalist, nor scientific theory assisted the researcher to answer the main question of this study, because the humanistic and instrumentalist paradigms possess hegemonic elements of technocratic systems.

2.3.5.5 Interpretive (humanistic) view of leadership

An interpretive approach to leadership comes in a range of formats, for instance, theorists have looked at symbolic leadership and the way leaders try to influence frames, cognitions and meaning (Ladkin, 2010:46). In this paradigm, leadership is thought to be constructed through an ongoing process of inter-subjective understanding. Leadership is a process that can only be accessed by examining the value-laden understandings and

interpretations that actors use to understand leadership. Although the interpretive theory has opened up a new way of constructing leadership, it also misses some important points by assuming that leadership is presented by respondents (Western, 2008:9). This makes it difficult to question presuppositions underpinning leadership claims. It does not promote clarity on what the conditions of possibility are for very different people – whether a chief executive officer or a learner president in a representative council of learners (RCL) (O'Reilly & Reed, 2010:969).Interpretive theory emphasises the positive aspects of leadership, and suggest that leadership happens when a community develops over time, and members share agreements to create results that have collective value (Ospina & Sorensen, 2006:188).

2.3.6 Critical leadership studies

According to Gunter (2001:96), "the critical position draws on the social sciences to map and analyse the interplay between the agency of the role incumbent and the structures that enhance or limit that agency." Gunter (2001:103) states that, "academics brought different theoretical tools and political perspectives into leadership schools. They began to question the politics of managerialism and to link the techniques of management to neo-liberalism".

Michel Foucault, Jacques Derrida and Gilles Deleuze drew on the Frankfurt School of critical theory. Their work resulted in a diversity of self, role and contextual variables that interact, shape and are shaped by the writers' beliefs and practice (Bush, 1995:43). By challenging the positivist ontology and epistemology that led to behaviourist and functional models of leadership, critical theorists argue that leadership is and must be socially critical (Alvesson & Willmon, 1996:36).

2.3.7 Critical assumptions

Critical scholars do not merely seek to understand how leadership is given meaning in different situations (Alvesson & Willmon, 2012: 57). They seek to go further, by examining the patterns of power and domination associated with leadership, and to relate it to

broader ideological and institutional conditions (Alvesson & Spicer, 2012b:375). They also develop theories of feminism by emphasising that a gendered notion of leadership that supports and legitimises male domination is undesirable. Critical leadership studies seek to uncover the darker side of leadership.

Thus, we can conclude that leadership is a fairly contested concept, which different people seek to define in different, conflicting and contradictory ways. The assumption in CLS is that leadership is associated with negative constructs, such as elitism, legitimation, domination, asymmetrical relations and constructions that privilege white males and middle-class people. It is clear that the definition of the concept leadership is problematic. Thus, for the purpose of this study, I conclude that leadership does not reside in an individual but in the relationships between individuals, and it is orientated towards social vision and change (Gunter, 2001:105). Clearly, no leadership theorist can be neutral. Thus, in designing a framework for enhancing the principal's leadership role in the use of ICT at school, there is no intention to be neutral. It is for this reason that CLT is preferred.

2.4 DEFINITIONS AND DISCUSSION OF OPERATIONAL CONCEPTS

In this section the definitions of operational concepts, derived from the title of this research project, will be discussed. The definition of these concepts is critical to the operationalisation of the study. It will help readers to understand the way the concepts have been applied and how these concepts are used to assist in achieving the objectives of the study. The concepts are explained below.

2.4.1 Enhancing

According to the Farlex Dictionary (2012:4) enhancing refers to any attempt to temporarily or permanently overcome the current limitations of the human body, through natural or artificial means. The term is sometimes applied to the use of technological means. The Reader's Digest Oxford Complete Word Finder (Tulloch, 1993:488) explains the meaning of enhancing as heightened or intensified qualities, powers or value. It can also mean to improve something that is already good. Heighten, intensify, raise, increase, augment, add

to, deepen, strengthen, reinforce, sharpen, develop, amplify magnify, enlarge, expand, maximise, lift, swell, elevate, exalt, boost, improve, refine, better, polish, upgrade, enrich or ameliorate are further synonyms.

2.4.2 Leader

A leader is a person who leads a group of people (Hornby, 2009:839). The Encarta World English Dictionary (Soukhanov, 1999: 256) explains leader as “one who rules and guides others.” According to the Encyclopaedia Britannica (1958: 867), a leader is a person who is not only endowed with intelligence and courage but must be buttressed by an almost fanatical belief in himself and his cause. The national legislation and regulations relating to the National Quality Standard (NQS) describe a leader as someone who guides other educators in planning and reflection, and who mentors colleagues in their implementation practices (Cheeseman, 2011:351). The above views depict the leader as perfect and individualistic, and as someone outstanding, with superb abilities.

A leader relates to others, because leaders have to motivate people who may think differently, to work together. When people disagree, it is possible for them to work harder to find solutions, unlike people who are always in agreement and who might not make an effort at all (Kemmis & McTaggart, 2007:276). Thus, for this study, a leader is described as a person, possibly in a position of authority, who uses leadership assets in the form of mutual respect, trust, and relations with people, to create a culture that would enable collective achievement of desired results. The above view is in line with CER, which advocates mutual respect in relations in a social context. Thus CER poses questions to the leadership role of a school principal regarding the use of ICT at school – questions such as, how is the leadership role of the principal experienced by teachers, learners and parents? A partial answer could be that the leader can play his part in a mutual relation, not as an individual.

2.4.3 Leadership

Dictionary.com and the Oxford Advanced Learner's Dictionary (www.dictionary.com:online; Wehmeier, 2005:839) explain leadership as an act or instance of leading, guiding, or directing the position or function of a leader. Keeney (2010:54) states that leadership is a process experienced by anyone through social experiences, by either song, dance or hunting. Leading is momentary rather than fixed. The Collins World Dictionary (2004:333) emphasises the position or function of a leader. Third, leadership is the ability to lead and organise a group of people to achieve a common goal. Last, leadership is described as a group of people leading an organisation. The Free English Encyclopaedia describes leadership as a process of social influence in which one person can enlist the aid and support of others in the accomplishment of a common task (Hornby, 2009:838).

Gulcan (2012:625) states that leadership involves predicting the future, determining a realistic vision and targets for an organisation, and collaborating with people in order to realise objectives. Higham, Hopkins and Matthews (2009:2) argue that the concept leadership has changed for the worse due to the introduction of new policies theorised by system leadership. They state that the concept involves going beyond collaboration activities, and that it involves innovation, risk taking and deploying resources creatively. Julie (2007:25) says that leadership is vision; the ability to see reality that does not yet exist; it is the will to defy the constraints of the current reality and to stretch oneself mentally. Leadership is a process that typically requires at least two individuals, one typically enabling the other to achieve an objective or goal that is meaningful (Avolio, 2011:17). Leadership alludes to an orientation towards human relations and organising people by providing them with tasks, direction, support, and coherence, so that the group can achieve goals (Kekäle & Pirttila, 2003:252).

From the above it is clear that scholars do not agree on the definition of leadership as a concept. Thus, one can draw from the argument of Helen Gunter, who argues that leadership does not reside in an individual, but resides in the relationship between

individuals, and is orientated towards social vision and change (Gunter, 2001:105). For Gunter, leadership is a communal asset that that should be used for collective benefit. The idea of capitals that reside within the community can be used by the stakeholders in the school, as the leadership of the school. They can, inter alia, adopt a model for the use of ICT in the school. (Alvesson & Spicer, 2012b:65; Gunter, 2001:105).

Based on the definitions above, the concept of leadership can be defined as a position taken by a group or team whose function is to support one another in an innovative, realistic, human way to confront constraints to achieve a common vision. This conceptualisation is in line with that of Dimmock (2012:7), namely, that "leadership is a social influence process guided by a moral purpose with the aim of building capacity by optimizing available resources towards the achievements of a shared goal" (Bourdieu, 2010: 223, Dunn & Muller, 2010:15, Bourdieu, 1999: 124, Spillane *et al.,* 2001:921).

2.4.4 The principal

The Oxford Advanced Learner's Dictionary provides five explanations of the word. As a noun, the first explanation of the word refers to the person who is in charge of a college or university. The second explanation refers to a head teacher; the third refers to emphasis and finance, and the fourth to the person who has the most important part in a play, for example an opera singer. The last explanation brings a totally different dimension to the word, namely, "person that you represent, especially in business or in law" (Hornby, 2005:1153). The first two explanations and the fourth explanation can add value to constructing a common understanding of the concept.

In the centralised system of education prevalent in the majority of countries, the principal's position is a public position, with the duty of management and administration, while in some countries, a principal is regarded as a means to improve student achievement and focus on curriculum professional practice (Zeybekoqlu & Tabancali, 2009:112). Based on the above, the principal, as a curriculum leader, can be understood to be a leader who has the responsibility to ensure that teaching and learning takes place as it is supposed to.

For the purpose of this study, the principal is someone in a public position with both management and administrative responsibility and a core function in curriculum professional practice, whose role is to create an atmosphere for learners to achieve the sustainable outcomes required by the 21st century curriculum.

2.4.5 Information communication technology

The Encyclopaedia Britannica describes ICT as covering any product that will store, retrieve, manipulate, transmit or receive information electronically in a digital form, for example, personal computers, digital television, mail and robots (http://www.britannica.com:online). The Reference Boss Dictionary confirms the definition above, but emphasises receipt of digital data; it is also concerned with the way the different uses can work together (Riley, 2012:12). The White Paper on E-education explains ICT as the combination of networks, hardware and software, as well as the means of communication, collaboration and engagement that enable the processing, management and exchange of data, information and knowledge (RSA, 2004:15). Rutkowski, Rutkowski and Sparks' (2011:194) definition of ICT is guided by the UNESCO (Bangkok) definition of ICT as technology, "used to transmit, store, create, display, share or exchange by electronic means". The definition includes technologies such as radio, television, video, interactive whiteboard, DVD, telephone (both fixed and mobile phones), satellite systems, computer and network hardware and software, as well as the equipment and services associated with technologies such as video conferencing. Based on the above, ICT can be conceptualised as ingredients that could be used by all stakeholders in a school to promote sustainable teaching and learning in a global environment.

2.5 REVIEW OF RELATED LITERATURE

This section deals with a related literature review, which was done in order to understand the research problem. The aim was to determine what has been done regarding the problem that has been identified. A common feature around the world has been a reluctance among teachers to use ICT for teaching and learning purposes.

Over the past three decades, regimes and educational bodies around the world have regarded the use of ICTs as an important means of improving teaching and learning (Plomp, Anderson, Law & Quale, 2009:97). This prompts a review of literature in order to, (i) understand the role the school principal plays in the use of ICT for teaching and learning; (ii) establish how and whether the principal's leadership role in the use of ICT contributes to the teachers' professional practice as it influences performance in a school; and (iii) recommend policies and strategies that a principal can use to support teachers in the use of ICT in the classroom. Once these objectives have been achieved, the main question in this study will have been answered: How can the leadership role of the school principal be enhanced in the use of ICT in a school?

Research attests that the *effectiveness* of leadership makes a considerable difference to school and learner outcomes (Adegbesan, 2013:14). In several parts of the world, including South Africa, it is acknowledged that schools need caring leaders and managers if they are to deliver the best, promising schooling for their learners (Bush, 2009: 296).Bush (1998:326) asserts that leaders should support school staff with regard to their responsibilities and the teaching of children who, for various reasons, are marginalised. Kugelmass and Ainscow (2004:136) go a step further in suggesting that one of the duties of leaders is to foster new meanings of diversity to avoid isolating individuals who, for some reason, are marginalised. It is for these reasons that this study seeks to understand the leadership role of the principal in the use of ICT. The aim of the study is to contribute to the highly contested debate on curriculum leadership in the use of ICT (Mishra & Koehler, 2006:1017). Although management and leadership concepts originated in the development of organisations that dealt with industry and commerce, ICT has its origin in the large mainframe computers designed in the 1950s and 1960s. Management and leadership concepts have changed significantly due to development in research (Bush, 1995:33; Pansiri, 2011:751; Rebore, 2011:17; Dimmock, 2012:7).

In order to achieve the aim of this study, the literature review selected four countries: (i) Russia, representing the developed world; (ii) Nigeria, representing the African continent; (iii) Botswana, representing the Southern African Development Community (SADC); and

(iv) South Africa, representing the area in which the research originated. Twelve performance standards of quality assurance were used as organising principles to guide and shape the literature selected. It is vital to first understand the expectations stipulated for training institutions, which the school principals, as school leaders, should be familiar with, particularly in South Africa.

The guidelines for teacher training and professional development in ICT (RSA, 2007a:2) emphasise a holistic approach to teacher development, based on three dimensions:

- **A pedagogical dimension**, which implies an understanding and application of the opportunities ICT offers in teaching and learning in a local curriculum context. The pedagogical dimension can further be linked to the first four performance standards of every teacher, the principal and the system model for ICT.
- **A technical dimension**, which implies an ability to select, use and support a range of ICT resources, as appropriate, to enhance personal and professional effectiveness, and the willingness to update skills and knowledge in the light of new developments. Technical dimensions are also linked to Performance Standards 5-8 required by the Integrated Quality Management System (IQMS) and the system model for ICT.
- **A collaboration and networking dimension**, which includes a critical understanding of the benefits of learning networks and collaboration within and between partners, and the ability to create and participate in communities of practice. The collaboration and networking dimension can also be linked to Performance Standards 9-12 of IQMS and the system model for ICT.

These dimensions are embedded in the national and local infrastructure, culture and context. E-education strongly supports the principles underpinning the new curriculum in South Africa, specially the principle of problem solving and critical thinking. These principles are based on developing the abilities of learners to apply ICT skills to access, analyse, evaluate, integrate, present and communicate information effectively to others.

2.5.1 Performance measurement and system models as organising principles

Performance measurement is a programme that is combined with developmental appraisal and whole-school evaluation for quality assurance in South African schools. These three programmes comprise the IQMS (Tshelane, 2008:17). All three programmes of IQMS have different aims but the three programmes are collectively aimed at enhancing and monitoring the performance of teachers and the school as a whole. The purpose of performance measurement is to evaluate the individual teacher for salary progression, grade progression, affirmation of appointment, and incentives. When measuring performance of a school leader, 12 performance standards are used for measuring the work (Mabogoane, 2006:128); and 12 performance standards are applied as organising principles in order to understand the role of a school principal in the use of ICT in the classroom. The main objective for the implementation of IQMS in South African schools was to ensure quality public education for all South Africans. IQMS, particularly performance measurement, can be positively linked with ICT. The 12 performance standards (PS) are reviewed next.

Tella and Adu (2009:55), in support of this view, emphasise a performance measurement reporting taskforce idea. This would involve adopting the definition of ICT literacy as, “the ability of individuals to use ICT appropriately to access, manage and evaluate information, develop new understanding, and communicate with others in order to participate effectively in society.” In seeking to understand the role of a school principal in the use of ICT, literature review was done with the purpose of acquiring a deeper understanding of the measures put in place by different countries to enable school principals to provide leadership with regard to the use of ICT.

2.5.2 Role of the school principal in the use of ICT

The IQMS, which was introduced in South African schools around 2004, compels all teachers, including the school principal, to teach according to the four performance measurements stipulated in the document, namely, (i) Teachers are expected to take initiative by making an effort to create a positive learning environment centred around the

learner (Weber, 2005:64); (ii) Teachers should be knowledgeable in curriculum and learning programmes relevant at this present juncture; (iii) Teachers should be able to do lesson planning, preparation, management and presentation thereof; and (iv) Teachers should demonstrate the ability to do learner assessment, and recording and maintenance of essential records that provide insight into individual learner progress within the present educational practice culture (RSA, 2003:24). These performance standards are expected to be upheld by all schools in South Africa, irrespective of the availability of resources or historical background (Mestry, Hendricks & Bisschoff, 2009:476). These challenges are listed below.

2.5.2.1 Making an effort to create a positive learning environment that will benefit learners

This section deals with the way the leadership roles of the principal contribute towards teachers' use of ICT in the classroom. A brief overview of the role of the principal in the use of ICT and how this role can contribute towards teachers' use of ICT is provided. A literature review of how the principal's leadership role in the use of ICTs affects the teacher's professional curriculum practice in the class in Russia, Nigeria, Botswana and South Africa was done to obtain a deeper understanding of the impact of the leadership role of the principal.

When teachers know how to infuse and use ICTs in their classrooms for teaching, learners are engaged in using ICT as a tool to learn (Divaharan & Ping, 2010:741). However, limited progress has been made regarding the way teachers teach in the classroom. School teachers do not seem able to optimise the use of ICTs in classroom practice. Divaharan and Ping (2010:741) are of the view that there is an alternative method of ICT integration. ICTs should be used in a flawless manner as part of the daily learning process that takes place in the classroom. Most experts in the field of education agree that, when properly used, ICTs hold great promise for improving teaching and learning, and hold promise for shaping work-force opportunities (Aduwa-Ogiegbaen & Iyamu 2005:104).

A school principal is expected to create a positive learning environment that enables learners to participate actively and to achieve success in the learning process. When a principal uses electronic teaching aids, such as cell phones, computers, podcasts, Mxit, Facebook, radios, or television, he or she could create a positive environment that can stimulate learning and serve the diverse needs of students. Bhasin (2012:133) points out that integrating ICT into the teaching and learning process involves technical and pedagogical dimensions. The pedagogical dimension involves an interactive learning environment that can (i) make content meaningful, authentic, and relevant to learners; and (ii) enable learners to add further resources to share in addition to the resources suggested by the teacher. This works well in the system/school model of ICT use described earlier. Widespread use of ICTs is both a driving force and an enabling force in the school model of ICT. As such, ICT has become increasingly important, because it reduces time and space barriers and has strengthened some location factors, such as technology knowledge and innovation factors (Zhouying & Weidong, 2013:320). The performance standards expected of school principals also apply in Russia, Nigeria and Botswana. Understanding the role of principals, not only in South Africa, but also in these other countries, is imperative.

School principals as leaders in the school must be aware of developments and be equipped with ICT knowledge. This knowledge can be changed into an endless ordinary reserve for any nation, and key to building it is that students develop 21st century skills, namely technology and media literacy (Opdenakker, 2006: 1). These skills are developed best in modern-day learning environments with improved teaching methods, professional development for teachers, modern technology, internet connectivity and local digital content. Russia has a great deal of experience of using computers in education and children have been taught information technology (IT) in classrooms since 1986. Gradually, the use of ICT has become more consistent in pedagogical practice.

The Nigerian national policy on education of 2004 recognises the importance of ICTs in teaching and learning. This policy has an impact on the role and responsibilities of school leaders. The traditional role of the school principal has changed significantly, from a

traditional administrator and manager to that of curriculum implementer (Abidogun, 2011:156). Nigerian education has, to date, not developed an ICT policy for schools. The role of the school principal in the use of ICT is described by Unachukwu and Nwankwo as developer of a vision, trainer, learner, and provider of access to ICT (2012:114). They found that senior managers affect classroom and curriculum practice and the way in which changes are introduced in Nigerian schools (Agyeman, 2007:6).The Nigerian seven-sector plan for ICT, which is in line with the Nigerian Vision 2020, is broad and does not indicate the role the school principal will play in the implementation of ICT in a school (Aluede, 2013:90).

Principals in Botswana's schools are responsible for overseeing the implementation of the curriculum (Moswela, 2010:72). Moswela (2010:73) explains that the responsibilities of principals do not necessitate them to conduct teaching and learning supervision at their schools, because the responsibility of curriculum supervision rests with school inspectors. This means that school principals in Botswana are responsible for ensuring that teaching and learning are taking place; however, how the process unfolds in the class is the responsibility of school inspectors. This is a contradictory statement, which has the potential to discourage the school principal from taking up curriculum leadership with accountability. The curriculum supervision by principals comes from individual principals' optional professional obligation, rather than from legislation. Therefore, there is no policy to guide the principal on curriculum supervision. With the implementation of ICTs in schools by NEPAD, Botswana will have to revise their policy so as to clarify the role of the principal in the use of ICTs in schools.

South Africa is a leading country among knowledge-based countries in Africa as ranked by the information society index (Akpor, Muchie, Tapper & Nyambura, 2011:22). The institutions of knowledge-based societies are in place, as are the necessary policies. South Africa has potential for technological and human resource development and innovation. Despite the positive outlook, researchers report that there has been a slow rate of social, political and educational change, especially in ICT professional curriculum practice in the classroom (Mafora, 2013c:37). The legislated role of the school principal is

promulgated in the Employment of Educator's Act, No. 76 of 1998. The core duty of a school principal is to provide professional leadership within a school; to guide, supervise and offer professional advice to the work and performance of all staff members. Principals in South Africa are expected to teach according to the prescribed workload of principals, depending on the post level occupied. With regard to communication, principals are expected to liaise with relevant stakeholders regarding school curriculum development (Hindle, 2007:C-63). Thus, the principal's role is attached to policy implementation, hence it is a reasonable expectation that principals exemplify and promote the critical leadership tenets of equity, social justice, hope and teamwork in their leadership role (Mafora, 2013c:38). Thus, teachers are expected to create a positive environment that would enable learners to learn through the use of ICT. The question whether teachers do this has not been answered yet.

2.5.2.2 Knowledge of curriculum and learning programmes is required

A school principal is expected to possess appropriate content knowledge, which may be demonstrated by the creation of meaningful learning experiences through activities. ICT has the potential to introduce new curriculum knowledge and practices (Yusuf & Yusuf, 2009:225). Using the internet for the purpose of enhancing knowledge of the curriculum and improving teaching and learning is just one way of achieving this. Research has found that, although principals acknowledge that they have a major role to play in implementing ICT in school, principals do not have the skills and the know-how to implement the integration of ICTs in teaching and learning (McGarr & Kearney, 2009:89, Akbaba-Altum, 2006:179). It appears that principals are expected to provide leadership in areas they are unfamiliar with (McGarr & Kearney, 2009:90). A similar study by Mentz and Mentz (2003:193) reports that principals seem frustrated by the expectation that they must implement ICT in teaching and learning, which they do not know how to do. Flanagan and Jacobsen (2003:127) report that few principals have themselves used a computer; this is also the case in South Africa, Botswana, Nigeria and Russia.

In Russia a modern system of ICTs has been employed from the early nineties. Countrywide ICT teacher training is part of the national ICT-in-education strategies, as well as the national E-school. The main rules for educational decisions lie in the power of the central government (Moiseeva, 2005:219).The local governing body takes care of children's right to be enrolled into education. However, the roles of the school principal regarding ICT seem not to be emphasised fully. (Ovodenko & Muskhina, 2010:145). The Ministry of Education has assumed more responsibility with regard to leadership in ICT. However, the responsibility for day-to-day running of the school falls on the principal of the school. In Russia, directors head schools and the title of principal is reserved for universities (Taipale, 2012:12). Furthermore, because the implementation of ICT in Russia can be dated back to 1985, it has led to infrastructural planning in that country (Kangro & Kangro: 2004:31). It is necessary to cultivate new intellectual skills at school, namely, an ability to analyse data flow, and to compare the diversity of relations of new knowledge to what is already known. Ironically, high school students today learn more about social life from computer games than from social studies lessons (Giglavyi, 2011:271). Research by Law, Lee and Chan (2010:465) found that, in many educational systems, including that of Russia, major curriculum reform initiatives and ICT master plans have been launched since the turn of the millennium, changing the role of the school principal dramatically. However, Zajda (2005:405) argues that this reform renders Russian curricula almost completely permissive. School Principal-2010 organisers are surprised by the fact that Russian school principals have considered the introduction of information technology in all areas of school life as their task (Ushakov, 2010:2). The control of the school by the state is confirmed by Toots (2004:566), who states that,

> *the role of leadership, management and coordination of the process of continuous education has been overtaken by higher educational institutions, as they are operating directly in association with the consumer and have opportunities for entrepreneurial activities with respect to production and implementation of innovative educational programmes.*

Semenov (2005:218), in a UNESCO report, states that “principals should encourage the entire school community to support changes in schools particularly in educational reform in case of ICT”. This support and understanding is crucial for creating a positive attitude and active involvement as a form of buy-in on the part of all stakeholders. Although no research regarding the role of the principal in the use of ICTs, especially regarding critical leadership, has been undertaken in Russia, leadership is key not only for ICT implementation in the classroom, but for successful ICT implementation in general (Seong & Ho, 2012:529). Semenov (2005:218) identifies the following stakeholders and their roles:

- National authorities, officials and legislators – to formulate goals and allocate resources;
- Educational authorities responsible for curriculum matters – to support new systems of educational goals, objectives and control;
- School (principal) director – to support teachers and implement change in the lives of scholars;
- Teachers – to be brave enough to start; and
- Parents – to trust teachers.

The research conducted in Nigeria does not speak directly to the knowledge of curriculum and learning programmes that a principal must possess regarding the use of ICT in school. However, researchers report on the general role of the principal, which can provide a valuable base for the conception of this study (Giglavyi, 2011:271). According to Tella, Tella, Toyobo, Adika and Adeyika (2007:6) the use of ICT in Nigeria is increasing dramatically. Teachers have access to ICTs (with the exception of e-mail and internet) and this forces constant evaluation of teaching processes and the management thereof. Almost all subjects, ranging from mathematics to music, can be taught through ICTs. Thomas and Ranga (in UNESCO, 2004:25) classify ICTs into three categories, namely, pedagogy, training and continuing education. The pedagogy application of ICT is concerned essentially with learning that is more productive and, with the support provided by various components of ICT, involves sustainable learning with the aid of computer and

other information technologies, which serve the purpose of learning aids. These aids play a complementary role in teaching and learning situations but do not replace the teacher. Unachukwu and Nwankwo (2012:114) suggest that the school principal can develop a vision for the development and integration of ICT across the curriculum and can promote this vision within and beyond the school; provide appropriate, sustained ICT professional development for all levels of staff; become an ICT learner along with staff and students; use management information for school improvement; and provide staff with personal access to ICTs.

Kelechukwu (2011:20) states that principals are the custodians and accounting officers of their schools; they undertake all routine activities to accomplish numerous administrative tasks as leaders towards achieving educational objectives for progress. A reflection on Nigeria's national policy on education may help to understand the role of the principal in the use of ICT in Nigeria. The objectives of education in Nigeria as stipulated in the national policy on education are:

- Providing an increasing number of school pupils with the opportunity for education of quality, irrespective of sex, or social, religious and ethnic background; and
- Diversifying the curriculum to cater for the variation in talents, opportunities and roles possessed by, and open to, students after their secondary school courses.

According to Agyeman (2007:313), principals in Nigeria also undertake teaching responsibilities within the framework of the school programme and curriculum, and maintain the archives and property of the school. Nigerian principals also execute any other tasks in the interests of students. The responsibility of the Nigerian government is to promote the training of qualified pre-primary school teachers in adequate numbers, to contribute to the development of a suitable curriculum, supervising and controlling the quality of such institutions and established pre-primary sections in existing public schools. The new educational technologies do not reduce the need for teachers but allow for redefinition of their profession (Abidogun, 2011:156). In Nigeria, the role of the principal is seen as persuading and coordinating all ICT-related activities of teachers, so that teachers can contribute willingly to the goal of the school to the best of their abilities. According to

Adegbesan (2013:1) the principal must provide a conducive environment for teaching and learning so that teachers can facilitate the learning process.

According to Sithole (2012:70), computer-aided learning (CAL) is one of the teaching methods used in Botswana's schools and this method is widely acceptable for integrating ICT in professional curriculum practice by teachers. The ICT policy used in Botswana, named Maitlamo,[3] aims to equip all Botswana schools with libraries with fully-fledged ICT facilities (Garegae & Moalosi, 2011:14). It further aims to train all teachers in Botswana by December 2010. However, Sithole observes that schools in Botswana have not yet been equipped with ICT infrastructure; teachers have not yet embraced ICT and the training received, although ICT has been regarded as a key tool for improving teaching and learning (Sithole, 2012:180). How, then, does a school principal display knowledge of curriculum and curriculum programmes in the use of ICT by teachers? This is explained by Chisholm, Dhunpath and Paterson (2004:36), who argue that "there is an urgent need to develop the capacity in the teaching corps to undertake maintenance of school-based ICT systems". The curriculum development section of the Botswana Ministry of Education is responsible for training of trainers. School principals are expected to provide and procure equipment and maintain the management of ICTs (Chisholm *et al.,* 2004:40). Chisholm *et al.* (2004:40) identify several challenges facing principals in Botswana schools regarding their task of maintaining and developing the use of ICTs in school:

- Botswana seems to lack a well-coordinated plan for the rollout of ICT infrastructure and ICT skills development. Teachers were trained before computer labs were installed. This resulted in teachers forgetting the skills they had acquired before they could be applied.
- The absence of locally produced teaching aids has resulted in teachers struggling to keep up with the challenges of tailoring to local context.
- Although computer awareness is a compulsory curriculum offering, it is not examined. Thus, the subject has a marginalised status and is considered to have less value than

[3] The latest national ICT policy in Botswana. The word means pledge (Garegae &Moalosi, 2011:58)

other subjects. Furthermore, in Botswana school principals do not show interest in motivating teachers to use ICTs in teaching, in spite of additional campaigns to advocate the use of ICT in managing curricula. There is also a need to assist schools and governing boards to understand governing policy about the place of ICT in the curriculum.

Moswela (2010:79) argues that teachers are critical partners in classroom curriculum practice, and their role must be viewed in this light. If a principal's role involves contributing to teachers using ICTs, then teachers must be involved as a form of empowerment. The aim of supervision is to help teachers improve their teaching, and they should play an active part in the process and in curriculum classroom practice supervision. In Botswana there is no policy on classroom curriculum supervision (Moswela, 2010:80). The research on adoption and use of computer technology among school principals in Botswana's secondary schools found that the role of the principals can affect the extent to which ICTs are used in classrooms by teachers (Totolo, 2011:76). The principal can decide to adopt, remain neutral or not adopt ICT in teaching and learning. Totolo (2011) used the technology acceptance model (TAM) to identify gaps in the model, namely, that knowing whether principals intend to adopt or reject computers needs to be complemented by the reasons for their decisions – which the research could not determine.

The role of the principal in the use of ICTs in schools can be deduced from the new role of districts in different provincial departments of education and from the policy of e-Education (DBE, 2012:14). In South Africa, provincial education department districts have three main roles:

1. Support

- Providing an enabling environment for educational institutions within the district area to do their work in line with educational law and policy;
- Assisting school principals and educators to improve the quality of teaching and learning in their institutions;

- Serving as an information node for education institutions and facilitating ICT connectivity in all institutions within the district; and
- Providing an enabling environment for the professional development of educators and administrative staff members in line with the occupational-specific dispensation.

2. Accountability

- Holding education institutions in a district area to account for their performance;
- Accounting to the provincial education department for the performance of education institutions in a district area; and
- Accounting to the provincial education department in terms of performance agreements that stipulate the roles, functions and responsibilities of district officials in line with relevant policies.

3. Public information

- Informing and consulting with the public in an open and transparent manner; and
- Upholding *Batho Pele* principles in all dealings with the public.

2.5.2.3 Lesson planning, preparation, management and presentation

The principal should demonstrate competence in planning for classroom presentation and management of learning programmes. Evidence of essential record keeping of planning and learner progress must be available (Aduke, 2008:292). Principals should be able to use computers, and to store information about various programme documents and to retrieve or save such documents for future reference. Planning requires linguistic capital, which can be seen in the skills and tools developed through communication experience in language (Yosso, 2006:23). Thus, a computer can be used to edit text so that it is at the level of the learners for whom the lesson is planned. Teachers can use computers to design a lesson form, which can either be in soft-copy or hard-copy format. These copies can be used to serve as evidence that the teachers have ICT skills (Stuart, Mills & Remus, 2009:735). Lai and Pratt (2004:462) caution that, although teachers in classroom practice provide ICT opportunities to learners, it is important that the teachers are also exposed to

innovative opportunities so that the teachers remain current in ICT development. Thus, the notion of shared leadership is suggested as a better model.

In Russia, principals do not teach. However, their responsibility is to approve lesson plans of teachers, which suggests that the teachers will have to demonstrate the acquisition of sound knowledge of ICT and the way lesson plans are designed. Principals will also be able to advise teachers on the use of electronic media (Kiryukhin & Tsvetkova, 2010:31).

A study in Nigeria by Oluwadare (2011:17) found that principals in Nigeria cooperate with teachers in defining objectives for the school (formulating a school vision), selecting learning material, experiences, methods and procedures to achieve the objectives, and assigning subjects and classes according to qualifications and competence. Principals also have to ensure that all staff work cooperatively to achieve the common goal of the school. Principals supervise lesson planning, teaching and learning activities, evaluate the plan and implementation of curriculum programmes, and assist teachers to find new ways of teaching and learning. School principals must therefore possess and employ planning and decision-making skills, leadership competencies, supervisory skills and skills for school climate management (Oluwadare, 2011:18). Oluwadare, in his research, found that it is the responsibility of the school principal to plan and implement staff professional development and to encourage teachers to improve on their weaknesses (2011:18). Such planning can be done with Microsoft Excel or other spreadsheet software and be saved on a computer.

Regarding Botswana, a study by Moswela (2010: 76) reports that curriculum supervision is the responsibility of school inspectors, who are seen as the link between server teacher and inspection, which provides help and encourages classroom teaching. Thus, inspectors were bound to visit schools in order to help teachers with professional curriculum practices in school. However, the number of schools in Botswana has recently increased tremendously and schools are located all over the country, making visits by inspectors difficult to sustain from a central point, and rendering the 1977 National Commission of Education recommendations irrelevant. Thus, regional inspectors were appointed to carry out the inspection role in schools. Their role is to ensure the maintenance of academic

standards and developing national policies on inspection. They address challenges experienced in schools and conduct regular workshops to keep teachers up to date with developments in curriculum matters. However, the continued increase in the number of schools results in limited time for spending in each school. The principal's role in Botswana is to oversee the implementation of the curriculum in the school. This role does not require principals to conduct professional classroom curriculum practice supervision at their schools. Some principals in Botswana have taken it upon themselves to conduct professional classroom curriculum practice supervision in their schools.

2.5.2.4 Learner assessment, recording and maintenance of essential records that provide insight into individual learner progress

In this regard ICT is applied as an aid to help the teacher show competence by keeping records of all assessment that the learners undergo, and ensuring that data can be retrieved later to track learner progress and achievement (Wang & Woo, 2007:148). According to Forcier and Descy (2002:263) Microsoft Excel, a Microsoft Office program, can be used to produce an accurate mark sheet, which could save the teacher time when doing calculations of averages for alphabetic name lists. A similar study by Stuart *et al*. (2009:733) indicates that the leadership behaviour of school leaders relates to championing roles, particularly when leaders have a level of ICT competence that can help them to be technology leaders. ICT competency would enable the school principal to provide sustainable leadership in implementing ICT (Stuart *et al.,* 2009:733). According to Aduke (2008:292) other areas of ICT use include evaluation of learning outcomes and classroom management. ICT facilities could be used to prepare lesson plans, write student reports, store data, and collect and analyse student achievements. The school principal can draw from community cultural wealth, particularly navigational capital. Navigational capital deals with the skills needed to navigate through unfamiliar or non-inclusive environments, especially during the information age where, in most cases, new digital equipment and special software are available at reasonable prices. Pelgrum (2008:96) argues that principals and teachers lack competence and confidence with regard to making ICT part of their pedagogical training. Lack of training opportunities for

teachers have resulted in slow integration of ICT in teaching and learning (Pelgrum, 2008:96). This aspect of recording and safe-keeping of learning experiences and records of learning is evident in Russia, Nigeria, Botswana and South Africa.

In Russia, the first level of preparation for integrating ICT in teaching and learning involves setting a common ICT competence for teachers of different school subjects (Kiryukhin & Tsvetkova, 2010:32). Furthermore, Russian principals must exhibit leadership and vision regarding recording learner performance. The research of Taipale (2012:9) sheds light on the role of the principal in Russian schools, which is described in terms of curriculum leadership (teaching and learning), examining the principal's leadership role and how the role impacted on learning outcomes in Russia (Taipale, 2012:9). The principal observes and assesses teachers' actions and performance, and coordinates staff development. There are significant differences between countries and even within the same country. Russia is known to have used experts from the United States for the restructuring of its school structure. School management has been described in terms of conventional administrative management and pedagogical leadership. Administrative management means that the principal is responsible for the legal compliance of school operations. Pedagogical leadership refers to making use of the school's latitude to achieve the specified objective in the best way possible. The principal is required to have leadership skills amidst change and the ability to ensure staff commitment to continuing professional development and cooperation.

In many countries school leadership structures are strictly regulated, and school inspectors play an important role in school governance. The principal's teaching responsibilities depend on the size of the school. In Russia principals of schools generally have at least one full-time assistant or vice principal, depending on the size of the school, which enables the principal to spend more time on general school administration (Taipale, 2012:11).

The absence of the principal's teaching role has a dual effect. Abolishing teaching responsibilities will naturally provide more time for the principal to deal with management duties, but it will also weaken or eliminate the principal's direct contact with teaching and

pedagogical development work. On the other hand, pedagogical leadership is not guaranteed by requiring principals to spend a considerable proportion of their working hours on preparing and presenting their own classes. It is possible to offset the workload due to teaching responsibilities by developing the assistant-principal system or through centralised financial, administrative and pedagogical support provided by maintaining organisations (Taipale, 2012:21).

In Russia school principals and leaders are selected by a representative of the school's maintaining organisation, a multimember committee or board of leading officials. Selections are usually made after an open application procedure. Eligibility for a position as principal in Russia requires participation in pre-service training. St Petersburg's school district has a reserve of potential school principals. The districts commission a two-year preparatory programme for these reserve members, which they complete while they are working (Taipale, 2012:23). The programme involves 576 hours of instruction completed in one day per week. The preparatory programme is not compulsory, but it must be completed to qualify for selection as a school principal. Training is government funded and provided free of charge. It is possible to take up a principal's position during the preparatory programme, which allows candidates to test for themselves what works and where they still need support. After completing the training the candidates are allowed to join a club of principals that provides support. They meet for regular symposiums and conferences, where they receive advice on practical problems.

Research undertaken in Nigeria by Adomi and Kpangban (2010:5) reports that 52% of respondents believe that inadequate ICT training for teachers was the main reason for slow integration of ICT in the school curriculum. Teaching in Nigeria is a low-paying profession, thus attracting few people. Therefore, the few qualified teachers that are available prefer to work in companies and industries, where they can earn better salaries.

Adomi and Kpangban (2010:5) found that 40% of respondents reported misperceptions about ICT among principals – there is widespread ignorance and misconception generally amongst Nigerians in this regard. The researchers cite the major inhibitor to Nigeria fully embracing ICT to be the average Nigerian's general lack of exposure to ICT. Nigerians

consider ICT as something unfamiliar, distant, and mysterious. Some Nigerians are not aware of the existence and importance of the internet. Honey and Mandinach (2003, quoted by Yusur, 2005:317) give three reasons for using ICT in education: (i) technology is a tool for addressing challenges in teaching and learning; (ii) it is a change agent; and (iii) a central force in economic advancement. Yusur argues that ICT, as a tool for addressing challenges in teaching and learning, has capacities for delivery, management, and support of effective teaching and learning. ICT works as well for geographically dispersed audiences, and helps students to collect and make sense of complex data. It also supports diverse and process-orientated forms of writing and communication; and it broadens the scope and timeliness of information resources available in the classroom (2005:317). As a change agent, ICT ensures constructivist, inquiry-orientated classroom experiences. As a central force for economic competitiveness, it deals with economic and social shifts that make technology skills critical for future employment of contemporary learners. Principals are expected to provide productive and sustainable leadership in ICT integration, through research, modelling of productive integration of ICT, and provision of opportunities for professional development of the citizens of the country.

The World Economic Forum's eighth annual information technology report of 2008-2009 confirms Botswana's position among the developing world leaders in the application of ICT. The report ranked Botswana among Africa's top five ICT performers, along with Tunisia, Mauritius, South Africa and Egypt, out of 53 countries. Currently, Botswana has no policy on information technology in education; however, there is some sign of movement toward the formulation of such a policy, which is advocated by Vision 2016, the National Development Plan and the Revised National Policy of Education, which underpins the importance of ICT implementation. However, no research has been conducted in Botswana on the role of the principal in the use of ICTs. Research by Totolo on information technology adoption by principals in Botswana secondary schools (Totolo, 2007:34) found that principals had not been adequately prepared for their new role as information and communication technology leaders. Thus, principals struggle with the new role, which requires them to develop both human and technological resources. According

to Totolo (2007:34) principals lack the requisite pedagogical vision and experience to guide teachers in implementing ICT in the classroom. Totolo (2007:34) opines that school principals should be transformational leaders in the information era – this leadership must work at the school and classroom level. Totolo reports that Botswana education authorities have installed computers and built computer laboratories in all schools, and is of the opinion that the introduction of Vision 2016 and computer-based subjects in school are the right steps towards improving teaching and learning at school. Implementation of ICT in schools is the responsibility of the school principal; principals need to ensure that the best interests of the pupils are served through sustainable ICT infrastructure and staff professional development. Because the principal is responsible for investment, financial and otherwise, he or she must ensure the implementation of ICT in the school is beneficial to the whole community.

The introduction of ICT over the past 20 years has lead to a reassessment of the way schools function as learning communities, from teaching and learning to business and administration (Simonson, Smaldino, Albright & Zvacek, 2014:64). It is essential that the principal possesses knowledge of ICT, so that systems can be established to make organisational processes more sustainable. These processes include the employment of staff to manage and administer ICT infrastructure. The principal must understand that ICT is an essential component of engaging pupils in learning. It is through teachers' ICT use that sustainable pedagogy can be realised. ICT resources, like notebook computers with accompanying software and technology hardware, such as interactive whiteboards, data projectors, cameras and scanners, are now part of a teacher's professional tools.

For South Africa, the Collective Agreement No. 1 of 2008 Annexure A (DBE, 2012: 30) sets out the role of the principal as follows:

> *To qualify as a principal you need a basic four year diploma or degree in education and a recognised professional qualification, for example, an advanced certificate in leadership will qualify a person to be a principal.*

Competency and skills are also required. Functional skills and competencies include good knowledge of teaching, exceptional management skills and exceptional leadership skills (DBE, 2012:38). Functional skills are coupled with generic skills, which involve good co-curricular skills, exceptional people management skills, exceptional administrative skills, exceptional communication skills, exceptional administrative skills, exceptional communication skills and good knowledge of applicable educator legislation. Additional experiential competency would include a minimum of nine years of actual teaching experience, of which at least two years was as head of a department and two years as deputy principal (Post Level 1 principal excluded), or equivalent management experience. Current policies of educational managers require a principal who is able to work in a democratic and participatory way to build relationships and ensure proper delivery of education. The questions one may ask are: Do principals practice this role? Do principals know about their new roles regarding the use of ICT? What is the situation in schools? Besides the role challenges faced by principals in South Africa, they also have to contend with a lack of infrastructure and qualified teachers, especially in rural areas. For instance, in 2011, 3 600 schools did not have electricity, 2 600 schools did not have running water, 400 schools had buildings built from mud, and, alarmingly, 92% of schools did not have full libraries. Furthermore, there are up to 30 000 unqualified teachers teaching in the system (Akpor *et al.*, 2011:22).

Akpor *et al.* (2011:38) found a discrepancy between policy documents and implementation. ICT training programmes could address this anomaly and involve principals and other stakeholders in implementation processes. They also identify a need to implement policy and strategic documents that have been developed in the education and ICT fields. Individual leaders should be supported and facilitated to make decisions that do not necessary reflect the ways of doing things in the past. They should be given room for innovation through support and facilitation in order to achieve increased productivity. Leaders should be encouraged to access online journals. Communication skills should be developed among leaders. According to Mafora (2013a:239) principals are under pressure to implement policies that promote student achievement. According to

Mafora, some parents, teachers and learners still face marginalisation, discrimination, and inequitable treatment in schools, even though there are policies promoting social justice and equity (2013a:239).

A review of the literature uncovered limited information about the role of the school principal in the use of information technology in schools (Ushakov, 2010:2). The researchers who were involved in this study also studied critical leadership, as it would serve as the lens through which principals' conduct in their practice would be viewed. This implies that the use of ICT in schools reflects the influence of both political and pedagogical issues in the countries under discussion (Yee, 2000:288). It is evident from the literature that ICT can be used in various ways to improve teaching and learning, although not all ICT in professional curriculum practice is meaningful and pedagogically productive.

2.5.3 Contribution of the principal's leadership role to the use of ICT

This section deals with the technical dimension. It links with the four performance standards that must be achieved by all leaders in the school as required by the IQMS. The principal has a legislated responsibility to achieve and create an atmosphere that enables all teachers in the school to achieve the desired outcomes. The contribution of the principal's leadership role in the use of ICT on teachers' professional practice in improving teaching and learning will be highlighted, as will what the principal does to influence teachers to integrate ICT in their lesson presentation. According to Donnelly, McGarr and O'Reilly (2011:1469) changes in learners' learning experiences are usually caused by teachers. They state that the most effective source that can influence teachers to use ICT in curriculum practice is other teachers. Although school principals are regarded as teachers but ranked as principals, this statement needs to be clarified. Fullan (2007:87) states that, when teachers believe that they are not consulted on curriculum changes in the school, they could experience a lack of ownership regarding curriculum development, and may therefore disengage from it. Thus, the school principal or the district authorities and outside agencies have to establish sound relationships with teachers. The following

four of the 12 performance standards stated below are used to establish the contribution of the principal in influencing teachers to use ICT in curriculum practice: (v) Engaging in professional development in the field of work and participation in professional bodies; (vi) Human relations and contribution to school development; (vii) Extracurricular and co-curricular participation; and (viii) Administration of resources and records (Fullan, 2007:88).

2.5.3.1 Professional development in the field of work and participation in professional bodies

Professional development in the field of ICT is crucial for fulfilling teachers' training needs. Professional development can enable teachers who are not currently using ICTs to consider using ICT for teaching and learning. Several levels of development in ICT integration must be taken into consideration, as all teachers must be supported through a process of integrating ICT, depending on their current level of contact and interest. Chisholm *et al.* (2004:108) identified five levels for professional development that the principal must be aware of, namely,

- End-user or other training, depending on the information technology background of the teacher;
- Professional development in which ICT technologies are applied to particular learning activities;
- Professional development regarding the way ICT can be integrated with specific subject curricula;
- Professional development for changing pedagogical style to maximise value from using the technology; and
- Professional development in how to apply resources appropriate to grade, age, difficulty, etc.

A study by Strudler and Gall (cited in Lai & Pratt, 2004:463) found that ICT coordinators, who could be the school principals, were responsible for training teachers, providing technical support, organising the school's ICT integration strategy in teaching and learning

and supporting and inspiring teachers. This idea is confirmed by Aduke (2008:292), who suggests that ICT can be used by the school leader to develop skills, knowledge and understanding in the use of ICT in teachers' everyday and working lives, which will enable teachers to change and update material on web pages, in accordance with new information or needs of their learners. However, Donnelly *et al.* (2011:1470) warn that many barriers must be overcome before successful integration of ICT within school classrooms can be achieved. Donnelley (2007:6) found that, in many cases, staff development opportunities are general in scope and do not address the specific curriculum-based development needs of staff sufficiently.

Moiseeva (2005:218) acknowledges that teachers need to develop professionally. She mentions Karl Muzing, a famous Russian mathematician, engineer and teacher, who started classes and a vocational school for adults in Moscow and St. Petersburg. This led to the creation of a network of teacher training institutes that focus mainly on pedagogical education. The system was suitable for people who wanted to get an education while working. Moiseeva (2005:220) pronounces that, in 1964, lectures were videotaped and broadcast on national TV, from Moscow to all the regions of the Russian Federation, to support teachers in improving teaching and learning. All school principals had to do was to create an atmosphere that would encourage teachers to take agency in professional development. In addition to Muzing's initiatives, efforts to modernise education technologies are evident today. Several international and local initiatives in Russia in this regard are supported by public and private foundations and business organisations (Rumiantseva, 2009:2).

In Nigeria, teachers have hardly any contact with ICT-aided instructional materials, despite efforts by both the federal and state government to establish an effective teacher professional development programme to assist in the preparation of proficient teachers (Ololube, 2006:71). The lack of success in attempts to persuade teachers to use ICT in Nigeria originates from a lack of encouragement on the part of authorities and lack of proper training in the use of ICT in teaching as a means for educational sustainability.

Exacerbating the situation, Nigeria came late and slowly into the use of ICTs in all sectors of the national government, but particularly in education (Ololube, 2006:74).

In Botswana, a vigorous campaign to encourage all teachers to become ICT competent is evident. However, Chisholm *et al.* (2004: 34) found that the level of information technology acceptance amongst teachers is still low and the negative attitude of teachers is not an easy barrier to overcome. These researchers found that many school principals reported a need to overcome attitudinal barriers by embarking on a national campaign to make teachers aware of the benefits of ICT relative to their conventional practices. The Botswana educational system is involved in developing ICT skills through training and development at the multimedia centre in Mochudi. This is a commendable attempt to provide access to higher-order skills in teacher training. It is interesting to note that the centre has adopted the principle that it is not technology that drives the need for skills, but that the skills themselves have inherent value and that the skills can be transferred to other disciplines and contexts. The centre at Mochudi is equipped with recording studios, computers, data projectors and printers, and any teacher who wishes to use the centre has full access to all the equipment (Chisholm *et al.*, 2004:34).

In South Africa, school principals have been encouraged to register for an advanced certificate in school leadership in education, which is structured in ICT development content (RSA, 2007a:9). This credit-bearing certificate is regarded as a licence for all practicing principals. The aim is to equip all school principals with ICT integration skills so that they could influence teachers to use ICT in teaching and learning.

According to the Action Plan 2014, access to ICTs in schools has improved over time. For instance, in 2007 more than 80% of school principals overall had access to computers in schools, and 60% of teachers in primary schools had access. In 2009, 23% of schools had computer centres, though the centres were distributed unevenly across the nine provinces, with Western Cape province leading the rest. Western Cape had a record of 10% of the country's computer centres, while the other seven provinces share the remaining 90%, with Eastern Cape at the bottom of the continuum. In 2007 it was reported that 37% of learners in primary schools had used a computer – 13% had used computers

outside the school. In 2007, 23% of primary school learners had access to computers at their homes, according to 2009 statistics. SA Census of 2011 indicates that 30% of learners in primary and secondary schools had access to computers (RSA, 2012:48).

2.5.3.2 Human relations and its contribution to school development

The teacher engages in appropriate interpersonal relationships with learners, parents and staff to contribute to the development of the school. Leadership is proposed as an important condition for realising educational change and school improvement. Vanderlinde and Van Braak (2010a:544) list strong leadership as an important condition for successful ICT integration. The reason for this condition is a general belief that school leaders are in an ideal position to create a condition for successful ICT integration (Sutherland, Armstrong, Barnes, Brawn, Breeze, Gall, Matthewman, Olivero, Taylor, Triggs, Wishart & John, 2004:415). Teachers can develop positive human relations by sharing important information and becoming global citizens by using the internet and the support of the school principal. For instance, Mahlomaholo (2012:11), supported by Castells (2007:248), suggests collaborative learning amongst teachers through digital technology can contribute to development of schools, which can serve a space of flows where knowledge is created and disseminated. On the other hand, researchers argue that teachers are not embracing ICT for their own learning. School principals report that many teachers are resistant to using ICT for professional learning because some are comfortable with conventional teaching styles (Aubusson, Schuck & Burden, 2009:244; Rangriz & Raja, 2011: 662). It is interesting that one of the reasons reported for non-acceptance of technology on the part of teachers is the context of teacher workplaces, which exhibited a general lack of connectivity and a view that sharing stories is best done face-to-face rather than through machines (Aubusson *et al*., 2009:244). Once teachers accept technology, there will be improved communication between parents and learners, for example, WhatsApp can be used to communicate about meetings and to announce results.

According to Light and Pierson (2012:1), in Russia, except for the period of economic crisis in the 1990s, the education system has generally performed well; the challenge has

been to meet the challenges emanating from political and economic structures. The national education doctrine of 2000 lays out the goal of ensuring pupils and teachers have access to ICTs (Russian Ministry of Education and Science, 2001:15). Reform in Russia started to develop pupils' capacity for independent decision-making, critical thinking and democratic citizenship. Thus, principals are reported to be working with teachers to support lesson planning as a way of transforming learning in their schools. They encourage collaborative teaching and interdisciplinary understanding. This is one of the fundamental ways in which principals can transform professional curriculum classroom practice. In Russia, nearly all teachers have access to their own well-resourced ICT classrooms and ICT gadgets. This idea is also supported by Gronow (2007:2), who states that the implementation of ICT is the responsibility of principals; they need to ensure that the interests of the pupils, and that of parents, are served through sustainable ICT infrastructure and teacher support. Thus, in Russia, sustained access to high-quality educational resources, coupled with increased access to technology, have changed teachers' practices in the classroom. Principals in Russia encourage parents and teachers to work together in supporting the children. The goal of Russia regarding technology is found in the reform goal, "affirming Russia's status in the world community as a great power in high technology" (Nikoaev & Chugunuv, 2012:221; World Bank, 2008; 44). At one school in Moscow every teacher has a laptop computer and an interactive white board or a data projector; some classrooms have both. The school has wireless internet throughout the building and uses a virtual learning environment for teachers and learners to store and share their work (Light & Pierson, 2012:8). All this ICT infrastructure and gadgets were acquired over time. Schools also use e-record books, which serve as a vital link between parents and teachers. The principals believe that "the e-record book served to reinforce the use of the Prometheus system and the laptops in class". Principals are expected to help teachers understand when and how to use laptops. This means that principals were expected to help teachers in three fields: internet research, student presentations, and assessment, and this has to be done in limited time (Light & Pierson, 2012:8).

Recent research has found that the implementation of ICT has brought meaningful change in teaching and learning – this change enhances interpersonal relationships (Levin & Wadmany, 2008:233; Tondeur, Devos, Houtteb and Valckea, 2009:28). ICT has challenged the use of traditional teaching and learning methods, thus ICT has become an integral component of the school curriculum (Tezci, 2011:483). Olulobe (2006:109) found that professional teachers select appropriate teaching material and operating tools of ICT, because of their knowledge of teaching methodology. Teachers acquire this knowledge through educational qualifications and professional development programmes in schools (Al Sharija & Watters, 2012:426). Changes in ICTs can be associated with behavioural and transformational development (Al Sharija & Watters, 2012:426).

The Federal Republic of Nigeria has no policy for ICT use in education. The education ministry established an ICT department in February 2007, which has affected the level of ICT in education in Nigeria (Unachukwu & Nwankwo, 2012:115). The driving force for behavioural change and transformation in education must be effected by the principal (Al Sharijia & Watters, 2012:426). The changes can be effected by productive leaders, who can assume the roles of change agent, learning leader and guider of appropriate technology to reform teaching. According to Agyeman (2007:16) principals should focus on the way they use and manage ICTs, which should include,

- Enabling teaching and learning through ICT in a healthy environment;
- Supporting professional learning for teaching and learning among school staff;
- Improving administrative processes and good relations; and
- Supporting effective information management.

Achuonye (2002:65) argues that ICTs should be part and parcel of a teacher training programme; if this is the case teachers will, in turn, integrate ICTs in their daily teaching processes. This implies that principals do not contribute in any way to teachers' use of ICTs in teaching and learning. This idea is clarified by Gronow (2009:2), who states that,

the school with an ICT infrastructure allows for network communities, promoting fast pace communication and information sharing. This allows for less hierarchical and more flexible institutions, creating a new pattern.

The principal who encourages and promotes personal responsibility for professional learning by fostering and supporting professional development, can create a working environment in which staff feel valued and cared for (Gronow, 2007:2). A study by Duze (2012:375) found that principals in Nigeria have too many responsibilities, particularly responsibilities relating to decaying and deteriorating schools. The requirements of these maintenance services impact negatively on the status quo and heighten the academic performance of learners and teachers. Therefore, the contribution of the principal in motivating teachers to use ICT is of importance in schools.

In an attempt to achieve an ICT-rich curriculum, the Ministry of Education in Botswana promotes the core principles of integration and infusion, which are underpinned by sound human relations (Dhunpath, 2004:40). Integration involves the identification of specific topics or aspects of the curriculum that are mediated via ICT. According to Tella and Adu (2009:55), in Botswana and elsewhere in the world, ICT is not really well integrated into teaching and learning. Many teachers still adopt a teacher-centred approach and do not know how to apply IT to teaching of their subject. This raises a fundamental question, namely, how can we determine the contribution of the principal's leadership role in the use of ICT in teaching professional practice? Although this study seeks to respond to this question, Botswana can also serve as focal point for seeking answers. Principals have to be involved in tasks such as setting a vision for the use of ICT in education, teacher development, professional community building for teachers to learn about ICT integration, and providing access to supported and managed hardware and software.

There is no research confirming the contribution of the principal's leadership role on teachers' use of ICT to improve teaching and learning in South Africa (Ryan, 2006:142). The intention of preparing principals to contribute towards teachers' use of ICT for teaching in the classroom is evident in training material for principals (Hennessy, Harrison & Wamakote, 2010:40). The DBE in the Free State province has been training principals,

deputy principals and prospective principals to study free of charge towards an advanced certificate in education (ACE). The deputy director of education announced at a meeting, held in Welkom on 10 February 2009, that principals will be encouraged to register for ACE in school leadership, with basic computer literacy for school managers as a module in the package. According to the ACE school leadership training manual, school principals as ICT leaders in South Africa can select from a range of leadership styles (RSA, 2006:24). One of these is to lead from the front in terms of innovative use of ICT, and to be a learner amongst learners. The module suggests that principals must be aware of the various phases the teacher passes though as he or she is exposed to and adopts ICT in the school (Hennessy *et al.,* 2010:40).Therefore, principals are expected to support teachers' changing attitude towards utilisation of ICT in teaching, by demonstrating to teachers their understanding and interest in their professional growth. Principals can even recommend specific learning pathways that will facilitate teachers' growth with ICT. Mdlongwa (2012:4) argues that the challenge faced in South Africa is that schools have remained conservative and slow to adopt new technological practices, leaving the principal with an ill-defined role regarding ICT implementation. Learners in South African schools remain passive recipients of information rather than active participants in a learning process. Although electronic media used for teaching, such as telephones, radios, video conferencing, television and computer, were introduced in South Africa in 2000, they have not been used effectively (Chadibe, 2004:165). School principals have to provide leadership, namely, inspiration, vision and creativity (Tearle, 2004:336). In some countries, the concern-based adoption model (CBAM) of Hord, established in 1987, was used for rapid application of ICT. This model centres on education and history of ICT use, and on the changing concerns of users as the process moves forward, with parallel recognition of the changing nature and level of ICT use (Tearle, 2004:336). If a change process is to have an impact on practice, it must be undertaken by the whole school and it must be devised for the particular context, and not imported from elsewhere (Tearle, 2004:336). Research by Howie and Blignaut (2009:357) found that South African teachers acquire most ICT skills and knowledge through informal channels such as information contact, training from other teachers, and observations, and not through more formal

channels. However, in other countries, teachers acquire their ICT knowledge through reading of journals, especially in Thailand. In South Africa, principals can foster a team-learning environment in which each teacher can communicate with the other on ICT experiences, thereby reinforcing each other's productive practice. This practice will also pave the way for knowledge sharing, especially for tacit knowledge that refers to skills, beliefs, and understanding below the level of understanding (Fullan, 2001:67). Principals can empower teacher-led teams to explore, formulate and spread good ICT practices. The teacher-led teams can shape ICT policies, create an environment for productive utilisation of ICT, and encourage commitment to education among classroom teachers and ICT leaders, who give advice and help. They can work in partnership with classroom teachers in trying out ICT pedagogy. The teacher-led teams have the experience or insight to help frontline teachers to move forward and bring change to the school. Classroom teachers also depend on their principals to connect them with other parts of the school or to reflect the teachers' views. The success of ICT is dependent on support if it is to be integrated into the curriculum.

2.5.3.3 Extracurricular and co-curricular participation

The educator is expected to participate in extracurricular and co-curricular activities in a way that supplements the learning process and leads to the holistic development of learners (RSA, 2003:39). There are many good opportunities to integrate ICT in the curriculum; there are endless ways of using ICTs to design leaning experiences for learners. Van der Westhuizen (2012:348) claims that social interactions in classrooms are changing because of innovations in technology and electronic media. The challenge is to consider how social media benefit learning conversations. Social media refers to mobile learning media used in classrooms, for instance, messaging, blogging, YouTube, Twitter, MySpace, and Facebook (Shirky, 2009:12). If the school principal engages in the use of ICTs he/she can motivate the entire school to join in casual conversation. However, such initiatives should not be accidental, but should be well planned within the parameters of the school ICT policy. Donnelly (2007:8) reports that many principal teachers and heads of departments in secondary schools recognise fully their role in promoting the effective use

of ICT for learning and teaching. However, these principals are often unsure about how to achieve this. The principals rely on the initiatives of individual class teachers. They expect teachers to take the lead in ICT development, particularly those who offer computer science as a subject. Donnelly (2007) states that a significant minority of teaching staff in secondary schools took their responsibility to make effective use of ICT in teaching and learning very seriously.

In Russia, teachers are expected to be ICT competent, and, in partnership with pupils, to make effective use of the information environment of the school. The partnership with ICT-competent teachers in various schools is regarded as involvement in an extra and co-curricular environment. This allows ICT-active learners and teachers to develop advanced ICT skills in other school subjects and helps define learners' career plans (Kiryukhin & Tsvetkova, 2010:32). There are three levels of preparation for ICT in Russia. The first level concerns each comprehensive school teacher. This level is common for all teachers and sets common ICT competence standards for teachers of all school subjects. The common competency level of teachers shows a degree of partnership with teachers and learners in the information environment of the school. One programme that shows that teachers in Russia were involved in extra- and co-curriculum involvement is the programme that uses TV technologies called the Teleschool project. The Teleschool project comprised two forms. The first involved independent learning, which provided the opportunity to obtain a legal certificate of completed secondary education. The second was optional education, enabling learners who subscribed to the educational TV channels to obtain learning material via satellite digital television channels (Moiseeva, 2005:224). The role of the principal in this situation was to provide sustainable leadership for the use of ICT in learning and teaching (Donnelly, 2007:12).

Oye, Obi, Mohd and Bernice (2012:26) suggest that Nigerian principals should make provision for guidance and counselling on the school timetable. The principals should encourage secondary school ICT adoption. Oye *et al.* (2012:29) maintain that, in various respects, ICT has the potential to significantly increase access to guidance services, freeing it from the constraints of time and space. According to Asiabaka (2010:43) the role

of the school principal includes guidance and counselling, finance, community relations, construction and maintenance of facilities, and special services. Nigerian school principals are confronted with complex, nebulous and time-consuming tasks that can be done easily with the application of ICTs. Asiabaka (2010:43) suggests that, for the principals to function in a sustainable manner in the present computer age, principals must rise to the challenge of adopting new technological resources and services in the management of the school (2010:44). Adeyemi and Olaleye (2010:106) note that, as the world changes, information and knowledge changes rapidly. The teaching and learning process, including the administration of schools, also has to change. The use of information communication and technology can improve educational quality, expand learning opportunities and make education accessible.

2.5.3.4 Administration of resources and records

Teachers must administer resources and records in a sustainable manner to enable the smooth functioning of the school (RSA, 2003:12). Rapid changes in administration due to developments in technology compel teachers and school principals globally to analyse the academic and social needs of their students carefully (Makewa, Meremo, Role & Role, 2013:48). School resources and records are tools and official documents used in the school. Osakwe (2011:40) emphasis that computer hardware, software programs, furniture, books and files containing essential and important information of actions and events are kept and preserved in the school office for use and retrieval of information when needed. School records are kept by the school principal, the school management team and administrators. These records can be handled, stored and retrieved rapidly and easily through the use of ICT. Teachers and learners can be encouraged to do their administration and record keeping through the internet, for instance, they can conduct research through the internet and save documents for later use, capture learners' marks with Microsoft Excel, and calculate marks precisely. By doing internet research learners are empowered to gather information, which will empower them to feel that they are also making a contribution, and stimulate thinking. Presentations encourage teamwork, help others to understand how to work in groups, reinforces creativity and other skills such as

language and public speaking, and teaches participants how to ask tough questions (questioning techniques).

Regarding administration, principals in Russia believe that ICT-aided administration gives pupils control over their learning (Wood, 2002:287). One principal in Russia believes that it is his responsibility to help teachers to teach and keep records anywhere, and for learners to learn and enquire about their progress from anywhere (Bhasin, 2012:133). The way principals provide support to educators is not clearly captured by researchers (Makewa *et al*., 2013:49). In supporting teachers to use ICTs, do principals tell teachers what to do, or do the principals show teachers how to use ICTs? Bhasin (2012:134) reports that emerging ICT affected practices in Russian schools because of careful professional curriculum classroom practice done at school level. Some schools take advantage of external resources and training, but principals support the actual practices, which are carefully tailored and embedded into classroom activities by the teacher, so there is collaboration between the principal and the teachers. Teachers are guided by critical leaders working in an integrated and deliberate process of consultation. These new tools should be collectively and carefully transferred into practice. The role of the principal in Russia is to set a vibrant and coherent school culture that welcomes innovation, while the teachers figure out how a specific device complements their goals in lessons. The use of a virtual learning environment has also had an impact on the way the teacher, learners, parents and school administrators do their work at the school. For instance, the virtual learning environment is a platform for collaborating, organising, sharing, assessing, and monitoring progress. The e-Record book is another method used to connect parents and the school. The leadership role of principals in Russia is characterised by a shared vision, collective decision-making, and teacher support through approval of lessons taught by teachers. The element of teamwork is apparent. Learners' work is valued by their teachers and peers, who can give input to improve their work further. Cultural diversity thus plays a role in shaping the work of learners and there is harmonious co-existence between social justice and environmental justice as teachers, principals, learners and parents work together (Ledwith, 2007:604). Principals in Russia acknowledge professional classroom

curriculum practice and they actively lead by approving learning programmes planned for the year ahead. Some principals in Russia are flexible and can adapt to changes that influence teacher motivation. A Russian principal forms communities of learning by providing leadership in such a way that there is a culture of support and tolerance for risk taking, innovation, adaptation to change and managing that change (Gronow, 2007:2).

In Nigeria, organisations of all types and sizes, including schools, have recognised that the use of ICT in the work environment is crucial for both curriculum development and the administrative function (Unachukwu & Nwankwo, 2012:115). ICT presents an unprecedented challenge, helps individuals to acquire inquiring, critical and creative minds, and capitalises on the opportunities driven by the explosive growth of information knowledge and technology (Unachukwu & Nwankwo, 2012:115). ICT will influence the practice of all staff, with the following consequences for school principals who can embed ICT within teaching and learning, management and planning:

- Development of a vision for the department and integration of ICT across the curriculum, and promotion of this vision within and beyond the school;
- Provision of appropriate, sustained ICT professional development for all levels of staff;
- Becoming an ICT learner along with the staff and students;
- Providing staff with personal access to ICT;
- Supporting professional learning for teachers and school staff;
- Improving administrative processes; and
- Supporting information management.

Researchers attest that the integration of ICT helps to reduce the complexity of and enhance the overall administration in the school. For instance, computers can be used extensively for educational administration (Kumar, Rose & D'Silva 2008:607, Maki, 2008:6). Unachukwu and Nwankwo (2012:115) list the following areas where computers can be used for enhancing educational administration:

- General administration;
- Payroll and financial accounting (Pastel program);

- Inventory management;
- Personnel records maintenance; and
- Library system.

According to Maki (2008:8; 2011:17) ICT plays a significant role in supporting powerful, sustainable management and administration in the school sector, from learners' administration to various types of resource administration in an educational system of a country. Maki (2008:12) advises school principals on various ways of introducing ICTs in a school administration, namely,

- Send email notices and agendas to staff rather than printing and distributing them;
- Submit lesson plans through email;
- Foster technology growth by asking parents to write email addresses on medical forms;
- Insist all teachers to create class web pages;
- Attend technology conferences to find out what other schools are doing to integrate technology and what principals are doing to encourage the use of technology in their schools and classrooms;
- Manage admissions through web-enabled services;
- Conduct all day-to-day activities of the institution; and
- Manage staff administration.

Nkwe (2012:42) claims that the Botswana government has been a player in the ICT market for a long time, having automated its functions some years back. Nkwe maintains that there is a continual growth in the use of ICT, which reached great heights between 1990 and 2000, when extensive systems were introduced by the government. Nkwe also reports a lack of citizen awareness and participation, because people are not using the ICT that was introduced in Botswana. Nkwe recommends that ICTs should be introduced and regulated in Botswana schools. Garegae and Moalosi (2011:16) report that Botswana teachers have found ICT handy for keeping track of learner attendance, performance, and

disciplinary records. Botswana principals and many stakeholders see ICT as cost-effective and inclusive education achievable.

According to Mdlongwa (2012:2) computers were introduced into South African schools during the 1980s, mainly at private schools and a few other well-resourced schools. The computers were primarily used for administrative purposes, including keeping learners' records, recording examination marks, producing school reports and creating timetables. Mdlongwa (2012:3) reports that 10% of 28 000 schools had access to one or more computers. The implementation of ICT in South African schools is being led by SchoolNet, which provides staff development and ICT support for schools. In South Africa, the Merara Institute (Farrel & Isaacs, 2007:17) has used mobile phones for learning; it piloted maths teaching on Mxit and MobilEd programs. It seems that some potential exists to enable school principals to perform their duties of administration using ICTs, which can have a positive effect on ICT integration in teaching and learning.

2.5.4 Policies and strategies principals can use to support teachers in the use of ICT in the classroom

This section deals with policies and strategies principals can use to support teachers as teachers endeavour to incorporate ICTs in classroom curriculum practices or in teaching and learning. The section is classified as a collaboration and networking dimension. The focus is on critical understanding of the value added by learning networks and collaboration within and between partners and the ability to create and participate in communities of practice. Four performance standards drawn from the IQMS, namely, performance standards 9-12, are used as organising principles to deepen the investigation into the necessary policies and strategies principals may require to influence teachers to use ICT in the classroom. These performance standards are only applicable to top management, meaning not only school deputy principals and principals are expected to perform these duties, which include the following: (ix) personnel management, where the principal or deputy principal is expected to manage and develop teachers and non-teaching staff to achieve the vision of the school; (x) making decisions and being able to

account for such decisions; (xi) exercising leadership, communicating with the school governing body, and (xii) doing strategic planning and financial planning.

2.5.4.1 Personnel management: The principal manages and develops personnel in such a way that the vision and mission of the school are accomplished

Wang and Woo (2007:148) report evidence that technology has great potential for increasing learners' motivation, link learners to various information sources, support collaborative learning and provide teachers with more time for facilitation in classrooms. However, this does not mean ICTs will be able to make learners and teachers learn and teach. Thus, school leaders have a responsibility to ensure that the core business of a school takes place in order to achieve the vision and mission of the school. Donnelly *et al.* (2011:1470) confirm that educators commonly agree that ICT has the potential to improve learning outcomes sustainably if integrated correctly.

Santamaria and Santamaria (2012:72) view school principals as the most important individuals in every school in each school district. They claim that principals are responsible for the well-being of every learner, teacher, non-teaching staff, stakeholder and the community. Principals are seen as professional curriculum leaders with inspirational abilities; caregivers to teachers, learners and parents. Their ability to lead sustainably lies in their identity as people able to navigate a rocky and often unpredictable road toward an unknown future and the expectation of progress and success.

Research attests that teachers need institutional support that is leader-driven and project oriented, with a common vision shared by the school to motivate them to infuse ICT in classroom curriculum practices (Divaharan & Ping, 2010:752). Studies cite multiple levels of leadership, such as principal, administrative leadership and technology leadership, as influencing factors for integration of ICT in the classroom. A critical leadership approach will assist principals to contribute towards teachers' use of ICT in curriculum classroom practices in a school, by forming relationships that will contribute to a shared vision. Critical leadership will also motivate teachers to acquire the necessary tenets of respect, equity, social justice, hope and team spirit when integrating ICT in curriculum classroom

practice. A study by Niemi *et al*. (2013:67) found that school principal leadership played a very important role in all the schools examined. The school leadership supported the teachers' classroom curriculum practice in their use of ICT, by providing extra resources for a web-based learning environment.

Teachers and principals struggle to find sufficient time and resources to implement new practices. Principals want to empower both learners and teachers and support them to become real ambassadors of learning. The school principal, therefore, must facilitate the establishment of a shared vision through stakeholder engagement to create an understanding of what needs to be done. To the extent that people understand and are committed to the vision, individuals are in a position to take responsibility, contribute their creativity and work together to form a team (Bialobrzeska & Cohen, 2003:54). This view is emphasised by Bush (2007:399), who states that the voices of the stakeholders have a right to be heard, which fits the aspirations of the 21st century South Africa, "in that principals need to facilitate participation by teachers, learners, community members, parents in all issues of interests".

According to Bialobrzeska and Cohen (2003:54) the process of establishing a shared vision in the school and, later, the more detailed process of developing plans for ICT implementation and integration in the school, involves the following questions:

- Where do you want to go or be in the future?
- How do you expect to get there?
- Why you are on this journey?
- What goals or milestones do you expect to reach?
- What values and ways of working do you commit to in order to achieve the vision?

The authors explain that the vision will help the principal to reflect on the actions that are needed for the realisation of the vision, which is an image of desired future, reflecting choices of what to do and what not to do, with definite goals (DBE, 2012:35; Bialobrzeska & Cohen, 2003:54). The action plan of the DBE reports that access to ICT in schools has improved steadily: by 2007, 80% of principals in primary schools had access to a

computer at school, while 60% of teachers did. In 2009, 23% of schools had a computer centre, with the Western Cape reporting that 60% of schools had computer centres and access to the internet. The action plan also reports that half the teachers do not receive the mentoring they require due to the insufficient capacity of principals. This confirms the necessity of this study (DBE, 2012:111).

In Russia, the role of the school principal emphasises administration to a greater extent than classroom curriculum practice, which suggests that principals are only involved in what should happen rather than experiencing the real classroom practice. According to Gotskaya (2010:87) there is a low demand for digital resources and the new generation electronic education resources located in the Federal Centre for Educational Information. Resources were not used optimally. The teaching community does not use the pedagogical potential of the internet, internet-based professional pedagogical cooperation and organisation of small-group learning enough. Gotskaya observed that most teachers undervalue the pedagogical possibilities of Web 2.0 technology. What remains unclear is why these teachers don't value ICT. Are the principals able to motivate them to use ICTs, or are principals unable to lead the teachers to using ICTs? Does the principal fail to communicate policy directives by the state and school governors to the stakeholder?

In Nigeria, the national policy in education has consistently identified training of people responsible for facilitating education as a priority. Although the policy does not indicate what the role of principal is and how this role will be practiced regarding ICT implementation, the policy does acknowledge the importance of role players in ICT. The policy states that, "teacher education will continue to be given attention in all our education planning, because no education system can rise above the quality of its teachers" (Hooker, Mwiyeria & Verma, 2011:34). The National Information Technology Education Framework (NITEF) produced in 2010 provides a roadmap for the implementation of ICT in educational policy in Nigeria; broadly the framework is targeted at ensuring that appropriate skills, competencies and attitudes are imparted to enable Nigeria to take advantage of global opportunities in ICT. NITEF sets a clear instruction for school principals to contribute in some way towards teachers' use of ICT in classroom curriculum

practice. The minimum standards require that principals meet the following standards in primary, junior secondary and colleges:

- A laboratory with at least 10 computers;
- Evidence of internet access;
- Operating system (Windows), word processing, spreadsheet, database management and beginner computer graphics software;
- Nigerian College of Education staff with skills in computer science discipline; and
- A minimum of two lesson periods of instruction per week.

The extent to which principals promote the use of ICT will depend on how useful the principal considers technology to be. According to Bialobrzeska and Cohen (2003:54), for any principal to contribute towards the use of ICT by teachers, a principal will need an ICT plan. The first step of such a plan is compiling a vision statement, which must be clear and shared by all.

2.5.4.2 Decision-making and accountability

The principal establishes a procedure that enables democratic decisions that promote accountability within the school. ICT opens many opportunities for outreach to and collaboration with new stakeholders within and outside the country (Chapman & Mahlck, 2004:298). Providing decisive encouragement and support for the use and development of ICT, as well as resources, facilities and infrastructure, needs to be approached with caution (Divaharan & Ping, 2010:741). According to Asiabaka (2010:43) the school principal does not work in isolation – he or she is in constant interaction with all stakeholders in education, such as the business community, parents, teachers, the school management team, learners, the district department and other departments outside education. The principal receives input from others in the environment. The administrative function of the principal is complex, and includes decision-making, planning, organising, communication, influencing, coordinating and evaluation. These tasks also apply to the area of curriculum development, and they all have policy implications for the school. Asiabaka (2010:43) views the principal's tasks as very complex, nebulous and time

consuming, which can be overcome if the principal rises to the challenge of adopting new technological resources and services for the management of the school.

Various documents are stored in the form of records. These records provide information of the past, current and future activities of the school, including relevant information from the external environment, which aids in making decisions. This information can be in the areas of curriculum practice and related activities, can relate to staff and learners, physical facilities, and finances, and is referred to when decisions are made about integrating ICT in the school. Principals assume most of the responsibility for initiating and implementing change in the school through the use of ICT (McGarr & Kearney, 2009:89; Pelgrum 2001:164).

The principal of one of Moscow's best public schools, which is known for its innovative learning environment, boasts a programme called the one-to-one laptop programme for elementary and middle-school learners. It involves 800 learners who attend classes at the school, while another 400 students take online courses through the school, with 100 teachers in addition to the principals and two deputies and administrative staff (Light & Pierson, 2012:3). However, it is not clear whether the school was guided by policy on implementing ICT, or relied only on trial and error.

From Nigeria, Aluede (2013:90) reports that the government decided to spend a great deal of money on a laptop computer project for 24 million public primary school learners, thus starting the first project. The second project involves multinational companies and NGOs assisting to incorporate ICT into secondary level education. SchoolNet Nigeria also assisted by creating a positive initiative for the use of ICT in Nigerian secondary schools. It is now up to Nigerian principals and teachers to decide how to integrate ICT in the classroom – the programme also requires policies to guide implementation of ICT in Nigerian schools (Okojie, 2011:16).

Totolo (2007:34) maintains that many principals have not been prepared for their new role as technology leaders. Principals in Botswana struggled to develop the human and technical resources necessary to achieve ICT outcomes in their schools. Totolo warns that

very few principals have themselves used computers in a meaningful way with children, and thus lack the requisite pedagogical vision and experience to guide teachers (2007:34).

In South Africa, the White Paper refers to the digital divide or the gap between those who enjoy access to new technologies and those who do not. When all learners gain access to ICTs, the danger of entrenching a digital divide is reduced (DBE, 2012:44). Not only is e-Education considered to be a means for improving teaching and learning, it is also viewed as a tool that can improve education leadership and management in a variety of ways, for instance, through the computerisation of routine administrative tasks and for decision-making.

2.5.4.3 Leadership, communication and serving the school governing body

The school principal is expected to demonstrate well-developed leadership qualities. School principals should spend a considerable amount of time making contact with people outside the school, and seeking advice about keeping up with ICT developments. According to Wallance (2013:504), the five key practices of school principals, are, (i) shaping a vision of academic success for learners; (ii) creating a climate hospitable to education; (ii) cultivating leadership in others; (iv) improving curriculum practice; and (v) managing people, data and processes to foster school improvement. A leader has to anticipate new pressures and trends that could influence the school. Conferences, meetings, informal conversations, using social media, phone calls, email exchanges and internet searches are examples of opportunities that could accomplish connectivity for the school (Leithwood, Day, Sammons, Harris & Hopkins, 2006:25). There is a continuous need for leadership in evolving and implementing a curriculum. In South Africa the curriculum assessment policy statement (CAPS) is currently in its third year of implementation – yet teachers are still not very sure and confident (Naidu, Joubert, Mestry, Mosoge & Ngobo, 2011:190). It should be noted that leadership in this context is not the sole responsibility of the principal and the deputy, as is the case with Performance Standard 11 of the IQMS. It includes the head of departments, who are actually at the apex of curriculum delivery and which requires the design and implementation of

pedagogical techniques appropriate for infusing ICT in the curriculum. One of the challenges facing principals in schools is communication, which, if not properly practiced, can cause confusion among teachers and learners.

In Russia, school principals seem to experience challenges regarding knowing how to lead and communicate with stakeholders. This is evident in a UNESCO report of 2010. Despite the Russian Federation government providing support for the use of ICTs in schools, Russian teachers are still not using ICTs optimally for their professional activities (Gotskaya, 2010:87). Russia's domestic education system for the period 2001 to 2005 was marked by the implementation of the National Project Education, and the Federal Programme for Education Development in 2006-2010, which has contributed to the creation of a common education information environment. Gotskaya (2010:86) lists the following opportunities created for schools by the Russian government:

- Schools received a large amount of equipment and were provided with internet access (National Project Education);
- Educational portals and websites were developed: new-generation electronic educational resources were created for 12 school subjects, in particular for children suffering health problems, and placed openly on the Federal Centre for Educational Information Resources' website in the framework of the Federal Target Programme for Education Development;
- The common collection of digital educational resources was developed; models for distant learning in professional education and for internet-support of the teachers were elaborated; and
- The single-window information system was developed to ensure access to the educational resources.

Despite all these efforts it has been evident that Russian principals lack the ability to lead, communicate and influence school governing bodies to develop school policies that would compel teachers to infuse ICT in curriculum practices in class. In Russia, teachers seem to limit their use of ICT to PowerPoint presentations, internet searches and email, and

don’t extend it to pedagogical designs for learning (Gotskaya, 2010:87). Clearly Russian principals have not achieved the key performances advocated by Wallance’s perspective (2013:4).

In Nigeria, serious inhibiting factors are encountered by school principals, mostly centred on leadership and communication (Aduke, 2008:292; Osakwe, 2011:41). These factors include lack of infrastructure for the infusion of ICT in curriculum practice, inadequate computer training and too few qualified teachers in the schooling system. The lack of teachers trained in computer science means that there are too few teachers who can teach learners the practical aspects of computer skills. The non-availability of computers and allied tools in schools affects the actual integration of ICT in the Nigerian school system (Aduke, 2008:292; Asiabaka, 2010:44). Principals find it difficult to lead teachers and to communicate about ICTs because the majority of teachers are not motivated to infuse ICT in classroom curriculum practice (Onuma, 2006:34). Sometimes principals dragged their heels when it came to leading and communicating about using ICTs, because some cultural beliefs are not in favour of ICT, and some people believe ICT should be avoided for fear of corrupting leaners (Aduke, 2008:87).

Botswana also experiences a lack of human resources, and a lack of clear policies. School principals in Botswana lack the ability to manage staff, have poor information management skills, and face language barriers and information filtering (Tella & Adu, 2009:57). A study by Bisaso, Kereteletswe, Selwood and Visscher (2008:667) found that school principals could not provide technical support for teachers who use ICT for teaching and learning. A lack of resources was also cited as the reason why teachers do not take up the initiative of using ICT for teaching purposes. Literature suggests one of the main reasons why school principals are not providing leadership or communicating about the use of ICT in order to motivate teachers to use ICT in classroom curriculum practices is that many principals are not reflective planners, and rely more on instant information received in informal ways. Some principals need readily available information on which to base their decisions (Bisaso *et al.*, 2008:667).

The use of information and communication technology in education and training is becoming an integral part of education in many parts of the world (Ololube, 2006:101). ICT has been a priority to the DBE in South Africa since the introduction of the White Paper on e-Education in 2003. However, progress has been uneven (Bialobrzeska & Cohen 2003:12; Schiller, 2003:2). There are considerable differences regarding e-maturity within and between countries, and between schools within countries (Balanskat, Blamire & Kefala, 2006:2). Maina (2007:2) agrees with Cranston and Enrich (2005:79) that teams and teamwork are becoming an important prerequisite for school leadership if the implementation of ICT is to be successful in schools. The importance of leadership is consistently supported by research, which leads to an ongoing examination of leadership (particularly school leadership), helpfulness, and constant revision and refinement of leadership theories (Maina, 2007:2). South African school principals experience challenges with regard to resistance by staff at schools due to fear of change and the fear that they will not be able to cope with new technology, thereby rendering them ineffective (Mdlongwa, 2012:4). Language is also a challenge, because English is the dominant language of the internet – 80% of online content is in English. This challenge is common in developing countries such as South Africa, where English is the second language of most people. The language barrier can prevent both teachers and learners from using accessible ICT software and hardware (Mdlongwa, 2012:4).

2.5.4.4 Strategic planning and financial planning

In South Africa and elsewhere in the world, school principals are expected to display competence in planning and development, which are entities of education management (Naidu *et al.*, 2013:56). Planning should focus on the whole school, which means principals are faced with an enormous responsibility that could have an impact on the future of the community. The complex and systemic nature of ICT integration, and which includes roles by national policies (macro level), local school policies (meso level) and classroom curriculum practice policy (micro level) must be comprehended by all stakeholders of a school (Van Tonder, Cilliers & Greyling, 2008:213). How successfully this task is performed will depend on the leadership quality exercised by the incumbent.

Strategic planning has its roots in the business sector (Weindling, 1993:6; Bush, 1998:26). A technique that has its origins in the Harvard Business School, strategic planning was designed to assist companies in developing the best fit between themselves and the environment. The Harvard policy model was developed to focus the values of managers and social responsibilities of businesses (Thurlow, Bush & Coleman, 2003:193). Teachers are said to be key to assisting students to acquire essential technology capabilities; they are also responsible for establishing pedagogical experiences that enable learners to use technology to learn and communicate. Thus, teachers have to be prepared to produce technology-capable learners. According to this view all classroom teachers worldwide need to be prepared well enough to achieve the ICT Competency Standards for Teachers (ICT-CST) (UNESCO, 2008:1). Naidu *et al* (2013:59), who are in agreement with Thurlow *et al*. (2003:193), maintain that strategic planning needs to be guided by both statutory requirements and strong staff opinions and concerns about a school. Findings of the studies of Tondeur *et al*. (2008:213) indicate that there is a gap between the national e-Education policy at the macro-level and both meso- and micro-levels when it comes to ICT use in schools and classrooms (Tosun & Baris, 2011:224). To understand how principals formulate policies and strategies regarding ICT integration in curriculum practice, the results of the literature search regarding the four countries used previously follow below.

In Russia, the lesson from earlier research is that sustainable curriculum development in classroom pedagogy for integrating ICT requires school leaders who are consciously aware of their actions when they are involved in curriculum reform (Fullan, 1993:14; Pelgrum, 1999:68). School leaders have to co-create a common vision. For ICT to be integrated, leaders should be innovative and early adopters. In Russia, for instance, the major obstacle regarding the implementation of ICTs was the limited number of computers connected to the internet (Pelgrum, 2000:68). The availability of technical support structures is also reported as a problem in some Russian schools.

Adomi and Kpangban (2010:1) are of the opinion that the need for ICT in Nigerian secondary schools cannot be overemphasised. This is because, in this information era, everyone requires ICT competence to be productive. The authors argue that ICT skills

have become essential, because the job market requires people who have such skills. How then do principals in Nigeria plan for the use of ICT in schools? Although ICT applications prove beneficial for improving the Nigerian education system and giving learners a better education, it seems that principals in Nigeria do not know where to start; evidence to support this statement is that, in 2004, the Nigerian government attempted, for the second time, to introduce computers in schools, and no significant progress has been reported since then (Adomi & Kpangban, 2010:3). Nigerian principals are unable to plan for the use of ICT for numerous reasons, among others, lack of appropriate infrastructure, low bandwidth for internet access, lack of information and information technology literacy in teacher training and in the educational process in general, some teachers' technophobia, lack of knowledge for designing pedagogy appropriate for integrating ICT, and in experience in the use of teaching methods such as case studies, simulations and activating learner response (Olakulehin, 2007:4). A study in Nigeria on curriculum practice with ICT reveals that some teachers in secondary schools find it very difficult to productively link their ICT professional curriculum practice materials, such as computers, audiovisual aid slides, video clips, electronic white board and electronic conference materials, to their goals of the lesson objectives/outcomes (Yusuf, 2005:317; Olulobe, 2006:102; Abidogun, 2011:157).

Botswana experiences almost the same challenges experienced by Nigeria, namely, lack of human resources, lack of policies, poor management, language barriers, and piracy, to mention a few (Tella & Adu, 2009:57). For example, human resources are lacking; not just technical capacity to develop and use ICTs, but also in relation to the capacity to utilise information for sustainable development. Tella and Adu (2009:57) report that Botswana had attempted to adjust the curriculum to include learning programmes tailored to fit the educational curriculum in secondary schools, but the major challenge of the digital divide remains despite the effort to solve the problem. It has been suggested that the absence of a vision for the model is the real challenge faced by Botswana's secondary schools. The principals of Botswana's high schools lack the capacity to make strategic plans regarding integration of ICTs in the curriculum. The evidence, according to Tella and Adu (2009: 57),

can be seen where numerous attempts to develop programmes for the development of ICT strategies have failed, both in both government and private institutions.

South Africa also experiences the challenges faced by other countries as described above. For instance, inadequate infrastructure with regard to ICT implementation has been reported, as well as language barriers, particularly incorrect spelling due to the type of language used for SMS and other social networks (Linney, 2013:). However, a challenge unique to South Africa is CAT, which is not accepted by universities as a subject for university entrance. CAT is currently undervalued by universities. Crime, particularly computer theft, is a daily experience in schools. Other challenges include lack of access to the internet, teachers struggling to adapt to using ICT, and poorly qualified teachers who are expected to teach the subject CAT (Mdlongwa, 2012:4). The challenges experienced in South Africa point to one fact, namely, the need for strategic planning for ICT integration in schools, which must be initiated by the school principal. There is evidence that the introduction of ICT in schools does not by itself improve the quality of education or raise attainment, there seems to be increasing and widespread awareness that the pedagogical and technical expertise of the teacher is absolutely critical if ICT is to be implemented successfully, and this can only be achieved when the principal is dedicated (Afshari, Bakar, Luan, Samah & Fooi, 2008:83).

The literature referred to above indicates that there are stages through which a school principal can take the school, namely, (i) stakeholder engagement; (ii) adoption; (iii) skills development; and (iv) full ICT compliance, as summarised in Figure 2.2.

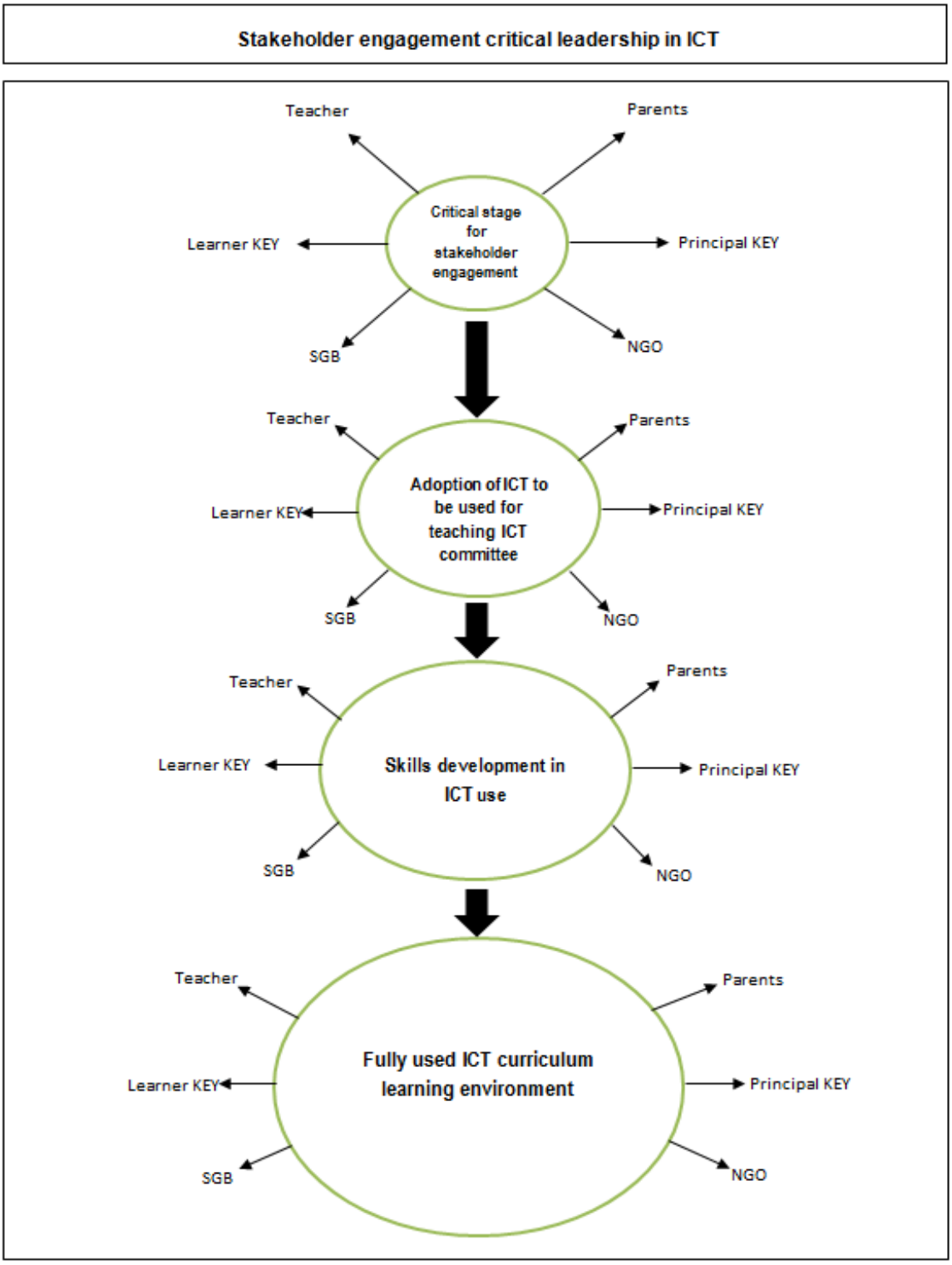

Figure 2.2: Stages towards full adoption of ICT in the school by all stakeholders

2.6 CONCLUSION

This chapter explored ways of enhancing the principal's leadership role in the use of ICT in a school. The conceptual framework was discussed based on critical emancipatory theory and community cultural wealth, and the systemic ICT model. CER was discussed as a framework through which the study will be planned and executed, and its appropriateness was justified. This was done by a discussion of the background and origins of critical emancipatory theory, principles and the objectives of and reasons for using CER.

Conceptualisation of leadership was explored on the basis of theoretical approaches to leadership in education. A special focus was on the scientific view of leadership and the instrumental view of leadership, followed by related assumptions. The humanistic view and its assumptions, followed by critical leadership studies and its assumptions were also discussed.

Definitions and discussion of operational concepts were covered, namely, enhancing, leader, leadership, the principal and ICT.

A literature review was done with the 12 performance standards of IQMS as organising principles in respect of the objectives of the study, namely, understanding the role of the principal in the use of ICT in a school, the contribution of the principal to influencing teachers to use ICT, and the policies and strategies principals can use to support teachers in the use of ICT in the classroom.

The next chapter describes in greater specifics participatory action research principles and its suitability as an approach for CER.

CHAPTER 3

METHODOLOGY

If you want to go fast, go alone; if you want to go far go together.

Katongole & Rice (2008:20)

3.1 INTRODUCTION

This study sought to design a framework to enhance the leadership role of the principal in the use of ICT at school. This chapter explains and justifies the research design and methodology used to achieve the aim of the study. Furthermore, this chapter integrates empirical data into the theoretical constructs developed in Chapter 2 to answer the research questions. The following research questions were explored:

- What role does the school principal play in the use of ICT for teaching and learning at school?
- How does the principal's leadership role in the usage of ICT contribute to teacher professional practice that improves performance in a school?
- What strategies and guidelines can be used to support principals to sustain teaching and learning through ICT in class?

In attempting to answer these research questions, we engaged in a participatory action research (PAR) process to operationalise the study. PAR is an inclusionary approach that involves education and action directed to social or organisational change, and its use in the present study will be explained in some detail (Ledwith, 2007:598). The intervention strategy used will also be described below. The intervention process required the establishment of a team to address the objectives of the study. To enable the team to be functional, a vision statement for the team, centred on the objectives of the study, was developed. An analysis of the political, economic, social, technological, legal and physical environments (PESTLE) was conducted in relation to the objectives of the study. A further analysis of the strengths, weaknesses, opportunities and threats (SWOT) of the team,

based on the objectives of the study, was undertaken. Team priorities were also identified and a strategic plan drawn up in line with the objectives of the study. An action plan, derived from the strategic priorities, was developed. Last, the team monitored the functionality of the above-mentioned aspects. The data-generation processes and procedures will be described in the next sections of this chapter. Data analysis based on critical discourse analysis (CDA) will also be explained.

3.2 PARTICIPATORY ACTION RESEARCH AS A METHODOLOGY

This study adopted PAR as a methodology to generate data because it complements critical emancipatory research (CER) as the fundamental lens used in the study. PAR tenets are geared towards empowerment and are emancipatory in nature (Wood & Zuber-Skerrit, 2013:2; Eruera, 2010:1; Hawkins, 2008:2). The leadership role of the school principal in the use of ICTs was the primary context for the data-generation process of this study. The leadership role was the fundamental focus and helped to move the study away from the dominant discourses about the role of principals. The dominant discourses assume that school management and leadership are controlled, controllable, instructive, predetermined, uniform, and predictable. This argument is biased towards the human and social contexts, because leaders are human and operate in a social context (McNamara & McNamara, 2011:33, Mattsson & Kemmis, 2007:196).

PAR is relevant for this study because knowledge is socially constructed and should be co-constructed with participants (Eruera, 2010:3).

Therefore, leadership cannot be detached from followership, which is about the human agent. Thus, an attempt to show respect to human agency remained the core compelling reason for applying PAR in this study. This research focuses on human beings and is constructed with participants as co-researchers, as opposed to research done on people by “experts”.

We chose PAR due to our view that PAR is driven by the following three distinct elements: a shared ownership of the research project; a community-based analysis of social

problems, and an orientation towards community action (Shea, Poudrier, Thomas, Jeffrey & Kiskotagan, 2013:4; Kemmis, 2006:462; Titterton & Smart, 2008:57; Kemmis, 2010c:19). The goal of the study is to confirm that everyday knowledge will always shape the lives of ordinary people (Cameron & Gibson, 2005:317). The researchers also assume that this type of research enables the voices of the usually-less-valued people in research stratums to be heard and respected. For instance, the coordinating team was made up of ordinary members of the school community – as long as they were interested and willing they could participate. Although the research project dealt with the leadership role in the use of ICT for teaching and learning, members of the school community were invited to participate through engagement and involvement. Another reason the researcher considered PAR appropriate for this research is the fact that it values local and indigenous knowledge of marginalised groups, and uses it as a basis for revolutionary action. We were convinced that PAR has the potential to improve people's lives. PAR is based on authentic commitment because it values the process of genuine collaboration, which is rooted in the cultural capital of the people (Reason, 2000:328). The action of the researcher and the co-researchers was encouraged by the community's cultural wealth, which is based on the following expression.

> *Motsoga pele a re, "moroto e si ga o elele, sedikwa ke ntja pedi ga se thata". (The early riser says, one person's urine does not flow. That which is surrounded by two dogs is easy to catch.)*

Unlike mainstream research methodologies, PAR is political, because it is critical to societal, educational and leadership practices, in which disconcerting unequal power relations are prevalent (Eurera, 2010:2; Sanginga, Kamugisha & Martin, 2010:698). Therefore, PAR is a research approach that takes a stance against oppression and inequalities that are prevalent in everyday life (Netshandama & Mahlomaholo, 2012:12). The application of PAR in our project was encouraged by our national agenda, which is enshrined in the constitution of South Africa. The constitution is based on social justice as an ethical position, committed to democratic involvement and engagement, transparency,

equality, openness, and hope, particularly in the leadership arena (Sanginga *et al*., 2010:696).

We opted to use PAR in response to the notion that people take action to eradicate the undesirable situation they experience in their communities. According to Kemmis (2010a:11), revolutionary action can be understood on a smaller scale, in reference to action aimed at a self-conscious change of people's circumstances and of themselves. "People working together in an action research initiative might reasonably contest what counts as *the right thing to do* at any moment (Kemmis, 2010a:417). These people can also proceed towards consensus about what to do as a group, by giving and weighing reasons, and by being alert to power differentials that may distort their decision-making process (Mertens & Ginsberg, 2008:491; Kemmis, Wilkinson, Hardy & Edwards-Groves, 2009:14; Kemmis, 2010a:418;). We were convinced that PAR would advance our project by integrating communities as equal research partners and making research relevant to our needs (Mejia, Quiroz, Morale, Ponce, Chavez & Torre, 2013:302).

We approached the research process in the following way. We started by establishing a coordinating team. This team was established through consultative forums in the school community. For instance, all former teachers and learners were invited to the school in one forum aimed at finding a solution for improving the matric results. At this forum the matter of school performance was raised (Hoegl & Schulze, 2005:266). Thus, participation in the coordination team was the result of a recruitment campaign initiated by the school. The purpose of the recruitment was to encourage as many people as possible to become engaged or involved in the project.

The forum believed that the learners at the school are influenced by their social context. Teachers, on the other hand, are products of their historical background. Thus teaching and learning required collective leadership, which can be created by the school principal, who is the head of the school and endowed with legislative power. Next, the coordinating team was established. The coordinating team was mandated, among other duties, to work towards instituting teaching approaches that would encourage teachers to use ICTs as tools for teaching and learning, thereby addressing the educational inequalities

perpetuated through the digital divide in the school community (RSA, 2004:8). The team was therefore established to support the school and the principal in the use of ICT in the school.

The coordinating team was aware of the cyclical stages that had to be followed in a participatory research process. Figure 3.1 illustrates the five stages of the cyclical PAR process that were followed. The first stage of PAR relates to problem identification and acknowledgement of the problem or buy-in of stakeholders. The second stage is about the planning of the actual procedures to be followed. The third stage involves action or the activities to be carried out. The fourth stage involves the implementation of the outcomes of the activities, and involves what the participants learned collectively as a team. Quality assurance through reflection makes up the last stage of the cycle, which is never-ending, as there will always be limitations that need to be followed up. The cycle starts again when we reflect and identify the limitations and embark on continual improvement and corrective measures, with the sole purpose of addressing the challenges, which will result in commencement of the planning stage again. The PAR stages that were followed by the coordinating team are illustrated in Figure 3.1 below.

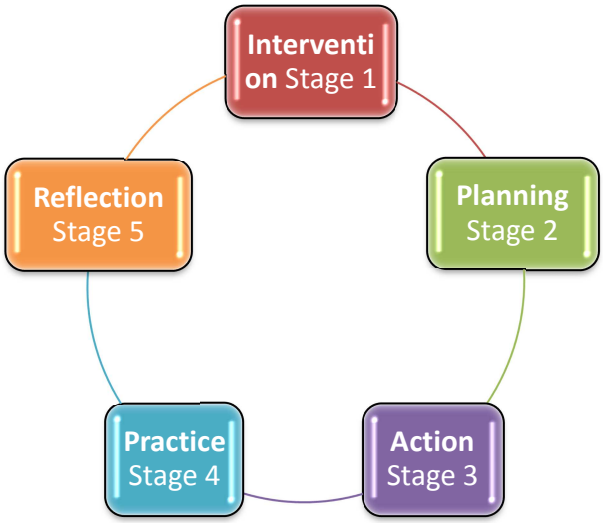

Figure 3.1: The cyclical stages of the PAR process

My involvement in the project was a result of my long-term involvement in the school's Matric camps, as a member of the community and a former teacher at the school (see Paragraph 1.2). The research team was invited to participate in the project. This engagement helped us to take ownership of and to participate in the project in order to make a contribution to our community (Chapman & Dold, 2009:5). In short, our coordinating team was constituted as a result of collaborative efforts to engage as many stakeholders as possible in addressing managerial concerns in the school and matters of professional curriculum practice through the integration of ICT. These collaboration efforts confirm the view that PAR grew out of interactive processes in social and educational research, which are based on progressive research for groups who want to improve their social situation (RSA, 2004:32; Eruera, 2010:1). The intervention approach we followed will be explained in detail below.

3.3 INTERVENTION STRATEGY

Intervention in this context means a "purposeful action by human agency to create change" (Greenwood, 1993:34-40). In response to an invitation to participate in the study and to address challenges at the school, as a first step we established a community forum at which the major problem facing the school was discussed. At that meeting the school's results were presented and discussed at length under the leadership of the School Management and Governance Developer (SMGD) (in accordance with the Employment of Educators Act (EEA) 76 of 1998 Section 3.4, see Annexure A). The general attitude at this meeting was that the results are unacceptable; this is confirmed by statements by participants, who took turns suggesting solutions to the challenges faced by the school. The people-centred nature of the meeting made constructive changes more sustainable, because participants, as active agents, realised that they had a role in improving their own situation and their community's quality of life, and thus they had a vested interest in sustaining the results of their efforts (Wood & Zuber-Skerrit, 2013:2). After the presentation of a comprehensive report, the school stakeholders were invited to make inputs, and this is what participants had to say:

***Parent 1**: Rona re ne re shapiwa ha re sa ithuti, bana ba, ga ba ithuti.*

We used to be beaten if we failed to learn. These children [learners] do not learn.

***Teacher**: (Interrupting the parent). A ga gona tsela e ngwe e re tla ba thusang ka yona gonne molao ga o dumele go re go dirisiwe corporal punishment.*

Is there no other ways we can think of, since corporal punishment has been abolished?

***Parent 2**: Ke eng sekolo se sa leke go dirisa mafaratlhatlha? Go re rethuse bana ba ba rona. Ke bonne abuti wa ga "Tshepo" a dirisa internete go ntsa di question paper tsa di paka tsedi fitileng, mme o dira sentle thata mo dithutong tsa gagwe tsa Unibesiti . A re mafaratlhatlha a mo thusa.*

Why isn't the school trying to use websites? To do that we should help our learners. I saw Tshepo's brother [the parent's older son] using the internet to download several question papers some time ago. This helped him to do well in his studies at university. He says many websites have been helpful to him.

***Pastor**: Ee, Ke dumalatsana lewena ka botlalo, Nna ke ne ke akanya go re, re thusane le barutabana, ha bona ba itsi ba ka kgona bana ba, Mme ke eng re sa etirele commiti e etla thusanang le Mogokgo le barutabana.*

I agree fully, I was thinking that we should rather work with the teachers to support them, once they know how, then they can transfer that to the learners. Why can't we establish a team that will work with the principal and teachers?

The discourses above resulted in the establishment of the coordinating team, which will be described below.

3.3.1 Constitution of the coordinating team

The research team was established through a democratic process in a public forum organised by the school governing body (SGB) (see Annexure A). The ground motive for the establishment of the team was based on the cultural dimension:

> *This is a culture that supports the practice of using ICTs for educational purposes, regardless of one's level of expertise. This requires the principal and teachers to move beyond a purely instrumental role that views ICTs as an educational add-on, to regarding technology as something that poses interesting and important questions for curricula, pedagogy and administration (RSA, 2004:17).*

The team was mandated to address the objectives identified and agreed upon in the forum. The team was composed of nine plus two members:

- A female non-teaching staff member was elected as the chairperson.
- The deputy principal, a man, was tasked to be the resource person.
- Two learners, a girl in Grade 11 who was the president of the representative council of learners (RCL) was assisted by a secretary, a Grade 10 boy.
- A female parent was the deputy secretary.
- A male pastor was appointed team motivator.
- A female school management developer and governance official from Department of Education.
- A male police officer was designated as the school's "adopt-a-cop".
- The researcher is a male community member; I acted as secretary.
- The school principal, a man, and the deputy chairperson of the school governing body (SGB), a woman, were both ex-officio members of the coordination team with no voting rights.

We decided to on 11 members (nine voting plus two non-voting members) to ensure that democratic principles would apply, particularly when an agenda point required voting. If members of the research team did not agree about a matter under discussion, the chairperson and any other team member could request a vote on the matter. In the case of a deadlock the chairperson could cast her vote for either of the sides, thereby ensuring a decision and progress with the business. This is one way that PAR ensures quality assurance and validation of the research process (Reason & Bradbury 2001:22; De Vos, 2005:28; Ryan, 2006:257).

PAR is a collaborative, cyclical, reflective research design that focuses on problem solving, improving work practices, and understanding the effect of the research or intervention as part of the research process (see Figure 3.1).

A coordinating team to represent the research team was formed, comprising the chairperson, secretary and RCL representative, the pastor, and a teacher. The team size was considered to be an important structural variable for determining team process and, subsequently, team performance and productivity (Eurera, 2010: 2; Hoegl, 2005:209). The team started its activities with a team-building exercise, during which every team member had to indicate one personal weakness and one personal strength. This activity clearly indicated the diverse qualities among the members, which have the potential to ensure a successful research project but that needed to be communalised into a shared vision.

3.3.2 Developing a team vision

Due to the diverse skills, knowledge, autonomy, cohesion, and informal communication skills possessed and exerted by individual members, each with a different purpose, the team agreed to create a common vision that would enable the realisation of functional and innovative progress and performance (Carmen *et al.*, 2006:180). Consultative processes were followed among team members, arguments and debates lead to the formulation of a collective and shared vision (Kemmis & McTaggart, 2005:560; Kemmis *et al.*, 2010:112). The vision agreed upon is *letting learners learn through the use of ICTs*. The team vision took the learning styles of learners and teaching styles and strategies of teachers into consideration. The purpose of the vision was to deepen learners' understanding and to encourage them to apply high-order thinking skills and not merely recall (RSA, 2004:20). The intention of creating a team vision was to achieve the objectives of the research process. However, the team realised that there were further questions that needed to be answered in order to achieve the objectives of the project, and therefore they engaged in a PESTLE analysis.

3.3.3 PESTLE analysis

PESTLE analysis, also referred to as PEST analysis, is used as a tool in organisations to plan or launch new projects. The concept PESTLE is a mnemonic, in which P stands for political, E stands for economic, S for social, T for technological, L for legal and E for environmental (Peng & Nunes, 2007:229). It gives an overview of the whole environment, which the team had to check and report on from many angles. The PESTLE factors are deemed to be macro-environmental factors and the usefulness of the analysis lies in the assumption that, in this case, the success of the school regarding the improvement of performance cannot be understood without gathering information relevant to specific physical and social factors outside the school environment. The team decided to use PESTLE analysis as a way of developing an in-depth understanding on the context of professional curriculum practice using ICT in order to achieve the objectives of the study.

3.3.4 Strength, weakness, opportunity and threat (SWOT) analysis

SWOT analysis is design method that address the strengths, weaknesses, opportunities and threats experienced in the school, which was used to conduct strategic planning (see Annexure A) (Friesnrer, 2011:2). The intention of the team was to build on and solidify their PESTLE analysis and to embrace all factors that would enable the team to achieve success. The coordinating team also wanted to eliminate limitations and barriers that might prevent the team from achieving their objectives (Gao & Peng, 2011:796). After the coordinating team completed the SWOT analysis they proceeded to determine their priorities.

3.3.5 Setting coordinating team priorities

Priority setting is a way of harmonising contending claims for resources, but the nature of exercise is unclear (Schmidt *et al.*, 2009:3). By setting priorities the team could influence or denote importance, set relative value precedency, and allocate special status or lexical ordering (Spicker, 2009:117). The coordinating team set priorities with the hope that all points collected would encourage all stakeholders to react to the various issues presented.

The aim of the exercise was to order the objectives of the study and to participate in a continuous dialogue, with the ultimate goal of providing a basis for multi-stakeholder governance of ICT leadership. The priority list was so extensive that the team had to scale it down for short-term implementation. The coordinating team decided to concentrate on only four priorities per objective in order to formulate the strategic plan for the research project.

3.3.6 Strategic plan

A strategic plan is a framework for strategic thinking, directions and actions that lead to achieving consistent and planned results (see Annexure A). The main focus was mainly on realising the vision, mission and values set by the team for the research project. A strategic driving force, strategic objectives and programmes were also drawn up (Vaara *et al.,* 2010:687), financial forecasts and, finally, an executive summary, were compiled. The team was aware that implementing a strategic plan required financial resources, so priority was given to activities that needed minimal financial resources. Thus, planning was restricted to activities that could be covered by resources available in the school. The strategic plan was based on 15 activities anchored to the objectives of the study as the major priorities; they will be outlined below. The strategic plan contained the activities, resources needed; duration of the activity, the person responsible for ensuring that the activity is carried out and the performance indicators that would serve as evidence that the activity took place. For each objective three to five activities were prioritised by the coordination team. Because the team realised that it would require more than three years to implement all the priorities identified, they agreed to select only major activities per objective that were within the team's capabilities. Thus, the coordination committee decided to prioritise three dimensions, namely, pedagogical dimension, technical dimension and the network and collaborative dimension.

3.4 PEDAGOGICAL DIMENSION

The first dimension centred on pedagogy, which featured four performance measurements. It covered the entire pedagogic dimension prioritised within the IQMS process. These four performance measurement standards aimed at building digital and information literacy. Thus, all teachers, including the school principal, has to demonstrate competency in these pedagogical areas so that all learners become confident and competent in using technology (RSA, 2004:19). The priorities are presented in four tables, each containing between three and five activities as strategic priorities planned by the coordinating team.

3.4.1 Strategic Priority No. 1: Create a positive learning environment emphasising ICT use by learners

Table 1 (see Annexure A) contains strategic priority No. 1, which is constituted by five activities that the coordinating team embarked on. The first activity was the responsibility of the learning facilitator, who had to remind teachers to create a sustainable learning environment. The second activity was the responsibility of the SMGD, which had to demonstrate the use ICT in an ideal school. The third activity involved a symposium, which was the responsibility of the deputy principal. The fourth activity was the responsibility of members of the coordinating team, and involved a variety of duties that had to be carried out within the means of the available resources. The last activity was modelling ICT within the learning space while learners are involved in diverse learning situations and was the responsibility of all the researchers.

3.4.2 Strategic Priority No. 2: Incorporate current knowledge of ICT in curriculum and learning programmes

Table 2 (see Annexure A) lists five activities executed by the coordinating team, including workshops, symposia and preparing for and using electronic connectivity. The first activity, an ICT workshop, was organised by the researcher and co-researchers and presented by the University of the Free State. The second activity was the responsibility of the CAT

teacher, who presented ICTISE. The third activity involved setting up a Facebook page for the school, and was the responsibility of the head of department for science and mathematics supported by two learners and the principal. The fourth and the fifth activities involved assisting as many members of the school community as possible to register for email addresses, particularly members of the committee, and to encourage them to use email. Both activities were the responsibility of the researcher, the CAT teacher and the two learners. All members of the coordinating team were also assigned the responsibility of advocating for registering online to acquire email addresses. The deputy principal was responsible for organising a workshop on learning theories and paradigms for integrating ICTs in teaching and learning.

3.4.3 Strategic Priority No. 3: Teachers should be able to do lesson planning, preparation, management and presentation with the aid of ICTs

Table 3 (see Annexure A) lists the three activities that were presented to gain an understanding of the role of the school principal in the use of ICT. The learning facilitator was responsible for organising a workshop on learning theories. The workshop was open to all teachers and the coordinating team, including non-teaching staff. The second activity was a symposium, conducted by a retired teacher who had worked at the school before. The former teacher shared expertise in pedagogy. The emphasis was on the art of planning a lesson, considering the introduction, body and conclusion of a lesson. The third activity was the responsibility of the mathematics teacher, and involved showing how Microsoft Excel could be used to quickly calculate averages and convert marks to obtain a final product.

3.4.4 Strategic Priority No. 4: Teachers should demonstrate the ability to conduct learner assessment, record and maintain essential records

Table 4 (see Annexure A) lists five activities that were organised by the coordinating team. The first activity, which was led by the CAT teacher, was based on cyber law issues relating to the downloading of videos, with the aim of ensuring that software was used

lawfully and with consideration of licencing processes. Information on the free Microsoft Office licence offered to schools was explained. This activity was presented over two mornings. The third activity was organised by the school and its focus was on electronic filing, which could be used by educators to eliminate manual compilation of marks and record keeping. The activity lasted for two hours and 30 minutes. The third activity was on information sharing, to show how the South African Schools Administration Management System (SA-SAMS) can be used fully for record keeping, including financial administration. The fourth activity, facilitated by a teacher in the school, was an information session explaining the expectations of the Curriculum Assessment and Policy Statement (CAPS) for the school. It relates to access to the internet for both teachers and learners. The CAPS document of the subject economics was used to illustrate what is be expected of the school. The fifth activity was a 45-minute session presented by members of the RCL and related to suggestions on how social media could be used to make teaching and learning more interesting.

3.5 THE TECHNICAL DIMENSION

The technical dimension refers mainly to individuals' knowledge and ability to select, use and support a variety of ICT gadgets that are appropriate for enhancing professional development and productive utilisation of ICT tools and resources. The following constructs were used as the organising principles to operationalise the planning process: professional development in the ICT pedagogic fields; human relations and positive contribution in the school using ICTs as the driving force; application of ICTs in extra and co-curricular activities for communal gain; using ICTs for the general school administration process, and resources and records for sound practice. In its strategic planning the coordinating team centred its priorities on these four constructs, which were developed from the performance standards derived from the IQMS.

3.5.1 Strategic Priority No. 5: Professional development

Table 5 (see Annexure A) lists activities that promoted professional development and participation in ICT activities. The coordinating team prioritised this aspect and planned three workshops: the first was a capacity-building workshop for integrating ICT in teaching and learning, facilitated by the maths teacher using HeyMath!; the second activity was a coaching session on mobile learning theories facilitated by the learning facilitator; and the third activity was a demonstration on how to access Thutong – a learning management system portal of the South African DBE – facilitated by the maths teacher.

3.5.2 Strategic Priority 6: Investing in human relations and making a positive contribution to the school using ICT

Table 6 (see Annexure A) lists the five activities organised to address the strategic priority of human relations and the positive contribution the use of ICT could make. The first activity, on group dynamics and information sharing, was facilitated by the pastor. The second activity was a team-building exercise, facilitated by the non-teaching staff. The third activity was a review of the vision and mission statement of the school facilitated by the SGB chairperson. A short symposium on conflict management conducted by the principal was the fourth activity. Debriefing on a stop, keep and start (SKS) activity was facilitated by the SMGD and was the fifth activity, which was organised by the coordinating team. This activity was linked to the use of ICT. The sustainable learning team insisted on ICT gadgets throughout the presentations.

3.5.3 Strategic Priority No. 7: Promotion of extra- and co-curriculum participation by using ICT

Table 7 (see annexure A) lists all the activities organised by the coordinating team in order to achieve Strategic Priority No. 7. All the co-researchers and the researcher attended an ICT conference organised for various stakeholders of ICT. The deputy principal was responsible for presenting the activity. The second activity involved active use of Facebook for communication – a continuous process led by a former learner. The third

activity involved sharing ideas on how to use social media to promote teaching and learning. Photo voices was the fourth activity. It was organised by the learners, who used photos to express their views on using ICT. The fifth activity was also on photo voices, this time of teachers, and was presented over five days.

3.5.4 Strategic priority No. 8: Administration of resources and records using ICT

Table 8 (see Annexure A) lists five activities, starting with a demonstration of a software program used by the national DBE, SA-SAMS, which was facilitated by the school clerk. The SA-SAMS program is computer application software meant for management administration and governance of public schools in South Africa (DBE, 2013:4). The demonstration was done every afternoon after school for five days. The second workshop was facilitated by the SMGD and demonstrated the way database software could be used to keep information safe and possible to retrieve when required. The third activity was a demonstration on how to keep track of school inventory using computers. Activity four was an hour-long capacity-development workshop on the usage of the Pastel program to do financial management and record keeping. It was facilitated by the school clerk. The last activity under this priority was on financial bookkeeping, also facilitated by the school clerk.

3.6 COLLABORATION AND NETWORKING DIMENSION

Studies in information technology report that attitudes are the most important factor in the successful use of ICT for teaching and learning. Gewin (2010:993) considers attitude to be the relationship between a person and an object. The coordinating team was aware that ICT users would have to have positive attitudes towards technology, thus, the assumption is that teachers will continue to empower themselves regarding the use of technology for teaching. The strategic priority, driven by aspects of collaboration and networking, formed the basis for action. The collaboration and networking dimension focused on the management of personnel using ICT, taking decisions about and being accountable for using ICT in the school; providing leadership, communicating and servicing the school

governing body using ICT. Engagement in strategic planning, financial planning and educational development was also done through ICT.

3.6.1 Strategic Priority No. 9: Personnel management through ICT

Table 9 (see Annexure A) lists the activities undertaken under the priority area personnel management with ICT. Three activities were planned by the coordinating team: One centred on team-building exercises conducted by the pastor, another involved revision of the school's vision and mission, conducted by the SGB chairperson, and the third was planning for team teaching, conducted by the head of department for languages in the school. All the activities lasted two hours each.

3.6.2 Strategic Priority No. 10: Decision making and accountability regarding the use of ICT for teaching and learning

Table 10 (see Annexure A) lists four activities prioritised by the coordinating team, which were organised as follows: A workshop with special focus on protocol and the legal roles of members of the management team and SGS in relation to ICT (two hours); an advocacy campaign for the adoption of ICT use for teaching and learning (one hour); the establishment of an ICT committee in the school (45 minutes); and a capacity-building workshop on how to choose a reliable website (45 minutes). The first activity was facilitated by the school principal, the second by the SMGD, the third by the learning facilitator and the fourth activity by the CAT teacher.

3.6.3 Strategic Priority No. 11: Providing ICT curriculum leadership, communicating and serving the governing body

Table 11 (see Annexure A) lists the activities undertaken to achieve this strategic priority. The first activity was a capacity-building workshop organised by the coordination team and facilitated by the SMGD. The second activity was an information-sharing session on ways to reduce cost when using the internet; it lasted almost an hour. The third activity was a discussion forum on innovative ways of supporting the ICT champion teacher to

encourage other teachers to use ICT, lasting 45 minutes. The fifth activity was an information session on how to use Thutong portal; it lasted 45 minutes.

3.6.4 Strategic Priority No. 12: Strategic planning, financial planning and educational management and development using ICT

All in all, four activities were planned by the coordinating team, as indicated in Table 12 (see Annexure A). A workshop on programme planning, evaluation and monitoring (PPEM) was organised by the deputy principal and presented by an NGO. The second activity was data collection regarding the number of educators using or attempting to use ICT for teaching and learning purposes. The principal was also tasked with a demonstration to show his knowledge of Excel – he presented the school budget for 2012.

3.7. MONITORING THE INTERVENTION PROGRAMME

In order for the intervention programme to be sustainable, a monitoring plan was integrated by the coordinating team. The purpose of designing a framework to enhance the leadership role of the principal in the use of ICT in school was driven by the desire to improve the quality of teaching and learning at the school, with the overall aim of achieving quality education (Mokhele & Jita, 2012:577). Thus, the deputy principal was made accountable for the PPEM (see Table 12 in Annexure A). The deputy principal was the most relevant person for the task because of her role as a peer in the Development Support Group (DSG) of the school principal, while the SMGD worked closely with the deputy principal. The progress with regard adoption and integration of ICT and the utilisation of ICT was to be monitored closely without infringing on the rights of the school leaders.

3.8. THE SECOND FORUM

We attended a meeting organised by the coordinating team to table the strategic objectives of the coordinating team for adoption. Prior to the meeting we agreed that the principal would present the strategic objectives that focus on the pedagogic dimension; the

head of department would present the strategic objectives that focus on the technical dimension; and the RCL president would present the strategic priority that focuses on the collaboration and network dimension. This decision was based on Euera's (2010:1) belief that "research is co-constructed by the identified community for that community". During the meeting everyone in the coordinating team was again given a chance to introduce her/himself, and the chairperson explained the purpose of the meeting and indicated that more people are needed for execution of the planned priorities. The chairperson stated that the strategic priorities were developed by the elected members in the first forum, who spent two months designing the strategic objectives. The chairperson welcomed all the stakeholders warmly and afforded everyone an opportunity to raise concerns or give advice on how to improve the strategic priorities. De Vos *et al.* (2005:421) warn that there will always be challenges emanating from events, ideas and arguments raised by participants in a project. In this case, one parent blamed the government and stated that he does not understand why those in power fail to take responsibility for township schools. The parent also mentioned that there was a need for a framework to enhance the principal's leadership role in the use of ICT in the school and that this requires practical interventions (Imenda & Muyangwa, 2006:23).

The whole process of consulting stakeholders provided validation for the research process and quality assurance for the method we had chosen. In doing so, we were convinced that PAR is suitable for our project, because it contains elements of practical intervention techniques that aim to emancipate. This is in line with the critical emancipatory theory and critical leadership theory, which advocates emancipation of both the leader and the followers from oppression resulting from established power structures (Henning, Van Rensburg, & Smit, 2004:47; Creswell, 2009:35; Leedy & Ormrod, 2010:43).

3.9 BRIEF HISTORICAL BACKGROUND OF THE SCHOOL

The school was established in 1910. Although the curriculum went through changes, at one stage the curriculum was divided into two sections, vocational and academic. At establishment, the subjects taught were hygiene, arithmetic (but not mathematics),

domestic science, geography and history. The vocational section focused on carpentry, woodwork and bricklaying. The curriculum changed after 1994, and in 1997 the school introduced computer literacy to learners and staff and the community, at a price. The school did not have a formal programme for computer classes, thus, the classes were presented after school hours. After a year the computer classes were stopped by the school management team.

This is just a snapshot of the rich history of the school, because critical analysis requires an understanding of the community‘s historical and current context, culture, and relationship (Henning *et al.,* 2004:23). The school played a major role in the lives of people in the greater Mangaung (School Profile, 2011:3).

In 2005 the school introduced computer applications technology (CAT) as a subject, an event that is a major condition conducive for the successful implementation of the framework this study intends to design.

A local business association recently donated 50 new computers with internet access to the school. Only two teachers are learning with the learners to teach the subject. One of the teachers taught typing for more than 15 years, while the other teacher has been teaching life sciences for more than 20 years. The availability of computers with access to internet and the satellite with a learning channel are a fundamental condition for enhancing the principal’s leadership role in the use of ICT in this study.

3.9.1. Conditions in the school prior to the intervention

The school has approximately 1 900 learners from Grade 10 to Grade 12, with a teaching staff of 53 educators, including eight heads of department – four men and four women. The principalship comprises two deputy principals, one female and one male, and a male principal. There are eight support-staff members, of whom six are women and two are men. The curriculum of the school consists of five streams from Grade 10 to Grade 12, namely,

- Consumer services, offering two subjects, tourism and consumer studies;

- Business commerce and management sciences, offering the subjects accounting, economics and business studies;
- Natural sciences, with the subjects mathematics, mathematical literacy, physical sciences and life sciences and CAT;
- Social sciences, with life orientation, geography and history; and
- Languages, namely Sesotho, Setswana, English and Afrikaans.

In 2012, more than 80 Grade 10 and 11, and 40 Grade 12 learners are registered for CAT, with some restrictions to using the internet. This means that a small proportion of learners are exposed to ICT. However, the introduction of HeyMath! in the sciences has created a platform for maths and sciences teachers to incorporate ICT in their lessons. The school was able to produce a 97% pass rate for the first cohort of CAT learners in 2009 and 100% in 2010, but the rate dropped to 85% in 2011. The enrolment of learners in Matric was 43, on average, for the past three years, but it dropped significantly to only 30 learners in 2012. Two subjects in which the average pass rate is below 45% are geography and history. The worst performing subject, physical sciences, has a pass rate of 33%. (Note these are Grade 12 statistics only.)

3.9.2. Profiling participants

The coordinating team (or co-researchers) comprised 11 members drawn from the following participants: learners, parents, teachers, heads of departments, the principalship, a learning facilitator, SMDG, SGB, a religious leader, community development worker, ICT experts and non-teaching school staff. Euera (2010:1) argues that local community knowledge is legitimised and re-legitimised in PAR. The PAR approach calls for the involvement of a team of key individuals, particularly people with fundamental knowledge of the context and need for improvement, to be involved in the process. Second, it calls for a team that pays attention to a specific problem (Leykum, Pugh, Lanham, Harmon & McDaniel, 2009:45). PAR acknowledges the need to include participants throughout the project, accepts that each person has knowledge that is of value, agrees that all participants can learn from each other, and that power should be shared (Conder, Milner &

Mirfin-Veitch, 2011:40), hence the inclusion of the following participants and co-researchers.

3.9.3. Learners

Eighty learners from Grade 10 to 12 who were enrolled for CAT in the school were invited to participate in the programme. The RCL could nominate three representatives to the forum. This is based on the principles of PAR, which emphasises that it is important to obtain the viewpoints of the disadvantaged themselves, to create a more accurate, critical reflection of social reality, to realise human potential, and to mobilise human resources in order to address challenges (De Vos *et. al.,* 2005:411).The involvement of those who will be most affected by the outcomes of research is expected to give them a sense of ownership of the final product (Conder *et al*., 2011:39).

3.9.4. Parents

Parents of learners at the school are the actual owners of the school, as they are the ones who enter into a contract of agreement with the school and who provide the school principal and teachers with the responsibility to be *in loco parentis* to their children. The same principle of PAR applied in this case. All the parents of 80 learners were involved, enabling them to be active, participating, capacity building, involving, encouraging, and mobilising, and to enable research procedures that include all relevant members of the school community in the research (De Vos *et. al.,* 2005:412). Parents' experiences of ICT were observed in the hope of motivating them to use ICTs.

3.9.5. Teachers

The teachers are the actual pillars of the whole project, as they experience the leadership role of the principal directly more than any participant in this project. Participants in research may be active or inactive collaborators or colleagues in the research process (DePalma, 2010:218). Thus, teachers' role in the project is important. Teachers' competency levels and utilisation of ICT in the classroom were observed before and after

the research project. One of the teachers responsible for CAT is a coordinator of learners and a co-researcher in the project.

3.9.6. Heads of departments

Heads of departments made valuable contributions to the study, as they have expert knowledge regarding curriculum matters, and they provided guidance to the teachers on how to infuse ICT in the curriculum. Heads of departments, particularly the head for natural science and technology, made a significant contribution, both personally and to the group, while continuing to attend to their other commitments (De Vos *et al., 2005*:412).

3.9.7. Principal and deputies

The principal and the deputy principal were central to this study, because the study focused on their leadership roles. The principal and the deputy were involved in the study as co-researchers; both have a coordination role in the research project: the principal coordinates the heads of departments, while the deputy coordinates teachers. The principal has been leading the school for more than 19 years, and this experience is important to the project. As stated by De Vos *et al*. (2005:414), the availability of resources in the community, such as values, culture, knowledge and experience, must be recognised and used to their full potential.

3.9.8. School Management Developer and Governance (SMDG)

This is a senior manager in the district who has the responsibility of developing school management teams and governing bodies. The aim of enhancing the principal's leadership role is part of her ambit, because she has expert knowledge of managerial issues and possesses a wealth of information regarding school development. Her involvement in the project is important – she is a qualified psychologist with good communication skills – and she has a sound understanding of PAR.

3.9.9. Learning facilitator

A learning facilitator for information technology and a CAT specialist in Motheo district was involved. He is an active educator involved in ICT at higher-learning institutions and a member of the school network project. His involvement in the project helped the team to understand the importance of infusing ICT in teaching and learning.

3.9.10. ICT expert

The ICT expert, who has expert knowledge of the way the Botswana education ministry implemented ICT in schools, had been transferred to Bloemfontein and he provided wide knowledge of ICT development. He assisted the team to understand new technology and provided the team with valuable advice. PAR has some elements of the work of Torres and Freire (2007:234), who set out the following principles: PAR commences with explicit social and political intentions that articulate with the dominated and disadvantaged classes and groups in society. PAR must involve participation by disadvantaged groups – meaning that it must have a social basis. PAR regards knowledge as an agent of social transformation as a whole, thereby constituting a powerful critique of those views of knowledge theory as somehow separate from practice. PAR's epistemological base is rooted in critical theory and critique of the subject/object relationship in research. PAR must raise the consciousness of individuals, groups and the nation.

3.9.11. Community development worker

The community development worker is involved in social issues in the community and has been assisting the school's orphaned learners to access grants from Social Development. His/her involvement in the project helped the team and teachers to identify learners, and to assist them to understand their roles as leaders in the class, in the community and also at home. As a grassroots science, PAR can help give people a historical perspective, showing them where they come from, where they are, where they want to go and how to get there (Galletta & Jones, 2010:343). The principles above are summarised by Kemmis and McTaggart: People have the capacity to think and work together for a better life.

Knowledge, skills and resources should be shared to support fair distribution and structures (2006:472).

3.9.12. The school governing body

The SGB or the school council is the owner of the school and has the responsibility of enforcing policy regarding curriculum matters. The SGB decides what curriculum should be taught at the school and has the legitimate authority to recommend appointments in the school. Its involvement legitimised the research project, was in line with team work as advocated by the CER, and assists to transform the school, if necessary. In our intervention we attempted to involve all stakeholders relevant to the study, in the school and in the vicinity, as all stakeholders are directly or indirectly affected by the leadership role of the principal, and could assist in attaining the objectives of this study. Proponents of PAR emphasise that community members must have an egalitarian role in PAR, because they themselves are active researchers in all stages of the process, including the way the community should proceed to reach research outcomes (Galletta & Jones, 2010:343; Baum, MacDougall & Smith, 2006:852).

3.9.13. Religious leader

The local pastor is a respected member of the community; he has a long-standing relationship with the school, and plays a parental role in the school.

3.9.14. Non-teaching staff

Four non-teaching staff members of the school – three women and one man – were also involved in the project. Their role was to share their experiences and to be exposed to what others are doing to influence a real change in the school. One of the non-teaching staff members (Ms Galebutswi) has served the school as an administrative staff member for more than 35 years, in this time working under four principals. She possesses a rich knowledge of the school's history.

3.9.15. Coordinating team

This team was chosen by the participants at the first meeting of all stakeholders, which comprised myself as the scribe, the SMDG, the deputy principal, a teacher, a local pastor, a LRC representative, a parent, a head of department, a non-teaching staff member and a police officer.

3.10. DATA GENERATION AND PROCEDURES

This section deals with data collection techniques applied in the study (see Appendix O). The focus is on implementing the data collection techniques with an aim of clearing any biases in the research project (De Vos *et al*., 2005:417). The coordinating team engaged the identified stakeholders of the project and gathered information in a collective manner. We used a variety of data collection techniques, namely, community forums, photo voice, workshops and focus groups. We also strived to achieve a balance in gender, age and position or rank and status; this is a basic principle advocated by CER (Mahlomaholo, 2009:228). After recruiting people from the school's constituents we embarked on a self-empowerment project, which involved a range of training events relating to data gathering, analysis and report writing.

In the first meeting with the coordinating team, we engaged in discourses explaining the brief of the coordinating team, and the first action that we took due to the discourses pertaining to the brief, was a team-building exercise conducted by the pastor. During the team-building exercise we were each given a page, on which we had to write one strong point and one weak point about ourselves. After the exercise, each and everyone had to provide a detailed explanation of his or her views regarding the problem statement to the team. We circulated a copy the research proposal and we discussed the document.

The clearance certificate from the University of the Free State and the permission letter from the Free State provincial DBE were once again circulated. We confirmed among ourselves that the project complied with ethical standards and was genuine, as it had been approved by the University and the DBE. There was an unanimous decision to work together to enhance the leadership role of the principal in the use of ICT in the school. One member of the team, the SMDG, who was also busy with PAR studies elsewhere, explained the principles of PAR and what the technique required of us. We agreed on the principles and values that would guide our information gathering, and that we would remain accountable to them. We decided that focus groups and photo and video documentation would be the central instrument used – these techniques will be explained in Paragraph 3.10.1 below. Our main action was to create space to talk to stakeholders

about what they understood about the role of the principal in the use of ICT in the school. We also wanted to determine how we could enhance the leadership role of the principal in the use of ICT at school.

We collectively discussed and evaluated the information we had gathered and the action it suggested we take. We took decisions on how to share the information with the school community, and if and how we should also share it more broadly outside the school. The resource teacher developed a sheet for action planning after reading the research proposal; the action plan sheet was used to gather information. One teacher decided to develop an instrument to guide the activities of the project. Every member was given a task to complete the document (see Appendix O), with three central priorities to consider. I was requested to attend all the focus groups as a secretary, to keep minutes and report back to the SLT in the coordinating team.

3.10.1. Instrumentation

Because this study in anchored in CER with a research design in PAR, we used video recordings, photos and minutes of meetings as the main tools for data collection. We used Lategan's argument that creative research involves new procedures and inventions, and that it takes a much less structured approach than mainstream research and cannot always be pre-planned (2005:25). Thus, we adopted the free attitude interview (FAI) technique advocated by Ineke Meulenberg-Buskens (2011) as a means of being creative and an instrument for data collection. The FAI technique has elements of CER, because it involves asking just one question to initiate a discourse with respondents. The discourse is followed up by a reflective summary, it is thus persuasive to respondents and encourages them to think carefully about their arguments (Mahlomaholo, 2009:228). The term Free Attitude Interview can be traced back to Vrolij and Timmerman (Meulenberg-Buskens 2011:1). Meulenberg-Buskens argues that FAI is non-directive in nature, opens the space for the respondent to intervene and it is thus possible for the researcher and respondents to assess and negotiate issues of reliability and validity emphasised in positivist and phenomenological paradigms (Meulenberg-Buskens, 2011:2). FAI enabled us to employ

reflexivity as a means of controlling the effects of researcher bias and its influence on the research process.

We also used a variety of ICT tools: email and a discussion room in learning management systems. In addition, we had three large monthly gatherings, as well as fortnightly focus groups. These sessions had a great influence on how we related to one another; the way we greeted each other, talked and did things; for example, we developed time consciousness and caring for one another (Brydon-Miller & Maguire, 2009:82). We developed very close relationships, and served on various forums in our respective communities. We had a long history as people who either met during undergraduate studies, in the workplace, or within the local community.

We started our activities with a PESTLE analysis of the political, economic, social, technological, legal and physical environments in which we found ourselves and which impacted on us. We then engaged in establishing our strengths, weaknesses, opportunities and threats (SWOT) to analyse where we stood in terms of our academic identities. We also engaged in team-building exercises, and generated data through regular dialogue in different focus groups, using presentations and videotaping all our gatherings. By engaging in many activities, among which ICT training; academic writing skills workshops; social networking forums, such as Facebook; public lectures by critical scholars across disciplines; and conversations with various experts in curriculum and education studies, we broadened our knowledge significantly. We attended training on the learning management system Blackboard, which is used for eLearning purposes; we gathered in different places and learnt from different communities. Anyone could be approached to help a fellow student in his/her project. The entire SLT participated as co-researchers and assisted one another to overcome pitfalls. The video recorder was on a stand and used regularly in group meetings. Members encouraged video recordings and had consented to this prior to the research. Participants did not appear to have a problem with this, as most of them suggested creative ways for conducting the research. One participant emphasised that everyone should understand the double role of the researcher

and the researched, while another participant pointed out that no-one should be forced to participate and that this should be stressed at all the meetings.

3.10.2. Data analysis

The data collected was analysed by means that would enable us to gain a deeper understanding, we interpreted the data collected and reflected on our interpretation. To analyse the data collected we used the CDA advocated by Van Dijk. We adopted CDA as the means of interpretation. We have chosen CDA because it acknowledges the need to examine, in practical terms, how one goes about doing a critical analysis of text and talk (Van Dijk, 2011:89). Furthermore, we opted for critical discourse, because CDA requires that structures, strategies or other properties of text, talk, verbal interaction or communicative events play a role in the modes of reproduction of power relations, enactment, representation, legitimation denial, mitigation or concealment of dominance among others (Van Dijk, 2011:93, Govender & Muthukrishna, 2012:29). CDA can also be used as a means for explanation, description and interpretation of the generated data (Van Dijk, 2003:352, De Vos *et al*, 2005:430). CDA is a technique used primarily in studies aiming to expose how social power is abused, where dominance and inequalities are enacted, reproduced and resisted by text and talk in the social and political context (De Vos *et al.*, 2005:431). CDA is a type of discourse that requires the connection between language used and social context in which it occurs as it relates to gender, ethnicity, cultural, difference, ideology and identity (Shopen, 2013: 221; Paltridge, 2006:10). Hence, CDA was used to show what structures, strategies or other properties of text, talk, verbal interaction or communicative events play a role in the modes of reproduction of domination and power relation inequality that are revealed (Van Dijk, 2008:250). CDA will also be used to understand meaning from the extracts from discursive practices and social structure. Finally, the analysis, interpretation and discussions of the challenges will follow, so as to arrive at prudent findings directed by the literature. The same procedure will be followed with regard to other objectives of the study.

This information was generated in the form of minutes of meetings and virtual discussions on social networks as well as photo voices (Van Dijk, 1993:250; 2009:230). We base our understanding on good comprehension of the computer learning models we learned about in the workshops conducted by a telecommunications company expert.

The community forums, photo voice, workshops and focus group video tapes and recorded interviews were transcribed verbatim. After every meeting, as the secretary, I transcribed and distributed the text to all members of the coordinating team for reflection. All the recordings and transcripts were distributed at the next meeting, and the coordinating team viewed the video-recorded material and validated the transcripts to confirm whether we have a collective understanding of the transcripts. The advantage of reviewing the recorded videos was that all members of the coordinating team became involved in correcting misunderstandings of what had transpired in the meetings.

3.11 SUMMARY CONCLUSION

This chapter presented the research methodology used in this study, with a special focus on the background of PAR and the reasons for using it in the present research. The research was designed around an intervention, based on the first step of a meeting with the SMDG at a meeting of all stakeholders and the meeting proceedings. This was followed by a brief history of the school, including conditions in the school prior to the interventions. Profiling the school's learners, parents, teachers, heads of departments, the principalship, including the SMDG and governance official, the learning facilitator and the information communication expert, the community development worker, the SGB or school council, non-teaching staff and the coordinating team or SLT, were described in detail. The chapter also presented the data collection procedure, the instrumentation that was used and the way data analysis was done. The next chapter will focus on data presentation, analysis and interpretation.

CHAPTER 4

PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA AND DISCUSSION OF FINDINGS

The ultimate authority must always rest with
the individual's own reason and critical analysis.

Dalai Lama

4.1 INTRODUCTION

This study aimed to design a framework that would enhance the principal's leadership role in the use of information communication technology (ICT) at a school. This chapter deals with data presentation, analysis and interpretation, as well as a discussion of the findings. The empirical data generated through the course of the study sought to answer the following research questions:

- What role does the school principal play in the usage of ICT for teaching and learning at school?
- How does the principal's leadership role in the use of ICT contribute to teacher professional practice for improving performance in a school?
- What strategies and guidelines can be used to support principals to sustain teaching and learning through ICTs in class?

In attempting to answer these questions, a participatory action research (PAR) project was initiated at the school (see Paragraph 3.9). The coordinating team, consisting of persons from diverse backgrounds and experiences, conducted PAR in a professional curriculum leadership context and produced data by conducting free attitude interviews (FIA) with the co-researchers, and creating photo voices of research participants and video recordings of workshops and other group forums. Documents, such as administrative files and the Integrated Quality Measurement Systems (IQMS) records, were also analysed. The data was generated empirically through involvement and engagement of stakeholders in the

school, and then categorised systematically according to the three themes. Most of the data was captured in the local language (Sesotho) and was later translated into English. Noted that, for ethical reasons, the names used in this study are pseudonyms. Furthermore, although permission was granted to use the photos acquired with the voices of participants, the faces of the participants will not be revealed.

The data presented is categorised into the three themes that emerged from the constructs discussed in the literature review (see Appendix O). The data will be presented as follows: first, the process of establishing a research agenda will be outlined as background information. Second, data that relates to the pedagogical dimension will be presented in an attempt to answer the first research question of the study. Third, data relating to the technical dimension will be presented as a response to the second part of the research question. In the fourth case, data that relates to the collaboration and networking dimension will be presented in a deliberate attempt to address the third question of the study. Consistent patterns of analysis, informed by themes from critical leadership studies, coloured by the critical emancipatory research lens and drawn from connectivism and the community cultural wealth theory, will be used throughout the interpretation and discussion of findings, as well as in developing distinct and contrasting trajectories for the enhancement of the principal's leadership role in the use of ICT in the school.

In the fifth case, comments are analysed through critical discourse analysis (CDA), which is a technique used primarily to expose how social power is abused and dominance and inequalities are enacted, reproduced and resisted by text and talk in a social and political context (De Vos *et al*., 2005:431). CDA is a type of discourse that requires a connection between the language used and the social context in which it occurs, as an issue of gender, ethnicity, culture, difference, ideology and identity (Van Dijk, 2003:352; De Vos *et al.*, 2005:430; Shopen, 2013:221). CDA explores how connections of language and social context are constructed and inflicted in text (Paltridge, 2006:10). CDA is used to show which structures and strategies of communicative events play a role in these modes of reproduction of domination, power relations and inequality (Van Dijk, 2008:250).

In the sixth case, CDA will be used to glean meaning from the extracts and from discursive practices and social structure. Finally, a summary account of the trajectory path and interventions followed in enhancing the principal's leadership role in the use of ICT will be discussed, in order to arrive at prudent findings directed by the literature.

4.2 BACKGROUND TO THE INTERVENTION PROCESS

This section deals with the broad background of the intervention processes undertaken, which ultimately led to generation of massive data relating to the school under study. This background provides brief answers to the question of how the research coordinating team was able to form **relationships,** which is the basic principle required for conducting qualitative research using PAR and driven through CLS. As a starting point, the coordinating team established working relations by creating teams and doing team-building exercises. Thereafter the team considered the frameworks or "models" that are recommended for implementing ICT in schools. Despite the recommended ICT models meant to address matters of professional curriculum practice related to the integration of ICTs, the school under study largely ignored or were never exposed to these models, as is the case with many other schools described in the literature (Yuen *et al*., 2003:161; Liou *et al*., 2009:536; Bhasin, 2012:132; Lin & Lin, 2012:98). The rationale of this part is justifying the necessity of conducting a study on ICT leadership in one school, with the main aim of formulating a framework to enhance the principal's leadership role in the use of ICT. Findings of numerous research studies on curriculum leadership regarding ICTs were presented in Chapter 2, which produced frameworks that could enable teachers to use ICTs in pedagogical practice. However, there are often limitations to the applicability of such models, such as context, as was the case in this research study (Kim, Kim, Lee, Spector & De Meester, 2013:77). Our initiative in attempting to understand the principal's leadership role in the use of ICT, his contribution to influencing teachers to use ICT in curriculum practice, and the guidelines for policy for ICT use, went a long way in prompting the research team to action. The team was driven by a strong conviction that, although research is about understanding the "phenomenon", the reality is that the true contribution of research is the ability to solve the problem being investigated. Although

researchers have suggested models with regard to the use of ICT, not all models are effective in all contexts. This led to us deciding to focus only on one school. Besides, our concern was improving teaching and learning at that one school. The research coordinating team therefore requested its members to read about the various models, so that everyone was informed before they engaged in discourse within the team. The models that the team had to read about were the learning-orientated micro model, the ICT-orientated micro model, the population model and the popular technology accepted model (TAM). There is no evidence of these models being successfully implemented at schools (see Paragraph 2.2.2) and thus applied to the challenges facing the curriculum leadership role of school principals in the use of ICT (Newhouse, 2012:2). To understand the principal's leadership role in the use of ICT as a collective, we first had to identify the challenges faced by the principal of the school at which the research was conducted.

The research team were in agreement that curriculum leaders experience numerous challenges in schools regarding the usage of ICT for teaching and learning. Some of these challenges include the absence of a professional curriculum leadership team, the absence of caring professional curriculum leaders in the school, the absence of supportive curriculum leaders, and an absence of ICT know-how on the part of the curriculum leaders. Teachers who took the initiative to use ICTs in teaching and learning were affected negatively, particularly when those in authority did not know how to support them. It cannot be overemphasised that, in any school, the role of the principal regarding professional curriculum practices involving ICT is vital. All teachers, particularly novice teachers, look up to the school principal to give direction regarding teaching and learning (Becta, 2006:7; Stuart *et al.*, 2009:740; Klein, 2011:18).

Another challenge is the absence of coordination, causing every person involved to do what they believe to be correct. This can impact adversely on the school, particularly when dramatic curriculum reform takes place at the school simultaneously with educational leadership reform. The school under study experienced these challenges due to the absence of a shared vision, or a vision that is in line with the existence of the school. This can have costly outcomes for the school, particularly when there is no team vision in the

workplace – it could lead to conflicts of interest that could result in a trial-and-error approach in leadership (Carmen *et al*., 2006:180; Newhouse, 2012:2).

The absence of information about the political, economic, social, technological, legal and physical environment (PESTLE) will impact negatively on the use of ICT for teaching and learning, particularly when the PESTLE conditions go unnoticed at the school. Thus, a school principal, as the leader, is expected to possess sound knowledge of the school context before he/she attempts to implement new measures or policies relating to teaching and learning.

An analysis of the strengths, weaknesses, opportunities and threats (SWOT) experienced in the school was conducted. In relation to the use of ICT the absence of this information may leave curriculum leaders without the information necessary for planning and prioritising matters relating to the school. Prioritisation is necessary for deciding which aspects must be attended to first – there might even be aspects that fall within the abilities of the curriculum leaders of the school that can be attended to immediately. An absence of strategic planning could lead to a failure to monitor important aspects, to lack of planning or to improper planning.

The challenges faced by the principal also include the absence of identified priorities. At the school in this study, for instance, they lacked a plan for implementing innovative teaching strategies, and this impacted on the execution of teaching and learning. Since the school did not seem to follow or keep up with new trends in education, the school was in danger of being left behind and is unable to implement 21st century teaching and learning methods. New teaching methods can simplify teaching and learning; these methods include using technological gadgets such as interactive whiteboards, Information Communication Technology Innovation in School Education (ICTISE), iPods, iPads, YouTube, CD-ROMs and ICT equipment (Newhouse, 2012:3).

Before the intervention at the school, no strategic planning had ever been done. This type of plan (the intervention) could enable a school to participate fully in the changes

experienced in the education arena, thereby enabling the school to keep abreast with developments in the information and technology field.

4.2.1 The professional curriculum leadership team for the use of ICT

During the intervention process at the school, we observed that in both the school as a whole and in the school management team (SMT), teamwork was lacking. There were some signs of ICT use in the school, for instance, the HeyMath! teachers (a group of mathematics teachers who had received training and professional development on the use of the HeyMath! program) had received a data projector and a laptop from the Department of Basic Education (DBE). Three other teachers had been trained in ICTISE and telecommunications service providers had trained another teacher in the use of ICTs. There were also individual attempts to use ICTs in curriculum practice, but without support from school leadership. However, none of these initiatives were coordinated, which suggests a lack of teamwork. As Simon Sinek argues, "the ability for a group of people to do remarkable things hinges on how well those people can pull together as a team" (2009:42). The actions of the coordinating team served as an inspiration to the team to acquire the knowledge, skills, strategies and tools needed to impact positively on teachers' pedagogic practices using ICT (Waters, Marzano & McNulty, 2003:2). Without a team approach curriculum leadership was likely to remain elusive and imprecise (Newhouse, 2013:6). The formation of a curriculum team translates into informed stakeholders who can work collaboratively to support one another in championing ICT use in classroom practice (Razzak, 2013a:738). School principals need to believe strongly and must act on the conviction that it is their responsibility to encourage teachers to form teams that address the use ICTs in curriculum practice, but such action requires that principals are able to operate in teams too (see Paragraph 2.5.1.2). The idea that teamwork is pivotal for successful ICT integration in teaching and learning was evident from a conversation between participants, as indicated in the extracts below:

> ***Makuru (a teacher)****: It's high time that we also Google now … do you agree Ma Nkane? Other people in this school have 24 hour access to the internet, I have*

noticed those six learners in Grade 10. They have passed the life science test again; they say that "they have a study team and Google a lot". But Bleggie [a white male CAT teacher] does not want to share access to the school's internet or to help us, and as such children do better than us.

***Nkane**: Amandla! [raising her fist] I agree, I have noticed Bleggie is full of himself, he is not able to work with others, and he thinks he knows everything, but he doesn't. If they really want us to be better teachers then we need teamwork, my brother.*

Analysis from a textual and spoken-word perspective: Makuru's view that *it's high time* indicates a yearning for self-emancipatory action. The use of the words *other people in this school* indicates recognition, identification and exposure of those in power as *others* and awareness that they (the *others)* do not use their power correctly (Van Dijk, 2008:vii). Makuru shows that he is troubled by a group of people acting individually at the expense of collective and cordial teamwork. Access to the internet is important, thus, the use of the word *we* suggests that Makuru values teamwork – he encourages a team member to start work and acknowledges the possibilities of working together.

Analysis from a social-structure perspective: The teacher also draws from the cultural capital available in the community, particularly resistance capital. He is concerned about three aspects. The first concern he raises is the unequal treatment of people at the school, particularly with regard to access to the internet. Makuru's second concern is marginalisation. Although the government policy document requires that teachers should be able to access the diagnostic self-assessment system online to assess and gain immediate feedback, in a risk-free environment, on their own competence using the Technology Entertainment and Design (TED) ICT support system (DBE, 2011:7), this does not appear to be the case at this school. The third concern Makuru raises is what could be considered as the illegitimate power possessed by those in authority – illegitimate, because they only use authoritative power to coerce teachers to do what they want them to do. However, the teacher is also consciously aware that teamwork is crucial for collective survival (Kemmis, 2010:10). The teacher also takes action to solicit support

for a revolutionary action by reflecting on the results of the Grade 10 learners' teamwork. Kemmis (2010:11) sees the changing of practices for personal development and collective gains as self-reflection.

Analysis from a discursive-practice perspective: Nkane draws from the community's cultural capital, particularly resistance capital, which is about the value, knowledge and tools used to nurture oppositional behaviour that challenges authority and stands for equality (Yosso & Garcia, 2007:146; James, 2012:44; Tshelane, 2013:416). Nkane gestures with her fist, which is seen as a sign of unity, but can also be interpreted as symbol of power, while emphasising teamwork. The discursive practice depicted by Nkane speaks to Bourdieu's notion of coming to understand a new idea through what is referred to as "habitus". Habitus is a structure through which we produce our thought and actions, which, in turn, creates our external social structures as habitus, suggesting how and what a person should think (Bourdieu, 2010: 166). For instance, during the apartheid era the showing of a fist could land a person in jail, because the oppressors, in this context the police, would deem it as inciting resistance or teamwork for defiance against the unjust laws. During apartheid, showing fists suggested power, particularly "black power", which could land a person in detention without trial.

The interpretations above are driven by the facilitation of the politics of the possibility of confronting social oppression at whatever level it occurs (Oliver, 1997:1). The extracts above provide evidence and confirmation of the literature and empirical outcomes that suggest that a framework for enhancing a principal's leadership role in the use of ICT requires teamwork. It further suggests that, for school leaders to influence teachers to use ICT in teaching, teamwork is an essential aspect for collective emancipation, which would result in the kind of curriculum delivery that is likely to improve teaching and learning.

The discussion above also indicates that, although many scholars, thoughtful idealists, and experienced and competent researchers offered theories, anecdotes and perspectives concerning ICT or ICT leadership, none of these inputs have been derived from participatory action research or the emancipatory research perspective, where teamwork is prioritised (Ferreira & Ebersohn, 2012:35). As such, these inputs remain

largely theoretical and have, to date, failed to provide school leaders with practical guidance on how to become active leaders who use ICTs or who inspire others to use ICTs in curriculum practice (Sinek, 2010:45). No other models of ICT in curriculum practice have been developed from a teamwork approach (Newhouse, 2013:4). The system/school technology model is the only model that suggests teamwork as a necessary condition for integrating ICT in teaching and learning. However, the school technology model does not indicate how such conditions are created. This is confirmed by Bartenschlag and Funk (2013:3), who state that, “an organisation cannot flourish on the actions of the top leader alone. Schools need many leaders at various levels”. These researchers believe that, instead of relying on only one person, successful school principals, as leaders, use teams to gather ideas, collaborate on solutions and develop resourceful ways of advancing professional curriculum practice and management ingenuities. These researchers conclude that strong leadership teams form the basis for coherent and sustainable learning environments at schools (Kurland, Perets & Hertz-Lazarowits, 2010:7).

4.2.2 Absence of a vision and mission statement

The absence of a technology vision and mission statement was necessary to enhance the leadership role of the principal in the use of ICT in a focused and defined environment. This was regarded as a prerequisite by the research team because education is a community asset, and if its purpose is not well defined by stakeholders and those in leadership positions, it can impact negatively on the community and activities beyond the school environment (Fullan, 2005:175).

A school, like any business or organisation, needs a vision and mission statement that defines its existence (Carmen *et al*., 2006:181). A school that does not have a vision relating to the use of ICT won’t have a purpose for its existence in the current dispensation, particularly in the information society (Fullan, 2006:1150). It is possible for a school to formulate a vision and mission statement that deviates from developments in its community or from current trends (Niemi, Kynaslahti & Vahtivuori-Hanninen, 2013: 59).

Literature indicates that leadership is accountable for how well teachers teach and how much learners learn. Vision is considered to be the essence of leadership, and creates a sense of purpose that binds teachers together and propels them to fulfil their deepest aspirations and to reach ambitious goals (Kurland *et al.*, 2010:8).

Literature confirms that a school should formulate a centralised vision (see Paragraph 2.3.12). In some instances government sets the tone with broad programmes, such as Vision 2020, which is a guide for school leaders, although there is still no ICT policy for schools. In other instances, an ICT vision is championed by regional bodies, such as NEPAD, to provide guidance in the region. In South Africa, the National Development Plan articulates an ICT vision for schools, and teachers are expected to create a positive environment that will enable learners to learn through the use of ICT. A significant challenge facing schools was exposed by the literature, namely, that some schools merely implemented ICT without formulating a vision and mission, resulting in limited success due to the absence of a realistic purpose. At the school where the study was undertaken there was a vision and mission statement, but it was not aligned with ICT integration. This is evident from the comments made by a teacher during our intervention meeting:

> ***Ntwadumela:*** *I have more than 15 years in this school; the current principal found me here, we never had a vision and mission statement in this school. Our former principal was a good man, but not an administrator. We only see the vision and mission statement nicely framed on the wall, in the principal's office this year, we are not sure where it comes from. I can't remember any day that someone was assigned to write a vision and mission statement for our school, but because some people only do things for the sake of formality there it is.*

Analysis from a textual and spoken-word perspective: Words such as *I have more than 15 years* indicate the extent of the participant's loyalty to the school, in other words, the participant believes that she has legitimacy and more credible knowledge on the developments in the school than the principal does – the participant uses this statement to flex her power, which is derived from historical knowledge about the school. The phrase *in this school* indicates a feeling of disowning the school, perhaps due to the absence of a

shared vision. By uttering the phrase, *The principal found me here* the participant states that she is a legitimate aspirant who deserves to be involved in drawing up a vision and mission statement for the school. *We are not sure where it comes from* is a statement that indicates feelings of oppression, domination and marginalisation, especially since the participant is also a woman, in a social context where initiatives are often undertaken without involving women.

Analysis from a social-structure perspective: The phrase, *Our former principal was a good man, but not an administrator*, indicates a reflection on past experiences where humanity mattered, although not all was perfect. We could interpret Ntwadumela's statement as meaning that, although the former principal was not good at administration – he failed to display the school vision and mission on the premises – he wouldn't have displayed information without informing everyone in the school how that information was arrived at. It also suggests that the participant's views regarding the displayed vision and mission statement are negative – she is disowning the document, and regards it as illegitimate. It could be that the staff do not recognise the vision document, because it is displayed in the office of the principal, which can suggest that the display serves only to impress district officials while hiding the dysfunction in ICT integration.

Analysis from a discursive-practice perspective: It seems that Ntwadumela is consciously aware that the development of a vision statement is a process that involves participation of all stakeholders. However, she invalidates the existing vision by disowning it and expressing a feeling of oppression inflicted by the school leaders at the expense of the school community. Ntwadumela is also aware that, for the school to implement ICT, it has to start with proper planning. The plan will only be possible if there is a mandate that could be articulated into a vision (Zuber-Skerritt, 2002:144).

The discussions above indicate the broader visionary ideals of equality as an emancipatory ideology. The discussions show devotion to strong beliefs regarding rights and values, egalitarianism, social justice, hope and counter-hegemony. This suggests that active capacity and social capital have, to a differentiated degree, been leached by technocratic functionalist approaches to the governance and mandate of educational

leadership, which will not hesitate to use everything at its disposal, including ICT, to change the community.

The discussion also confirms the findings reported in the literature, namely, that a shared vision, championed by collaborative leadership, is a requirement for the successful implementation of ICT in a classroom. This goal can only be attained in a democratic environment, because democracy is embedded in social conditions and as such presupposes social justice, and expands the environment for human comfort.

4.2.3 PESTLE and SWOT analysis in preparation for using ICT in classrooms

The e-Education policy document states that a modest, sustained and systematic growth plan is the ideal (DoE, 2004:39). This implies that a sustainable developmental framework is required if ICT is to be used (Tomas, Chie, Abraham, Raj & Beh, 2014:116). Proper analysis of the school environmental context involves stakeholder analysis that includes both internal and external analyses. This will ensure that the coordinating team can make informed decisions regarding the implementation of activities to facilitate the use of ICT at the school (Zuber-Skerritt, 2002:144).This corresponds with the best practice in schools; for example, in some schools, before implementing ICT in classrooms, the authorities identified ICT as a strength that can present opportunities for easier communication. New partners were also identified but financial resources were a challenge for implementing ICT in certain classrooms. Cultural aspects were perceived as posing a challenge to promoting communication and information exchange (Yakovleva, 2011:31). Proper planning was an oversight in the school under study, as indicated by a participant during our intervention workshop:

> ***Kosloski:*** *We have never had time to do things right in the school, our major challenge is time – teachers are really overworked. We do not even participate in extramural activities. Anyway, the Department of Education just brings new plans and policies and we have to implement.*

Analysis from a textual and spoken-word perspective: The statement by the participant, *we never had time to do things right*, is an admission of an oversight, meaning that Kosloski was aware that things are not done correctly at the school. However, Kosloski justifies doing things in this (incorrect) way by referring to *overworked teachers*. He says the *major challenge is time* in acceptance, thereby shifting the accountability.

Analysis from a social-structure perspective: It seems that Kosloski is of the opinion that he and other teachers are overworked. He says the school has never attempted to confront its challenges by gathering the school community together and interrogating the contextual environment with pure motives.

Participation in reflection by means of PESTLE and SWOT analyses provided a good platform for members of the school community to sit down together and audit what there is and what could be explored to benefit the school. Kosloski says there is no *time to do things right*, which could refer to challenges experienced in schools regarding ICT integration, availability of time to plan for the implementation process, availability of technological resources (including human resources), availability of money, and allocation of authority to the principal as a school leader. The ways in which ICT integration is addressed lack innovation.

Analysis from a discursive-practice perspective: The act of doing things incorrectly can lead to a contravention of the e-Education policy and a principal who contravenes the law does not represent education in the country well. This could be equated to undermining the constitution of the country.

The discussions above indicate that school principals and teachers do not engage in productive practices; they fail to question the general belief that teachers are overworked. They seem to be helpless and do not want to do something to free themselves from the feeling of exploitation and oppression. This is the reason participants believed that, in order for ICTs to be used, a detailed analysis of the situation is necessary.

4.2.4 Lack of priority for ICT in the school environment

The first objective of the five strategic objectives of the e-Education policy titled, *ICT professional development for management, teaching and learning,* promulgates that "Every teacher, manager and administrator in general and further education and training must have the knowledge, skills and support they need to integrate ICTs in teaching and learning" (DoE, 2004:25). This implies that school principals must be knowledgeable and skilful enough to coach others in the use of ICT for teaching and learning, and must share their knowledge and skills in this regard with fellow teachers. However, this does not seem to be the case at the school under study. The school principal, as a manager, should have taken this obligation very seriously, because it is a policy directive that has to be steered by the head of the institution, as can be seen in the following comment by a learner at the school:

> ***Kgantlapane****: The trouble is that our principal does not worry about computers in this school. In my primary school, teachers used computers for teaching. Every classroom had been equipped with a data projector and a computer. Everything was computerised, attendance registers, school reports and almost everything including disciplinary cards and school finances. But here, we do not have even access to Encarta software.*

Analysis from a textual and spoken-word perspective: The word *trouble* could refer to risk, and because risk refers to the probability of losing something treasured; this means that Kgantlapane believes that the behaviour or attitude of the principal places the futures of learners in peril. Kgantlapane confirms the belief further with the words, *does not worry about computers*. The learner feels marginalised. Kgantlapane continues, *we do not have access to … software*, meaning the education authorities do not take their own policy seriously and the challenge of a digital divide is likely to remain. These actions continue to perpetuate educational inequalities emanating from incompetence on the part of those in leadership positions.

Analysis from social-structure perspective: From the extract above it is clear that Kgantlapane used community cultural capital, particularly navigational capital, to adjust to the non-inclusive environment in high school. In primary school the situation had been more advanced, because the primary school had been ICT compliant. It requires perseverance to survive in a school where the principal has not as yet adopted new ICT developments. The ICT system technology theory is also at stake, as Kgantlapane indicates that ICT support is a challenge too, which means that the school policy will have to be aligned with the national policy of the Department of Education.

Analysis from a discursive-practice perspective: Kgantlapane highlights a problem that was acknowledged by most research participants. An issue that was of concern to research participants was that learners who came from primary schools where they had been introduced to computers, could not expand the basic computer skills they had acquired unless they were registered for the subject CAT.

The discussion above indicates that the role of the principal is crucial, because it has a profound impact on the futures of the learners as well as on the economic development of the country. The discussion also reveals that school leaders who adopt ICT can align their schools to address the changing needs of the community. The discussion further reveals that ICT not only enhances teaching and learning, but also improves administration activities, such as the registration of learners, bookkeeping, and the retrieval of learner records. It could be concluded that the DBE has to improve the implementation of the e-Education policy, which would also serve to redefine the role of the principal.

4.2.5 Lack of strategic planning for ICT use in teaching and learning

The researcher and research participants were involved in strategic planning sessions in order to prepare for activities that would enable them to achieve the objectives of the research study. This is in agreement with the e-Education policy directive, which states that, “community engagement in ICT planning, implementing and monitoring is crucial for the formation, maintenance and security of an E-school”. Furthermore, strategic planning is a principle of CER, as it creates a space for people to empower themselves (see

Paragraph 2.3.3). This kind of planning enabled research participants to determine which actions need to be taken in order to enhance the leadership role of the principal in the use of ICT. During the planning session the research participants expressed concerns about strategic planning. The following extracts indicate that strategic planning is not a reality at the school:

> ***Dabuka****: It is quite a surprise to me; we are always in the dark in this school. I thought strategic planning exists only in big businesses and that strategic planning is only done by managers in big companies.*
>
> ***Madikeitere*** *[moving towards the principal]: That is true, help me to understand, Sir, have you as the SMT, in the past or present, ever had a strategic planning session?*
>
> ***Boom*** *[interrupting]: That's problematic. You cannot ask the principal such questions, it is not fair, you have been in this coordinating team for a while, but it seems that the teamwork sessions did not open your eyes.*

The above extracts indicate that the school had not undertaken strategic planning before.

Analysis from a textual and spoken-word perspective: Drawing from the word **"**surprise" it seems that Dabuka and the other research participants only learned about strategic planning during the coordinating committee engagement, and Dabuka could not understand the rationale for engaging in strategic planning. This was further confirmed by the words, *we are always in the dark in this school*. This proves that, even if the school engages in such planning, very little communication, if any, takes place with stakeholders. Members of the school community should always be informed of developments in the school. One of the ways of communicating with staff and parents could be by SMS, as suggested by the e-Education policy (DoE, 2004:39). This suggestion is supported by Karagiorgi (2005: 24), who states that, "implementers of ICT should have a clear understanding of what to do. Policies, written guides, in-service programmes can help clarify the meaning". Communication will motivate teachers to participate in school activities and prevent them feeling marginalised and disrespected. Listening carefully to

Dabuka, the following phrase in particular, *I thought … planning is only done by managers*, suggests that Dabuka feels empowered and emancipated after participating in the strategic planning and being part of the coordinating team. Boom's statement indicates an understanding of his role as a leader who must protect and support all stakeholders. This can be seen in the following words: *you cannot ask the principal such questions*, and *it is not fair,* whereby Boom discouraged Madikeitere from ridiculing the principal. It seems that PAR developed humanitarian practices among the stakeholders, characterised by hope, fairness, care, love and respect for each other. This implies that participants may have benefitted by being part of the coordinating teams because they learned a better way of doing things.

Analysis from a social-structure perspective: The extracts above show that Boom's knowledge and understanding of human relations were nurtured and passed on to him through a relationship with other research participants. It seems that Boom draws his views from the wealth of capital acquired over time, thereby ensuring day-to-day survival and an understanding of how the role of the principal can be enhanced. Boom's experience confirms that stated by Habermas, who claims that it is evident that the illegitimate hierarchies and fixed social roles of societies prevent majorities and minorities alike from realising their full human potential (Fraser, 2001:362).

Analysis from a discursive-practice perspective: The central argument in the extracts above is that strategic planning has never been done at the school. The discourses suggest a need for a cult of competency in leadership that is in agreement with the system-technology theory, which assumes that successful integration of ICT in teaching depends largely on factors within the school.

The discussions above indicate that a dynamic school culture, one that is open and fair, can only be sustained through strategic planning supported by transparent leadership. The discussions further confirm a common notion that leadership plays a critical role in supporting teachers to integrate ICT in professional curriculum practices. The participants further emphasise the importance of strategic planning if a culture of ICT use is to be implemented successfully in a school.

4.2.6 Programme planning evaluation and monitoring (PPEM)

The e-Education policy states that,

> *the rapid development of ICTs, the increased pressure for productive management of organisational performance, and a preference for self-management institutions have resulted in the development of powerful management information systems. As with other types of organisations, schools and school systems are increasingly using management information systems for planning, monitoring, improvement and accountability purposes. (DoE, 2004:210)*

ICTs have the capacity to automate processes and save time, thereby freeing managers to focus on professional curriculum leadership. Implementation of this policy requirement seemed to be lacking at the school under study. With this in mind the coordinating team developed a programme that had to be evaluated after every activity. After completing an activity the team members engaged in a reflection session at which the activity was monitored according to a checklist. The idea was that they should start by scoping the environment before defining the indicators. After the indicators had been defined, setting thresholds and conducting risk analysis enabled management to develop a strategy for evaluation (Tallis, Levin, Ruckelshaus, Lester, McLeod, Fluharty & Halpern, 2010:343). The following extract serves as evidence that there was a lack of PPEM:

> ***Lampi****: Our major problem in this school is that we are good at planning, this is so, because we are always given papers that indicate what will happen during the course of the year, to no results, so I have decided to store them in my drawer.*
>
> ***Machanse****: Yes, Sir, true Sir, and last year we were told that there will be a trip to Cape Town, even today I am struggling to get a refund.*
>
> ***Pako*** *[interrupting] I also need my money back.*

Analysis from a textual and spoken-word perspective: *Our major problem in this school is that we are good at planning,* is a contradictory statement. It seems that Lampi's interpretation of the situation is that the plans in the school are not working. This is also

contradictory to the discussion of strategic planning above: The speaker claims that the plans are good, however, he does not use the plans because they are undermined by the school community as a whole.

Analysis from a social-structure perspective: Comments by Machanse (a representative of the learners) indicates that participation in the project offered her a chance to not only voice her dissatisfaction but also the opportunity to do so in a safe environment. Her concerns seem to be a general problem shared by a number of people. The dissatisfaction is confirmed by Pako (a parent), who also draws from social capital to indicate that Machanse's concern is a social issue in the school. Although the purpose of the coordinating team is to address ICT, social issues that can lead to the failure of the ICT project can already be identified.

Analysis from a discursive-practice perspective: Although the coordinating team was concerned with finding the best way to develop programme planning, evaluation and monitoring, PAR provided an opportunity for the learners and the parents to voice their dissatisfaction with the leadership and to remind everyone that evaluation and monitoring of projects at the school are lacking. They were empowered through their involvement, particularly when the cultural experiences of the teacher (Lampi) were raised with regard to programme evaluation and monitoring.

The discussion above highlights three important aspects. First, the study findings are consistent with the literature, particularly with regard to cultural wealth as advocated by Yosso (2005:72). Second, the emancipatory agenda associated with PAR could be realised by the actions of the participants. The CLS theory was operationalised in the research project where every participant was committed to bring her/his part in the school.

In order for learners to be productive and functional in society on completion of 12 years of schooling, they require diverse knowledge and skills that enable them to survive and participate in a continuously changing world in which technology plays a major role. For instance, registration to study at the University of South Africa (UNISA) can only be done

online, and this can be a problem for students who do not have access to the internet and those who do not have the necessary computer skills.

The school principal's leadership role has undergone major transformation over the years, from a building manager or housekeeper, to instructional leader, curriculum leader and technology leader (Davies, 2010:56). Today, a new role for the principal, that of ICT coordinator who works to improve teaching and learning for better output, calls for educational reform that redefines the school principal's role to include leadership regarding the use of ICT.

In light of the above, the sections that follow provide an account of the actions that we took in an attempt to gain a better understanding of the principal's leadership role in the use of ICT in the school. Participation in a community project provided opportunities for the school community to plan, learn, act and reflect on the principal's leadership role regarding the use of ICT in the school. However, the intention was not merely to understand the leadership role regarding the use of technology for teaching and learning, but also to enhance it, if necessary, to improve teaching and learning at the school.

Invitations issued by the school governing body to participate in a school forum formed the basis for establishing a research coordinating team that worked through numerous cycles of PAR (see Figure 3.1). Because the project is not yet completed, reporting on all the cycles followed during the research project will not be done here; instead, only three cycles will be reported. The data generated is however sufficient to warrant a report. The research was conducted by a team of 11; five of whom facilitated logistical matters and communication, as instructed by the team. The participants had different levels of experience regarding ICT and school leadership and different educational and social backgrounds (see Paragraph 3.9), and their ages ranged from 16 to 65. The team composition operationalised the CER principle that research can be conducted by ordinary people. Although 11 participants initially took part in the research study, only nine were actively involved and participated in all three cycles of the research process. One of the participants, a matric candidate, was exonerated from other activities after contributing immensely to the project because of the nature of some of the intervention projects.

Another participant, a female teacher at the school, completed three cycles before taking maternity leave. The rest of the coordinating team steered the research project from the start to date.

Under the pedagogical dimension four priorities with a strong focus on generating empirical evidence were identified; the priorities were based on the following constructs: (i) creating a positive learning environment; (ii) creation of knowledge for the use of ICTs in curriculum; (iii) lesson planning, preparation, management and presentation; and (iv) assessment, recording and maintenance of essential records. In the next sections the empirical data generated is presented, analysed, interpreted and discussed for each construct.

4.2.7 Reflection on the intervention process

The aim of the intervention process was twofold. The first part focused on learning, for example, participants learned basic aspects such as greeting and showing care to each other, forming relationships and owning the research process. In this part, participants experienced personal transformation, which is the most urgent transformational stage participants would ever be exposed to. CER is actually operationalised during this stage because the researcher and the research participants come to understand themselves to a point where behaviour and cultural changes are conspicuously accepted. Norms and standards are also negotiated at this stage. The researcher and the research participants "unlearned" learned ways and learned new ways of relating to their environment.

The second part involved the actual research processes, where the research aim and questions were the driving forces behind the actions of the research participants. Here, a well-grounded lens focused on participatory research methodology and much attention was paid to the way the researcher as a participant and the research participants or co-researchers carried themselves throughout the whole process. Although there were research questions to which answers were sought, this part of the process involved only observation, and free attitude interviews (FAI) generated data.

Numerous limitations slowed the process down. In some instances, the activities were time consuming and failed to address the research problem. For instance, although drug use and poor study methods were not part of the research question, the coordinating team sometimes had to defer to other problems that emerged in the environment. For the purposes of this research study, these other issues will not be reported on.

4.3 PEDAGOGICAL DIMENSION

The PESTLE and SWOT analyses undertaken by the coordinating team revealed that the pedagogy that is practiced in the school is not ICT compliant. During the intervention process at the school under study, the coordinating team first had to understand the role of the principal in the use of ICT, as the aim was to enable the coordinating team to work out an intervention plan. During one of the workshops the participants were taught about and exposed to the concept of technological pedagogic content knowledge (TPCK).

The workshop facilitator explained that the denotative meaning of the concept “pedagogy” is the science of teaching (Tulloch, 1993:1120). This means that pedagogy as a science has to do with the techniques and decisions of what to teach and how to teach (Farivarsadri, 2001:1). The facilitator further revealed that scholars see pedagogy as, “All those practices that define what to know, how it is to be known, and how this production of knowledge helps to construct social identities” (Dutton & Coury, 1996:171). The coordinating team became aware that school principals are perceived as the lead teacher who has to show others how to perform professional curriculum practice. This idea is supported by Fullan (2002:55), who argues that, “Only principals who are equipped to handle a complex, rapidly changing environment can implement the reforms that lead to sustained improvement in student achievement”. The idea in question is supported by Farivarsadri (2001:4), who says that the purpose of education goes beyond the mere transformation of knowledge; it aims to implement changes in the patterns of behaviour of a social group in the desired direction. For the sake of consistency this study will use the concept “professional curriculum practice” rather than pedagogical dimension or instructional leader to refer to the same principles. The guidelines for teacher training and

professional development in ICT (RSA, 2007b:2) define pedagogical dimension as an understanding and application of the opportunities presented by the use of ICT for teaching and learning in a local curriculum context.

The coordinating team learned that, in South Africa, school principals and all teachers are expected to achieve the following performance standards: (i) to create a positive learning environment; (ii) to demonstrate knowledge of curriculum and learning programmes; (iii) do lesson planning and preparation and present lessons; and (iv) to assess learners. The coordinating team assumed that, once a principal complies with the four standards of the policy requirements, the principal will be better placed to help teachers to comply with professional curriculum practice or the pedagogical dimension (ELRC, 2008:17).

The performance standards are formulated in question form, for instance, in reference to both the teacher and the principal, “Does the teacher create a suitable environment for teaching and learning using ICT?” This question has to be answered by observation of the incumbent in the classroom. Each performance standard includes a number of criteria and for each of these criteria there are four descriptors on a four-point rating scale. The rating scale is (1) Unacceptable; (2) Satisfies minimum expectations; (3) Good; and (4) Outstanding.

If an incumbent receives a rating of 1, it means that the level of performance does not meet the minimum expectations and requires urgent intervention and support. On the other hand, if an incumbent receives a 2, it means the incumbent has satisfied only the minimum expectations of an acceptable performance – the incumbent’s performance meets the minimum expectations but developmental support is still required in order to develop his/her teaching skills. A level 3 rating means that the performance is good and meets the expectations, but some areas are still in need of development and support. A level 4 rating indicates that the performance is outstanding and expectations are exceeded. Although performance is excellent, continuous self-development and improvement are still encouraged. To determine whether the school principal meets these policy requirements, the coordinating team decided to investigate each performance

standard that is listed below to determine what constitutes professional curriculum practice.

4.3.1 Creation of a positive learning environment

The National Education Policy Act 76 of 1998 (ELRC, 2003:A-48) expects the principal, as learning mediator, to use media and educational resources appropriately for teaching, including thoughtful use of common resources, such as data projectors, computers, and audio and video tools, to create a positive learning environment. This expectation is also emphasised by the learning theory of connectivism, which posits that teachers, including principals, must use networks of diverse technology on a judicious pedagogical basis, with the individual creating a viable opportunity for teaching and learning (Siemens, 2004:4; Downes, 2008:2). For Wang and Woo (2007:149), the primary factor that influences sustainable learning is not the availability of technology, but the pedagogical design for sustainable use of ICTs. Research findings also recommend that principals have the ability to mediate curriculum in the information age and to assume major responsibility for initiating and implementing school changes through ICT (McGarr & Kearney, 2009:88. Interestingly, research by Moswela (2010:73) suggests that principals oversee the implementation of ICT in the presence of numerous constraints. Mafora (2013:37) agrees that the core duty of a principal in a school is to guide, supervise and offer professional advice on curriculum matters, including ICTs (see Paragraph 2.5.1.1). However, in practice, it seems that the principal at the school under study could not mediate learning using ICTs, a claim derived from the development support group (DSG) of the principal. The principal was observed while teaching a Grade 11 winter class and the DSG found his teaching and learning to be reliant only on the textbook and geared to rote learning (DBE, 2011:10).

The DSG lesson observation report on the principal indicated the following: (1) Introduction: when the principal made his mathematical literacy lesson presentation, the first thing he did was to ask learners: *Where did we end last week?* He then paged through a mathematical literacy textbook without explanation, until one learner said, *Page*

123. Then the principal said, *Yes, let's continue*. He warned his class by saying, *This aspect* (referring to a topic on the calculation of compound interest) *is important, and it will be in the test, and the examination. Make sure you master it*.

The report indicates that that the principal as a mediator of learning did not use any of the modern tools of technology required by CAPS and the National Education Policy Act, and suggests that the introduction of the lesson was characterised by a direct teaching approach. Although it was not clear why the principal did not use technology in the introductory part of the lesson, it might be because he could not use ICTs for teaching or the facilitation of learning for any of the reasons suggested above. The report does not refer to any attempts to use ICTs in teaching and the facilitation of learning, which confirms claims in the literature that when a leader does not consider ICT to be important, he or she will not embrace or adopt it, or realise why it should be integrated in teaching and learning. This is problematic, as it perpetuates the digital divide and accelerates educational inequalities, compared to classroom practices in which learners enjoy receiving lessons in a 21st century mode. This outdated teaching practice continues despite theoretical, policy and research expectations.

The DSG report contains contradictions. CER emphasises that a search for knowledge should be based on a desire to improve the quality of human life, but from the extracts above it is clear that learners are suffering, because they are denied the opportunity to use modern ways of searching for information. This essentially excludes them from using and constructing information. Evidence of this claim is provided by the question*, Where did we end last week?,* which indicates that the principal was not mediating learning, but rather everything centred on him as a powerful person who "banked" information in learners and could retrieve it at any time. His reference to the topic of calculating compound interest as, *This aspect is important,* can be interpreted as indicating that the principal as leader had decided either to adopt or not to adopt the use of technology, pretending to be helpless as he was compelled by those in authority to further oppress learners in the name of *the test, and the examination*. Thus his leadership with regard to the creation of sustainable learning and a climate for teaching and learning was challenged. Through CER the

intention is to change the status quo, and leadership in CLS and CER advocates for good human relations that respects learners and permits them to contribute in leadership, which is clearly not the case here.

From a social perspective, the principal was quite aware that learners found the topic difficult to understand, but continued to use traditional teaching methods. He deprived learners of the judicious use of available ICT tools. The principal lacked the knowledge and skills to create a positive learning environment, and from a discursive-practice perspective he was consciously aware that he was doing wrong. Asking a question without an initial response and paging through the textbook without a word, indicate poor planning, but since he was the highest in authority at the school he would not be challenged. As a leader he did not encourage the teachers under his leadership to use ICT, either by example or “instruction”, and in doing so he failed to create a sustainable learning environment.

The absence of a positive learning environment was confirmed by the coordinating team during the PESTLE and SWOT analyses. The coordinating team agreed unanimously that the political environment was positive towards the use of ICTs in the school, because the provincial government had proposed to provide teachers with laptops (although whether they would deliver on the promise remained to be seen). The national government had also approved and funded the Advanced Certificate in Education (ACE), which equips school leaders with knowledge on ICT implementation. With regard to the economic environment there were shortcomings. The school was categorised as Quintile 3, meaning that there was less subsidy per learner than in Quintile 1 and 2 in the school despite the school drawing learners from relatively less-affluent communities. It was acknowledged that the social environment as it related to the use of ICT was positive, especially considering the willingness of stakeholders to participate in the development of the school. The technological environment was also analysed, and there were clearly different views among coordinating team members regarding the actual nature of technology. There was also a vacuum regarding cyber law, especially with regard to the use of licensed programs, copyrights and open software. The school’s physical environment was feasible

due to its location and the fact that it would be possible to transform a number of classrooms into 21st century classrooms. The DSG in its attempt to support the principal to grow dissolved to focus attention on leadership as the main driver of technology teaching. This view supports Becta's argument (2006:7), namely, that "schools making progress in using technology to support learning in sustained ways are those where there are strong visionary leadership for ICT from senior management". It can be concluded that the leadership role of the principal as a mediator of learning depends on the incumbent adopting ICT use that is informed by the school vision.

4.3.2 Knowledge of curriculum and learning programmes

The Curriculum and Assessment Policy Statement (CAPS) envisages teachers who use science and technology effectively and critically; they exhibit responsibility towards the environment and the health of others (DBE, 2011:5). A school principal has to able to address barriers in the classroom. Despite this expectation, the coordinating team of this study observed the following at the school.

There existed partial knowledge on decisions relating to the content that must be taught, the order in which it had to be taught, and through which activities (Papaioannou & Charalambou, 2011:359). Most subjects were characterised by a lack of central planning. The older, more experienced teachers used traditional methods of teaching, and younger, inexperienced teachers were expected to teach in the same way. This led to the younger teachers feeling oppressed. It also resulted in contradictory approaches to professional curriculum practice based on different philosophies of teaching. Teachers were not confident regarding the content they had to teach and how they should teach it; teachers had different interpretations of the content. There was little teamwork or consensus regarding knowledge of the curriculum and learning programmes. This state of affairs led to conflict and division and a lack of respect between the senior teachers and the younger teachers. This situation signifies a challenge that school leaders had to address urgently. MmaKhotso, a newly appointed teacher, raised the following concerns in one of the focus group meetings:

***Mmakhotso**: Mo sekolong se batho ba nagana go re ba a itse mme o bona fela go re motho oo [pointing a finger randomly and pausing for a while] ga a itse sepe. Motho wa koteng o itira yo o itsing a sa attende di cluster meetings.*

In this school people think they know, but one can see that this person … knows nothing, the person pretends that he/she knows while on the other hand does not attend cluster meetings.

***Lesedi** [raising his voice]:Why o complaina maare o itse sentle ga o nke o thusa ka di idea tse dintsha mo sekolong, rotlhe re a itsi gore lona lo up to date ka CAPS gone LF ya lona e organised, ene Wena o motho wa technology o kgona go downloata se o se batlang. Nna ga ke rate motho a sa thusi maare a rata go complaina.*

Why do you complain, because you are quite aware you do not help with your fresh ideas in the school? We all know for a fact that your LF [learning facilitator] is organised and up to date with CAPS. You are also a technology person; you can download whatever you need. I don't like someone who just complains without helping.

***SMDG** [leaning forward and holding the hand o Lesedi]: Emang pele bagaecho ga re lwe mo re a agana.*

Wait a bit, family, we are not fighting here, we are building each other.

A young teacher, Mmakhotso, is dissatisfied with the way the school is being managed, and she raises a complaint about the daily routine in the school. The phrase, *In this school*, indicates that Mmakhotso is being individualistic and failing to take ownership of the school. Mmakhotso is not happy, because she considers the lack of curriculum planning a challenge. Obviously, the young educator is a technocrat who seems to be knowledgeable about curriculum planning, because she attends cluster meetings and learns from interaction with teachers from other schools. However, she does not have a platform for sharing the information gained. The principal has not created conditions for

junior teachers to share what they know with others. This situation can be interpreted as a form of oppression and silencing of others in the school.

Mmakhotso's complaint does not go down well for Lesedi, though he does, however, admit that there is a problem relating to lack of information on curriculum issues. Lesedi shows signs of patronage to the school. This is evident in his words; *I don't like people who complain without coming up with a solution*. This statement can also be interpreted as Lesedi acting in a self-centred and intimidating manner. The statement contains elements of negative power relations, as he uses it to intimidate and threaten a woman. Lesedi's reaction can also be interpreted from the perspective of discursive practices. By raising his voice he reveals a derogatory and oppressive attitude, especially because it is directed at a woman, a member of a group that was maginalised during colonisation and apartheid and which is still experiencing domination by men. The way Lesedi interrupts Mmakhotso might be a sign of deep-rooted problems that exist between the novice teacher and senior teachers. The interruption by the SMDG serves as an intervention to bring peace and the hope that differences in opinions can be acknowledged and accepted in every day life. The intervention was a demonstration of what leaders will go through, sometimes, however, also showing how differences could be resolved amicably in a collective and communal way (Alvesson & Spicer, 2012b:368).

A word such as *bagaecho* (family) symbolises community cultural wealth that can only be understood by that specific group. The SMDG drew on linguistic capital to prevent conflict. She used cultural capital such as linguistic and familial capital to resolve what could have turned negative to resolve the conflict. (Larrotta & Yamamura, 2011:76). What does this mean? School leaders do not necessarily take stock of what is happening in different departments, learning fields or subjects and consequently do not possess knowledge of what really transpires in the various departments in the school. The principal, as mediator of learning, should be knowledgeable about developments relating to curriculum matters and should be aware of changes that are implemented in the school or in curriculum matters. The principal, as a mediator of learning, can create a platform for teachers to report changes in the curriculum to their colleagues, even if such information is only

applicable to a particular subject. It can be concluded that principals as leaders and mediators of learning have to be informed about the changes that occur in all curriculum matters.

4.3.3 Lesson planning, preparation, management and presentation

At this school lessons were not planned with the use of ICTs by either the principal or the teachers. Planning is a managerial activity that was not taken seriously, especially with regard to the curriculum. Although there was a computer in the office of the principal it was not used for planning lessons or preparing, managing and presenting lesson plans – even though the principal had been allocated only one class to teach. Perhaps the principal was not challenged to prepare because he had only one class. In fact, the computer was used for administrative tasks only. There were no coordinated efforts to use ICT for classroom presentations. Content was often abstract and theoretical and seldom related to learners' experiences.

The planning of lessons was done in a more traditional manner. Teachers followed the guidelines of the CAPS document using their own interpretation, and there were no sessions to reflect on what teachers are doing when planning. (Hoadley, 2012:2; Mdlongwana, 2012:2). It can thus be concluded that, at the school involved in this study, there was a lack of proper lesson planning and preparation, management of lessons and presentation with ICT integration. This situation posed a challenge, as some teachers believed that lesson plans were unnecessary, as it has already been provided in the CAPS document. This narrow view denies teachers and learners the opportunity to learn from a diversity of skills, methods and capabilities that are inherently present in all of the participants in a classroom. At this school lesson plans were not tailored to suit the kind of learner in the school, as determined by SWOT analysis. Teachers could not verify the contextual situation and use the appropriate teaching methodology and ICT. Because traditional teaching approaches were used, rote learning was common at the school. The White Paper on e-Education (RSA, 2004:26) states that,

Educational leaders at all levels must leverage ICTs as a tool for improving educational performance and re-organise educational institutions accordingly. The school principal is expected to implement the ICT policy by starting from the actual planning process. Ultimately, educational leaders must view ICTs as essential transformative tools for education and training, and individually promote and support the use of ICTs in his/her institution [for planning purposes].

In one of the SLT meetings where poor planning had been identified as a weakness during a SWOT analysis process, participants commented as follows:

***Ponelopele**: Nna ke nagana go re ha rona SLT ya sekolo e ka bitsa meeting le mafapha a a fa rologaneng go ba lemotsa bothata ba poor planning go ka thusa di HOD tsa rona thata, retla be re ba diretse tiro botlhofu tota.*

I think if we, the SLT, in the school can call meetings with the different departments to show them this problem of poor planning, we shall have helped the HoDs greatly, by making their task easy.

***Pastor** [supporting the idea]: Maare go tla batlagala sampole nyana go ba bontsa.*

But we will need a sample to show them.

***HoD** [also supporting the idea]: Ke tla sheba ngwenyana mo faeleng mme ke tla e refina pele rebe re esheba rotlhe, nkana ka e e-maila before meeting wa beke e e tlang.*

I will look for a sample in my file and I will refine it, and then we can look at it. I can even email it to you before the next meeting.

Analysis from a textual and spoken-word perspective: When considering the vocabulary, grammar, cohesion and text structure of the extracts above it seems that Ponelopele's participation in the research has benefitted him, as is evident from words such as *I think*. This represents the voice of a liberated, empowered and emancipated person. The social context also shows that Ponelopele is free to raise his views in a meeting or in public without fear of what others will think of him. It seems that Ponelopele

brings a sense of agency that contributes to planning that incorporates ICT use, and this can be seen in words such as, *we, the SLT*.

Analysis from a social-structure perspective: The actions of both the pastor and the head of department provide assurance that the hegemonic power of experts can be broken down by ordinary people who are committed to social justice. Consequently, the stakeholders in the school are clearly focused on enhancing the leadership of the principal in the use of ICT and this guides their actions. The pastor draws on community cultural wealth, particularly navigational capital, as he navigates through the unfamiliar or non-inclusive environment of teachers, to talk about planning (James, 2012:44).

Analysis from a discursive-practice perspective: The thoughts of Ponelopele are taken and expanded by the team members who support it; they even refine it to suit them. For instance, the pastor spontaneously supported the idea but identified a shortcoming, which was immediately addressed by the head of department, who committed to act on the issue at hand.

The coordinating committee prioritised three aspects, ranging from understanding of different learning theories in ICTs, understanding the value of the lesson plan, and using Microsoft Excel for record-keeping purposes. After these aspects were presented, the coordinating committee reported that the development support team of the principal realised that the principal did not incorporate ICT in planning sessions at the school, because the principal had not been assigned classes to teach for the past three years, and he had only been allocated a class this year due to a complaint by the Union of Teachers.

4.3.4 Learner assessment, recording and maintenance of essential records

During the CAT workshop conducted by CAT teachers we were first taught about assessment and its importance. Assessment tasks are given to learners for the purpose of assessing their learning, thinking and performance abilities. Assessment can be conducted, managed and recorded and decisions made on learners' progress with the aid

of ICTs. Furthermore, records have to be kept even after the learner has completed his/her schooling, for a period determined by the head of education (Clarke, 2007:240). The principal is therefore expected to provide leadership to ensure the availability of technical skills and knowledge for the compilation, storage, retrieval and management of this task. Schools can address accuracy of calculations and technical challenges posed by assessment by using ICT programmes. Thus, a technology-literate principal will be qualified to make technical decisions regarding application of technology. Van Niekerk and Blignaut (2014:248) aver that ICT has much to offer as it can improve education in the country and consequently principals must adapt their management and leadership styles to motivate teachers to use ICT in professional curriculum practice (see Paragraph 2.5.1.4). However, the White Paper on e-Education confirms that,

> *the use of ICT in assessment has the potential to increase the efficiency and streamline and safeguard data-transfer process and assessment. Time saved by teachers on administration routines can be spent on giving support to learners and improves the quality of contact time (RSA, 2004:20).*

The school technology model emphasises professionalism as a necessary solution for assessment with ICT (Anderson & Dexter, 2005:3). A way of addressing the challenge of learner assessment, recording and maintenance of essential records that provide insight into individual learners' progress was collectively agreed upon during a South African Schools Administration Management System (SA-SAMS) information session (see Chapter 3, Table 4 in Appendix A, Activity 3).

> ***Principal****: I think I am now ready to use SA-SAMS. For this year, I will concentrate on capturing learners' marks right up to the issuing of schedules and issuing out progress reports of learners.*
>
> ***Learning facilitator*** *[interrupting]: What about the rest of the staff, Sir?*
>
> ***Principal*** *[continuing after interruption]: Then the next year we will take the entire teaching staff along and again I will venture into school finance as you suggested.*

Deputy principal *[also interrupting]: We will also support each other as the leadership (principal and two deputies) of this school. At least Mme Lesedi is already a step ahead, and we know she is doing well with her e-registers, and Bleggie will have to orientate us on keeping electronic records of disciplinary cases.*

Parent and a non-teaching staff member: *By the way, Mokone said she has been doing everything alone. She has started with Freeset programme in 1998, and migrated to All-in-one, then SA-SAMS, which is a software provided by the Ministry of Education in South Africa and linked to the national department.*

The principal uses the words, *I think I am now ready to use SA-SAMS*, which indicate a yearning for self-emancipatory action. The sentence, *For this year, I will concentrate on capturing learners' marks right up to the issuing of schedules and issuing out progress reports of learners,* indicates commitment to the team and owning challenges and the role of assessor. It means recognition, identification, acceptance of responsibility and commitment, as well as consciousness that the authority possessed by the principal is not being applied properly (Van Dijk, 2008:vii). The participant shows that he is empowered by working with people in a cordial relationship that is characterised by operationalisation of the principles of CER, namely, hope, freedom, peace and social justice as the driving forces that enable everyone to make the change from traditional methods of teaching to becoming more productive teachers. He is committed to finding a solution for the challenge posed by assessment and record keeping.

The learning facilitator draws from the cultural capital available in the community, particularly social capital. He requested the principal to think prudently about the commitment he makes to the team, and uses we instead of I. The deputy uses the first person plural pronoun to show that leadership in critical context is relational, and is a joint effort that can only be achieved if the leader is conscious of his/her power, and demystifies such power. The deputy is also consciously aware that teamwork is crucial for collective survival (Kemmis, 2010b:10).

The participants show that they are empowered and emancipated through knowledge-sharing in a workshop setting. The parents and non-teaching staff are consciously aware that Mokone, a clerk and non-teaching staff member, was overloaded with work, because she was responsible for the electronic capturing of marks and generating schedules and reports for a school population of over a thousand learners. The parents are thus empowered to show the principal they too must be given a hearing, and to make a contribution in areas that are regarded as spaces reserved for professionals. They can express their opinions in managerial echelons. This phenomenon relates to the value, knowledge and tools used to nurture oppositional behaviour that challenges and represents equality (Yosso & Garcia, 2007:146; James, 2012:44; Tshelane, 2013:416).

4.3.5 Reflection on the intervention process

It was not easy to gain an understanding of the principal's leadership role in the use of ICT. We soon realised that scrutinising the role of the principal would have been impossible from any framework but PAR. Although it proved to be a difficult task to persuade the principal to participate fully in the process, it went from strength to strength. The participation of the principal produced valuable information, which would not have been obtained from approaches other than CER and CLS, because CER and CLS encourage communicative action that is alternated with discourses. Although the discourses were characterised by limitations and constraints, the research question could be answered, as demonstrated by the data presented above.

4.4 TECHNICAL DIMENSION

This section deals with the technical dimensions theme (see Paragraph 2.5.2). The analysis and developments in this section were derived from four priorities of the coordinating team. The main goal of this section is based on the four legislated responsibilities of the principal, which were aimed at creating conditions that would enable teachers in the school to integrate ICTs in respect of professional curriculum practice. The analysis in this section is directed at responding to the second question of the study,

namely, how does the principal's leadership role in the use of ICTs contribute to teacher professional practice aimed at improving performance in the whole school?

The first priority was centred on three activities, namely, team capacity development for integration of ICTs in teaching, coaching on mobile learning theories, and exploring the Thutong learning management system, a portal of the DBE (see Annexure A).

The second priority was based on the following activities: group dynamics, team-building exercises, review of the vision and mission, a symposium on conflict management and debriefing on stop, keep and start.

The third priority was dedicated to attendance of a conference on ICT for school teaching, and setting up and using the school Facebook page for improving communication. We also presented the photo voices of Grade 10 and 11 learners and the photo voices of staff members.

The fourth priority under the technical dimension was based on a demonstration of SA-SAMS, followed by workshops on data bases, inventories, the Pastel program and electronic bookkeeping. The performance measurement standards will be discussed below.

4.4.1 Professional development and participation in professional bodies

Davies (2010:56) is of the opinion that, "[p]rincipals have traditionally been looked upon as technology leaders in schools." This is because principals are expected to control financial budgets, exert influence over teachers and organise the infrastructure. As such principals are expected to develop new roles, which include leading technology integration in schools. The main challenge facing principals is to be involved or engaged in professional development so that they can be skilled enough to lead professional curriculum practice in schools. The e-Education policy (DoE, 2004:19) states that, "[t]he policy intention is not just to build technical skills, but also to use ICTs to extend and enrich educational experiences across the curriculum." In the school under study the coordinating team noticed that the principal successfully completed a two-year ACE course in ICT

leadership. However, despite successful completion of the course the principal had never attempted to implement ICTs due to a number of challenges, such as limited time, being allocated only one class for him to teach, and a focus on general administration and attendance of district meetings. Although the DBE has attempted to meet the policy directives by providing training, principals are still not able to influence teachers to use ICTs. This can be seen in the following conversation among participants in the research:

> ***Popinyana*** *[a general worker]: The ICT conference was packed, and largely enriching. I was really convinced that this is the way to go. I was moved by the maths demonstration with Mxit, ICTISE, video-conferencing. I would prefer doing mathematics through Mxit instead of wasting time on unnecessary conversation, you could do maths with Mxit, and did you see that?*
>
> ***Kwebe*** *[former learner]: I wish I could go back to school now, it's just easy to pass; I was also impressed by the home schooling idea.*
>
> ***Principal****: Actually, I have done these things when I was doing my ACE with UOFS, I wish I had time.*
>
> ***Kwebe*** *[interrupting]: Go, Prinza [principal] go, show them, show them.*

Analysis from a textual and spoken-word perspective: Considering the field of discourse, it seems to be mostly about ICT discussions about approach. The research participants take turns to speak (Blommaert & Bulcaen, 2000:450). The discourse is dominated by the first person singular: almost everyone used the word "I". The participants feature a discourse that is generative, thus the tenor of the discourse displays the interpersonal function of language that starts with independent thinking. Furthermore, the use of the word "I" also suggests a degree of personal ownership.

Analysis from a social-structure perspective: The flow of the conversation indicates a high degree of equality between participants even though they are from different class backgrounds. Power is located in every one, particularly Kwebe, a former learner who even goes as far as willingly giving power to the principal (*Go, Prinza go, show them).* In this situation the participants see themselves as active participants in learning how to

influence teachers to use ICT in teaching (Thornton & Reynolds, 2006:5-277). It seems that Popinyana uses familial capital as knowledge, and understanding gained through ICT learning theories, the team workshop, and the ICT conference to nurture knowledge learned collectively (Yosso & Garcia, 2007:146).

Analysis from a discursive practice perspective: What is exciting is that people of all social strata get along/work together, such as Popinyana and Kwebe giving hope and support to leaders, particularly the principal (Fairclough, 2003:42; Hongwana, 2009:35; Nkoane, 2013:395).

The discussions above show that the PAR approach demystifies the power and dominance associated with managerial roles. Disfranchised members of society, such as Popinyana and Kwebe, in this case, participated in conditions that value people and showed that they could contribute in areas located within a neo-liberal ideology that commonly asserts the superiority of a range of practices found within the managerial terrain (Hall, Gunter & Bragg, 2012:3).

Based on the discussions above it can be concluded that, depending on how a school principal uses his leadership, his success in influencing teachers to use ICT will largely depend on his technical knowledge, and the kind of relationship the leader has with the teachers and everyone else in the school. The kind of training and professional development he has received and, in particular, participation, will always shape the thoughts and actions of the leader.

4.4.2 Human relations and its contribution to ICT in school development

One area of performance measurement for the school principal is his engagement in appropriate interpersonal relations with stakeholders in the school as required by the IQMS. In one reflective meeting of the coordinating team after implementation of Priority No. 6 (see Appendix A, Table 6) the coordinating team noticed that teachers expressed a general need for equal access to ICT infrastructure, particularly the internet, and they realised it would promote good human relations. This view immediately operationalises

CLS, which advocates for passion in human and humane practices so as to avoid one person's opinions being imposed upon others. Teachers were not happy about the way curriculum leaders used ICT gadgets, such as the data projector and laptop, and there was a general complaint that only members of the SMT had access to the equipment. Teachers also complained that only the principal and CAT teachers were using the internet. Learners complained that Grade 12 learners were seldom allowed access to the internet. ICT centres have adopted the principle that it is not technology that drives skill, but that the need for skills inherited in human beings can drive technology. In one meeting the following matters of concern were raised:

> ***Ntwadumela*** *[pointing her finger randomly]: There are no good relations here, as you might have noticed, there are different camps in the school, when a certain group agree on something they usually shoot down other people's views.*
>
> ***Kgantlapane*** *[nodding]: Yes, particularly the group of Chippa, if they decide to support you, they will push the idea to be taken.*
>
> ***Lesedi:*** *I think we should stop working in camps, for instance, these new teachers, all of them have personal laptops and if you request them to check something for you in the internet they always refused or charge you for the data bundles, but Bleggie have it all for himself.*
>
> ***Lebo*** *[speaking with her hand raised]: Yes, it true. Even Mam is always searching Google, but does not want us to open the internet.*
>
> ***Ponelopele:*** *Come on, guys, you have just been exposed to teamwork. If the principal can just talk to the whole staff on team building exercise and then organise a team building exercise we might unite them.*

Analysis from a textual and spoken-word perspective: Use of words such as *no good relations*, *group of Chippa*, *camps*, and *does not want us* indicate inappropriate human relations, which can be a serious threat to the sound human relations necessary for ICT implementation, because teaching is a joint effort. From the extracts above it seems that participants are free to communicate their views and this may suggest that the

relationships among participants are cordial, while also acknowledging that current relations in the school are not on the most desirable level. On the other hand, it seems that the flow of communication at the coordinating meeting was free and this indicates that there was some kind of equality among participants.

Analysis from a social-structure perspective: The conversations above are built on familial capital and linguistic capital (Yosso, 2006:24). The sense of ownership of the school among participants is strong and it enables them to challenge the undesirable human relations that are experienced at the school. In so doing, the principal is supported to build a culture of good human relations required to influence teachers to use ICTs in curriculum practice.

Analysis from a discursive practice perspective: From the extracts above it seems that conversations are initiated by members of staff and not imposed by the school leadership. As argued by Newhouse (2010:2), “the leadership is responsible for provision of ICT infrastructure that is critical to the successful implementation of ICT use in classrooms”. For instance, Ntwadumela emphasised her point using body language that indicates that the challenge is experienced at all levels in the school. It seemed that Ntwadumela was prepared to foster good human relations by taking ownership on a personal level, as long as the support of the team was guaranteed. The cycle of production, transformation and distribution was taken by almost everyone, including the underclass, such as Lebo, a Grade 10 learner. Drawing on social capital and by raising her hand, Lebo indicates a sense of belonging, but also that respecting adults is highly valued. The team has also created an atmosphere of internal intertextuality in the sense that whatever a participant said was supported and built on by others. For instance, the issue raised by Ntwadumela is supported by Kgantlapane (a general worker at the school) and he shows his feeling publicly by nodding. The issue is further built on by Lesedi and Lebo, and concretised by Ponelopele.

The discussions above are in agreement with literature, which emphasises that "implementing the *effective*[4] use of ICT in schools is a complex task usually requiring school leaders to facilitate significant organisational change" (Newhouse, 2010:2). The foregoing discussion provides answers to the research question raised earlier: If ICTs are of such value, why are they not adopted by all subject teachers?

Grounded on the perspective above, it seems that curriculum leaders need to create conditions for sound human relations in order for them to motivate teachers to use ICT, a view that is supported by Newhouse (2010:3), who argues that, "while most school principals tend to espouse support for the use of ICT to support teaching and learning for sustainable positive outcomes the vision needs to be operationalised". Operationalisation requires professional human relations that respect and value people and treat them well. It can be concluded that the principal's leadership role can contribute to the teacher's professional practice by creating conditions in which every human being is treated with respect, irrespective of age, gender, class and race. This can happen when everyone is acknowledged and appreciated.

4.4.3 Extracurricular and co-curricular participation for ICT implementation

The coordinating team was convinced that extra and co-curricular participation needed enhancement, as there were some limitations regarding its execution in the school. On the other hand IQMS Performance Standard No. 7 compels curriculum leaders to participate in extra-curricular and co-curricular activities and to administer these activities (DoE, 2004:22). Prior to the intervention programmes, in the school under study neither the principal nor the deputies performed this duty well. It is also reported in literature that

4. Effective: In management studies, the word effective referrer to getting the right thing done. Drucker (2006:123) maintains that effectivity can and must be learned.This is problematic, because the lens throughwhich the study is rooted does not subscribe to positivist jargon. For the purpose of this study the concept effective is used to mean being productive.

curriculum leaders are often unsure of how to implement ICT in extra and co-curricular activities (see Paragraph 2.5.2.3). Mondal and Mete (2012:5) argue that, in the current information society, people use ICT to keep abreast of the latest developments. These two authors also point out that it is only through education that people will access knowledge, absorb new ideas and increase their social interactions, which are some of the more intangible extra and co-curricular benefits (Mondal & Mete, 2012:5). The extra and co-curricular activities for ICT implementation included teleconferencing, intercom, email, audio conferencing, TV lessons, radio broadcasts, social networking, interactive radio counselling, CD ROMs and internet broadcasting. Mondal and Mete (2012:6) suggest that it is possible to improve knowledge production by incorporating TV technology called the tele-school project in the school's activities; the same applies to incorporating CD ROMs in guidance services at the school. Video conferencing and Skype are further examples of the use of ICT in extra and co-curricular activities. However, this was a shortfall at the school under study. This can be concluded from conversations of participants and discourse on the school's Facebook page, and photo voice analysis.

> ***Bleggie****: A proposal was made to use Facebook for extra and co-curricular activities, but to use Facebook to talk to learners and parents has its limitations and laws, I mean if we use Facebook for communication, talking to a learner, after school, which language will be used? Hhee … because Facebook is more informal, so, ok … the school management is not comfortable with Facebook, they then said we should not implement the element of Facebook so that the school can talk to parents, and learners, when you call a meeting, they can come in numbers, but you, Ponelopele, I think, I must give you a chance to raise your counter proposal.*

Analysis from a textual and spoken-word perspective: The field of discourse is purely ICT and extra and co-curricular with few deviations. The comment above suggests that school management does not make decisions on the basis of emotions or excitement. Words such as *not comfortable* indicate that the leadership of the school is not sure of the way to use the new technology. The contradictory rhetorical practice is that the school management itself is using the internet, but excludes other stakeholders from using it.

Bleggie sees Facebook as more informal, and that Facebook is not manageable in the school. Management also refers to the language that should be used when communicating via Facebook; the word *language* indicates that curriculum leaders realise that learners are unable to spell correctly due to the influence of social media. Bleggie refers to the importance of laws and rules, perhaps some form of cyber law, which is needed to regulate social media. Power is at stake too: Bleggie, who is in a position of authority, cannot understand how one could be a friend of the learners while retaining authority. Hence, he questions the expectations about the type of language appropriate for a social platform. These questions seem to cause uncertainty for Bleggie, particularly with regard to relationship cycles with learners, as communicating with learners via social media would result in a paradigm shift in teaching methodology. Operationalisation of CER would mean that, in social justice curriculum practices, empowerment becomes the justification of liberty. The curriculum leader does not treat the learner as an object, but sees the learner as a co-constructor of knowledge (Nkoane, 2013:394).

Analysis from a social-structure perspective: Communication, as raised by Bleggie, can be approached from Yosso's community cultural wealth perspective (2006:23), which suggests that leadership ignores what is essentially meaningful and relevant to learners, because these learners have their own way of making sense of the world they live in. They are aware of the existence of Facebook and they use it. For sound pedagogical practice teachers must understand the contextual situation of their learners. These learners have the navigational capital that enables them to survive the harsh realities of the context they live in. Through navigational capital learners are well positioned to challenge even the leadership of the school on its stance of inequality, marginalisation, discrimination, unfairness and oppression of women and children.

Analysis from a discursive-practice perspective: Although the chairperson of the coordinating team had to direct discussions, it seemed that the coordinating team was maturing. This is evident because discourses were initiated freely during reflective sessions. The direction of the chairperson was more social, because everyone participated in the discourses without seeking prior approval from the chair. Furthermore,

Bleggie's argument was, in general, not well received. The participants admitted that they had been using the school's Facebook page that had been launched by the coordinating team on 12 September 2012 – they believed this to be an historic day for the school community. These reflections led to the committee deciding to work on the SMT's concerns, which were presented and accepted by the school community.

Bleggie confirms literature, which found that school principals are unsure of how to involve ICT in extracurricular and co-curricular activities. Mondal and Mete (2012:9) emphasise that conventional teaching and learning processes are undergoing a paradigm shift; curricular activities tend to require access to a variety of information sources. Thus "the ultimate authority must always rest with the individual's own reason and critical analysis'' (Dalai Lama, 2013:1). It is therefore the duty of the school leaders to decide what ICT tools and what extra and co-curricular activities to plan in order to empower stakeholders in education.

The following section provides further evidence of the minimal contribution made by school leadership in influencing teachers to use ICT in their classroom practices (see Picture 4.2 and accompanying comment).

Picture 4.1: CAT classroom at the school in the study

> ***Buyisile*** *[Photo voice of a Grade 11 learner, referring to Picture 4.1]: This picture … clearly provide us with a view of technological resources which are underutilised while others are totally not used. This is a computer lab which has been like this for more than two year, on the other hand, learners do not have access to computers and what is heart breaking, is that no one can account for this!*

Buyisile raised a concern through a photo voice and explained that the photo Illustrates underutilisation of ICT resources at the school. The learner's concern was clear in his use of words such as *totally not used* and *underutilisation*, however, due to oppression which learners normally endure, Buyisile states that the underutilisation is *heart breaking*, which suggests that the adults, who have long passed school-going age, could not be bothered to operationalise a computer lab that has been abandoned for more than two years.

Buyisile draws from cultural capital, particularly resistance capital, as a learner, consumer of technology and vulnerable member of the school community, to amplify the oppression learners have to endure; this can be seen in words such as *is heart breaking.* Although he voiced his feelings through the photo, the learner expects accountability as a form of extra and co-curricular activity (pastoral care) that school leadership has to take upon themselves as leaders. This idea is supported by Newhouse (2012:1), who states that leadership is critical in getting the intended learning return on the investment in ICT in a school.

Based on this background, particularly on the confidence of the principal's *involvement in extra and co-curricular activities*, this study is inconclusive with regard to the principal's contribution to and influence on teachers regarding the use of ICT in professional curriculum practice. We cannot, therefore, say with certainty that principals contribute positively and are capable of influencing teachers to use ICTs, particularly in relation to extra and co-curricular practices. What can be concluded, however, is that when the principal's leadership role is driven by care for both human and physical resources, and he accepts accountability, his behaviour and attitude is likely to contribute to influencing stakeholders to appreciate and adopt ICT in their daily routines.

4.4.4 Administration of resources and records by means of ICT

The focus now was on whether the principal's leadership role in a school encourages teachers to integrate ICT in their daily classroom administration, thereby promoting teaching and learning (Seyal, 2012:29). The school in the study was characterised by a lack of planning and budgeting, and poor implementation of a school-wide technology programme. It faced limitations ranging from inequitable provision of resources, an absence of learning focused on envisioning, lack of innovative learning, quality teaching, protective enabling, constant monitoring and networking. The principal had no plan to improve administration processes despite the requirement of the National Education Act 76 of 1998, which stipulates that the principal must administer resources and records in a sustainable and productive manner; that departmental circulars and other relevant information must be brought to the attention of staff members consistently and in good time; and that he must engage in regular discourses to ensure collective context understanding (RSA, 2004:26). The collective understanding was also enshrined in CLT, which assumes that the quality of leadership depends on the relationship the leader creates with stakeholders. Leadership is about change, and critical leadership involves accomplishing positive change for others and for the community (Wagner, 1996:8). Research reports that the principal needs to understand that ICT resources, such as notebook computers with accompanying software, technological hardware, such as interactive white boards, data projectors, digital cameras and scanners, are now a part of a teacher's professional toolbox, the maintenance of which require good administrative leadership (Yuen *et al*., 2003:161; Gronow, 2007:2; Bhasin, 2012:137; Seyal, 2012:31). To demonstrate the lack of planning for administration of ICT resources the following photo voice was presented by a teacher during the refection sessions conducted during one of the Wednesday meetings. The teacher used it to express her views about the administration process that is a requirement for integrating ICT in classrooms for teaching and learning (Picture 4.2 and comment).

Picture 4.2: Inadequacies of computer equipment at the school in the study

> ***Khwe*** *[Photo voice of a teacher at the school]: Our school is characterised by lack of administration of ICT resources and infrastructure. We are always provided with refurbished computers but within a short space of time, we will experience this situation depicted in this photo. Here we see only one computer which is used by three learners whereas there are more than 35 computers which are either broken or were never maintained since connection. There is a need to keep record of who was using which computer, so as to follow up the matter if there is any misshape. Teachers do not have the spare time to keep on checking on learners. Every learner must bring along his/her own chair as there are only a few chairs in the computer lab.*

Khwe's photo voice suggests that the principal's leadership role is faced with enormous challenges, particularly in influencing teachers to use ICT for administrative purposes. Khwe suggests that the principal does not support teachers' use of ICT for teaching and learning. Her statement, *Here we see only one computer which is used by three learners whereas there are more than 35 computers which are either broken or were never*

maintained since connection, suggests an absence of administrative planning, because computers are broken and curriculum leaders at the school do nothing to rectify the situation.

From a discursive perspective, the school leadership is unable to encourage teachers to use ICT for administrative purposes in an attempt to improve teaching and learning, thus it can be concluded that the principal's leadership role cannot encourage teachers to use computers or the Excel spreadsheet program to manage data. Further, the principal does not provide the necessary support to teachers to maintain accurate records in order to improve teaching, neither does the principal exhibit commitment to ICT use at the school. Critical leader theory requires a leader to possess three values, namely consciousness of self, congruence and commitment.

Based on the above, implementing ICT in a school is the responsibility of the principal, who has to support teachers in their endeavours to integrate ICT in their administrative duties, particularly for improving teaching and learning. This can only be realised if the principal applies the critical values advocated by critical leadership. CLT is based on the value of congruence (Alvesson & Spicer, 2012b:368). Through this value the principal will be directed to act in ways that are consistent with his or her personal values and beliefs, thus enabling him/her to think, feel and behave with consistency, authenticity and honesty towards others.

Critical leadership will enable the principal to play a significant role in influencing teachers to administer teaching and learning prudently. A principal's ICT literacy is necessary for administrative reasons, and he or she should understand that ICT is an essential component of engaging learners. Through the promotion of teachers' ICT use, sustainable teaching and learning can be achieved (Gronow, 2007:1). Thus, the principal directed by a critical leadership framework will involve others in building a group vision (Wagner, 1996:9).

The coordinating team observed how the administrative staff performed their duties using ICT in the administrative section of the school. Performance Standard 8 of the IQMS

requires curriculum leaders to administer resources in a sustainable and productive manner to enable the smooth functioning of the school (ELRC, 2003:39). The coordinating team prioritised this aspect in order to observe how this responsibility of the curriculum leaders can influence teachers to use ICTs. The report of the SDG reported that the principal was making fair use of ICT to keep the records of the school up to date. However, there was no effort on the part of the principal to influence teachers to use ICT for administration purposes. The report notes that the office of the principal was not able to perform this task in the absence of the secretary. Furthermore, ICT application for administration is important in almost all sectors of the economy. The coordinating team realised that teachers see ICT as a handy tool for administration purposes. Based on the report the coordinating team organised five activities to address Priority No. 8. The activities included demonstrations of the SA-SAMS program, database usage, auditing inventories and the Pastel program for financial recording. In one reflective meeting the following concern was raised by Miss Ntwadumela:

> ***Ntwadumela****: If Bleggie will be absent for the whole week, his absence will bring the school to a halt. He is the only person who has been trained to use SA-SAMS program, unlike in other schools were teachers have been trained to use SA-SAMS program, and are actively involved in punching up their marks on the computer and are able to do electronic administration fully without the assistance of the clerk. You will probably know that in this school some privileges are reserved only for a certain group.*

Analysis from a textual and spoken-word perspective: Words such as *bring the school to a halt*, and *He is the only person* show that Bleggie is the most powerful person in the school; the school culture has enabled him to be assigned a messianic role in the school. The role of the principal has become dormant when it comes to Performance Standard 8. The elevation of Bleggie to a messiah is confirmed by Ntwadumela's use of the words *some privileges*. This shows that Ntwadumela has accepted that Bleggie was entitled to this special treatment – I concluded he was important because he had access to the computer (Wink, 2005:45). The hegemonic power exposed in the words above had never

been challenged by anyone until Ntwadumela raised it with the coordinating team. Ntwadumela expected staff members of the school to come together and solve problems that affect them; this is in line with the critical emancipatory theory that assumes that people will come together and resolve their problem amicably (Webb, 1996:137).

Analysis from social-structure perspective: Throughout the interactions among stakeholders Ntwadumela had a strong voice, which only emerged after rapport had been established through a team-building exercise. It seems that Ntwadumela draws her strength from resilience capital, which enables her to challenge instances of inequality, injustice, oppression, discrimination and marginalisation that exists in the school (Yosso, 2006:223; Mahlomaholo, 2012:102). This confirms that PAR enables the voices of ordinary people to be heard and respected.

Analysis from a discursive-practice perspective: The assumptions that critical theories are largely based on power relations, and that facts are never neutral but are always embedded in text are demonstrated in the extract above. It seems that Ntwadumela was empowered by her participation in the coordinating team, because her usual silence had been activated through her participation. This could also be aligned to Foucalt's argument, namely, that power informs knowledge and produces discourse. Knowledge constitutes discipline, and discipline is productive and constitutes experience. Thus the CER principle of empowerment and building self-confidence can be seen in Ntwadumela (Zuber-Skerritt, 1996:85).

4.4.5 Reflections on the intervention process

This was the most exciting part of the research project, because teachers, learners and parents were able to openly reflect on the responsibility and the contribution of the principal in encouraging and supporting teachers to use ICT. Following the tenets of PAR, we were careful to avoid reducing participants to objects, thereby enabling the researcher to manipulate the process. Through the reflective sessions we aimed to ensure that our emancipatory agenda did not camouflage the establishment of new power relations,

disguised as the coordinating team. It was difficult for us to talk about “I”, because no person could claim that the success of the project rested solely with him or her.

4.5 COLLABORATION AND NETWORKING DIMENSION

This section deals with collaborative networks, which can be described as an alliance of customary elements of management that are executed by a variety of people, because everyone is unique in knowledge, skill, attitude, culture and the way he/she operationalises these elements. Michaelides, Morton, Michaelides, Lyons and Liu (2013:235) argue that, “what differentiates a collaborative network from other networks is the intentional property of collaboration to achieve an outcome that would not have been possible otherwise”. Through the collaboration and networking dimension the intention is to respond to the third question of this research project, namely, what strategies and guidelines can be used to support principals to sustain teaching and learning through ICT in class? This will be done by focusing on four performance standards promulgated in the IQMS with the aim of enhancing teaching and learning in schools. These performance standards or elements of management are (i) personnel, (ii) decision-making and accountability, (iii) leadership, communication and serving the SGB, and (iv) strategic planning, financial planning and educational management development. The elements will be presented below.

4.5.1 Establishment of dedicated ICT-orientated personnel

Contemporary schools are compelled by militating conditions to keep up with developments and the digital demands of the 21st century (Van Niekerk & Blignaut, 2014:237). School leaders are therefore put under the spotlight regarding management of relevant personnel, and are expected to meet all the elements of management underpinned by a shared vision. There is limited literature on ways to establish dedicated ICT personnel (see Paragraph 2.5.3.1).

In South Africa, the EEA 76 of 1998 stipulates that a school principal is expected to be familiar with the current policies, the new curriculum and the process of school change

and whole-school development (RSA, 1998:43). He or she is also expected to be able to apply this understanding. For instance, the White Paper provides a policy framework within which government departments and other stakeholders collaborate to ensure that institutions are supported to meet the needs and interests of learners and communities (RSA, 2004:23).

The learning theory of connectivity affirms that experience over a long time has been proven to be the best teacher of knowledge. However, one cannot experience everything or the experiences of other people, so those people become the substitute for knowledge (Carreno, 2014:112). Critical leadership studies are in agreement with this view; it reasons that, in school communities, leadership initiatives can originate with any of their members, and are not just the prerogative of the principals. Teachers, non-teaching staff members, learners, parents and members of the public have much to offer in the way of leadership initiatives and contributions (Ryan, 1998:274).

This idea concur with the American National Education Technology Plan of 2010, which advises that the most important resources in the school are human or human capital – individuals must be the central focus for the principal (NETP, 2010:33). However, unifying human beings, teachers, non-teaching staff and administrators is not an easy task, so the principal must use the unifying process to achieve the goal of the school. He or she needs to lead the process of establishing use, carry the vision banner and promote it throughout the school. This means that leadership resides with the individual, which is problematic, as it puts undue pressure on the principal, who also has limits as a human being. This view was confirmed by a participant during a team-building exercise (see Appendix A):

> ***Mokuduane*** *[a parent]: But this is as easy as ABC, I thought you will engage us with something new. So, it means for our school to achieve anything in life you only need focused, dedicated and committed people with a common vision. I don't think we will have problems on this one, we are ready to take up the challenge.*
>
> ***Participants*** *[In a chorus]: Yes, you are right.*

The participants are in agreement with the view expressed by Mokuduane with the words, *Yes, you are right.* The participants believe that anyone, not only the principal, as Razzak, (2014b:127) has suggested, can initiate the establishment of dedicated ICT-orientated personnel in the school. Chang's (2012:333) opinion is reflected in the following: *So, it means for our school to achieve anything in life you only need focused, dedicated and committed people with a common vision.* What is clear from both empirical data and literature is the importance of a common or shared vision. If people have to work together in harmony the force that brings them together is a clearly articulated, common and shared vision.

The extract above can also mean that participants, as recipients, tend to accept beliefs, knowledge, and opinions through discourse with what they see as authoritative, trustworthy, or credible sources, such as scholars or experts. For instance, Mokoduane admits that her expectation of the workshop was for new knowledge, which she could only associate with experts, and she had thought new information would be provided (Van Dijk, 2011:356). She shows that she has been empowered, hence her confidence in stating boldly that the exercise had been easy. Perhaps she drew from inspirational capital, which exists within the participants, as a community in which she finds herself (Yosso & Garcia, 2007:146). To have inspirational capital means to have high expectations, to stay focused on one's goals and to remain resilient, regardless of the challenges experienced (Tshelane, 2014:416). A sign of inspirational capital is her use of the phrase *need focused, dedicated and committed people*, which symbolises qualities of hope advocated by CER.

Discursive practices are minimal, because the participants are not disputing that the knowledge provided is correct. They were able to demonstrate their knowledge and validate how they controlled their own thinking. In this instance, Mokoduane was able to demonstrate knowledge that resided within the collective, which is in line with CLS, which argues that, for leaders to reflect critically upon their practice, they must make sure they are not the cause of the very problems they are trying to solve. They thus might, over time, foster ethical and sustainable educational leadership (Elliott, 2013:3). The question posed

by Mokoduane thus indicates that she does no harm, which is a higher-order imperative than doing good.

Based on the above, the formulation of a framework for enhancing the leadership role of the principal depends largely on how the leader exercises his/her leadership role. Only if all members of the community, irrespective of their standing in terms of gender, creed, race and class in society, participate in the managerial area can the community develop a voice to raise issues that impact positively to improve society. The establishment of dedicated ICT-orientated personnel also depends on the creation of a culture concretised on a plurality of voices without false claim to a single truth (Ledwith, 2007:603). This can be achieved through transparent discourse that inspires participants to share freely their different concerns in relation to practical enhancement approaches (Kemmis, 2011:9; Wilkinson & Kemmis, 2014:13). In order to encourage this deliberate involvement, the tenets of mutual veneration and reliance become vital (Mertens, 2009:57).

4.5.2 Decision-making and accountability

Decision-making and accountability in the 21st century are critical for ensuring that teachers take appropriate action to improve performance of learners, by using ICT in their respective subjects (Hayes, 2006:67). The principal has to make decisions almost daily, which can have important consequences for many aspects of school operation, and this includes integrating ICT for teaching and learning. Decision-making and accountability are conditions conducive to achieving the aim of this study. For instance, the principal has to decide which computer program or which model of computer to buy, or even whether to adopt ICT or not. These decisions can have a negative or positive effect on the whole school, if not on the whole community that it serves. The principal is also expected to account for the decisions taken. For instance, a principal has to decide whether to use the website created by the Education ministry for schools, or choose from a wide range of available sites. The school principal has to make a decision whether to consider current school learners who are probably comfortable with technology, or not. The EEA 76 of 1998 expects that,

in co-operation with all sectors of the school's community, the principal creates dynamic structures that ensure the full participation of all in decision-making processes of the school. Contributions by the sectors are of a high order and there is an established culture of participation. The different centres of power in the school's life department, governing body, teachers and other staff, parents and learners interact co-operatively towards realising the overall vision for the school. The principal plays a facilitating role, ensuring that her/his leadership empowers all participants (ELRC, 2004:C-100).

CLS views power as central to leadership dynamics, openly recognising that, for good or bad, leaders and leadership dynamics exert substantial power and influence over schooling (Sinclair, 2013:441). According to Collins (2014:37), CLS acknowledges that leaders typically exercise considerable control over scarce resources, decision-making, structures, rules and regulations, formal communications, strategies and visions, corporate culture, performance management, rewards and sanctions, and hiring and firing. In short, CLS emphasises that leadership and management are interwoven forms of organisational power that are not easily separable, thus school leaders who are faced with the task of decision-making have to be conscious about decisions relating to ICT use in the school.

Research, on the other hand, reports that some school principals find it difficult to make decisions regarding the kind of ICT to use, how to integrate ICT in the school curriculum, how to choose the software required, what programs to use, and which website to choose from the variety available (Razzak, 2014b:67). Thus, decision-making and accountability are crucial policy matters that influence the achievement of the objectives of this study. There is also empirical evidence to suggest that decision-making was confirmed as important, especially the manner in which the decisions are taken. This evidence was drawn from the data generated during a series of workshops conducted as part of the strategic priority of the coordinating team (see Annexure A). The following is an extract from a discussion during one of the workshops:

Principal*: To be honest, technology has helped to improve our administration greatly. Today, everything is done electronically – even the summary registers are*

done through SA-SAMS. I am also convinced that it is here to stay. However, if it was not because of this project, I would be compelled to first check with the SMDG whether it would be appropriate to formalise it in the school, but since she has even reported about the existence of the ICT coordinating team there is no need to do so. I have realised that the coordinating committee is working really hard to make this work. I pledge my support and please just tell me what to do and I will do it as long as it would make us to achieve the strategic objective we have adopted in the school forum. Really, ladies and gentlemen, we are going far with this committee.

It is evident that the principal finds it difficult to make decisions without the approval of his immediate authority, as can be seen in the use of the following words: *I would be compelled to first check with the SMDG whether it would be appropriate to formalise it in the school, but since she has even reported about the existence of the ICT coordinating team there is no need to do so as she was in the school forum.* This also points to the legacy of the apartheid education, characterised by bureaucratic procedures for a decision to be taken. At the same time, participation by the principal in the coordinating team means that it also serves as a platform for accountability. The principal shows humility in that he is requesting to be tasked by his subordinate: *I pledge my support and please just tell me what to do and I will do it*. In this statement we can see the operationalisation of CER and CLS, particularly the principle of respect. The contributions of the principal's leadership role can be seen in the support that the principal can give the participants in the school, including teachers, to use ICT in professional curriculum practice in the classroom.

Considering the extract from a social-structure perspective, it is clear that the principal acknowledges the improvement in the administration of the school due to ICT, and he hopes that using ICT would also yield promising results in the classroom. The principal drew on aspirational capital so that, even in the face of militant conditions, he pledges support and is willing to take decisions to achieve the collective dreams mandated by the school forum. Yosso (2005:77) explains that aspirational capital is the ability to hold on to hope in the face of structural inequality and often without the means to fulfil such ambitions.

The discursive practices can be understood in the light of the wishes expressed by the principal, as it indicates that he is subordinate to the hegemonic force shown by the SMDG, and it confirms his inability to make decisions. The discursive practices that show how the principal has to act appear to be an established culture to which the principal has to adhere in order to comply with the protocol used in the school. It seems that the plurality of voices, particularly those of the parents and the learners, and which are encouraged by the South African Schools Act (SASA) of 1996, are present but not implemented by the actual practitioners. The discursive actions of the principal show that the hegemonic control of the DBE has a profound influence on how the principal's leadership role can contribute to making teachers adapt to using ICT in teaching and learning.

From the discussions above it can be seen that the school principal can be empowered to facilitate decision-making processes within a safe mode, for example, with an advisory team comprising a diverse stratum of the school community, and so have a legitimised programme to facilitate. The principal will also be able to influence the staff easily, as the views of everyone would be taken into consideration and thus the programme would be owned by the school community. The successful implementation of the possible framework for enhancing the principals' leadership role in the use of ICT would also depend on the plurality of voices of all stakeholders in the school.

4.5.3 Leadership and serving the governing body

A principal at a South African school is expected to perform at a level where the following sustainable conditions are achieved: leadership, support, communication, systems, commitment and confidence (RSA, 2004:32). These conditions are critical for the implementation of a framework to enhance the principal's leadership role in the use of ICT. Contrary to the above, literature confirms that some principals are unable to influence teachers to integrate ICT in their lessons, despite their schools being equipped with equipment and internet access, a website and intranet portals, and internet support (see Paragraph 2.5.3.3).

The EEA 76 of 1998 (ELRC, 2004:C-100) expects principals to ensure that the governing body is increasingly empowered to take major policy decisions for the school. The principal supplies the governing body with proposals, reports and position papers that enable it to take decisions that create the best possible teaching environment in the school. The principal keeps the governing body fully informed of national, provincial and local educational developments and their implications. This enables the governing body to make policy decisions with the confidence that they will be well implemented and well managed. CLS seek to take action that will eliminate inequitable social conditions and that help humans to attain a state of emancipation, free from oppression and exploitation (Ryan, 1998:259). Research shows that a school principal who is requested to manage a school is called upon to do things differently from someone who is asked to lead a school. Clarke (2007:1) argues that leadership is about direction and purpose, while management is about *effectiveness* and *efficiency*. This view is evident in the presentations of Group B and D's discussions during the plenary report sessions in one of the workshops (see Annexure A).

Group D

From the noble group we think one way which will enable the school to operationalise the use of ICT for teaching and learning is when the principal uses leadership to an extent were all stakeholders are informed of any development in the school, and thus are in agreement either in principle or in full support of the issue at hand that would enable proper governance of the school.

Group B

We have reach a consensus that a critical factor for the usage of ICT in a school depends largely on the ability of the leader to continually work with in a servant leadership terrain in order to guide the governing body to develop and adopt pro-ICT programmes. For instance, although the development of a school policy on Facebook was compiled by the ICT coordinating team, the chair of the SGB and the principal we decided to present it to the SGB for final approval.

Group D members refer to themselves as *noble*, which suggests that they see themselves as having qualities admired by others, and which are embodied in working together, and as such operationalises the principle of CLS based on plurality and collegiality rooted in collective action (Ledwith, 2007:603). Group B embodies the actions suggested by group D, having acted out the element of collegiality by agreeing to work together. This is also evident in the word *consensus,* which is one of the ways people can work together to achieve a common goal. Realisation is the direction provided by leadership, thus it seems

that the contribution the principal's leadership role makes in the use of ICT for improving teaching and learning will be functional.

The existence of the coordinating team in the school seems to be a prerequisite for the realisation of the aim of this study, which can be seen in the actions of the coordinating team, because it forms the basis for communication. The conversations and engagement through language during the workshop are signs that participants draw from the linguistic capital that they have among themselves as a community. Linguistic capital refers to intellectual and social skills attained through communication experiences in more than one idea (Yosso, 2005:78). This is evident from the views of Groups B and D. Group D theorised about ideas that address the implementation of the envisaged framework. Group B provided practical examples of the ideas presented by Group D. Evidence can be seen in the consensus of servant leadership and school policy on Facebook.

The discursive practices exhibited by the groups clearly indicate the level of commitment every stakeholder displays, which suggests an element of ownership. Critical insight gained from the diverse views of the participants in the workshops enhances an understanding of relations advocated by CLS (Elliott, 2013:5).

The critical experience gained by participation in the coordinating team enhanced understanding of the relationship of the school community with collegial practices, encouraging action beyond the immediate and specific networks and alliances that focus on the use of ICTs in order to improve teaching and learning (Ledwith, 2007:605).

Against this backdrop, it can be said that the implementation of ICT in order to improve teaching and learning through communication using a plurality of voices will be determined by the actions of the principal in the application of leadership in the school. The stakeholders will thus have a sense of belonging and the SGB can earn sustainable respect and symbolise value in the school. Respect is a concept that operationalises CER, which is the lens couching this study. The ability of the principal to use his/her power correctly in order to apply a systemic approach to motivating teachers to adopt ICT in teaching and learning will improve teaching and learning. The principal takes initiatives in

a creative manner and should continually support teachers through the establishment of ICT committees (Ryan, 1998:259). The principal's leadership role indicates commitment and confidence in the adoption of ICTs for integration in the curriculum, providing some hope for teachers and triggering teacher enthusiasm about the use of ICT for teaching and learning in order to improve performance in the school.

4.5.4 Formulation of a strategic plan for ICT integration

One of the conditions conducive to implementing the framework to enhance the principal's leadership role in the use of ICT for teaching and learning was involvement in strategic planning sessions. This aspect is mentioned in the e-Education policy directive, which states that, *community engagement in ICT planning, implementing and monitoring is crucial for the formation, maintenance and security of an E-school*. It is also a principle of CER that creates a space for people to empower themselves (see Paragraph 2.3.3). This kind of planning will enable the research participants to know what actions will be taken to enhance the leadership role of the principal in the use of ICT.

Papaioannou and Charalambou (2011:358) show that providing internet-connected computers poses a threat to the principal who has insufficient funds for ICT rollout. An unexpected occurrence is a market that demands learners who have ICT skills but schools who are unable to supply learners with these skills, and principals not knowing where to start (see Paragraph 2.5.3.4). During the planning session the research participants expressed concerns about strategic planning. The following discourse indicates that strategic planning is not a reality in the school:

> ***Dabuka****: It is quite a surprise to me; we are always in the dark in this school. I thought strategic planning exists only in big businesses and that strategic planning is only done by managers.*
>
> ***Madikeitere****: That is true, helps me to understand. Sir, have you as the SMT in the past or present, ever had a strategic planning session?*

> ***Bomba****: Strategic planning is a necessary condition that would enable one to develop an action plan that we are currently using to share this valuable and critical insights.*

The above extracts indicate that the school had not undertaken strategic planning before**.** Drawing from the word *surprise* it seems Dabuka and Madikeitere only learned about strategic planning during the coordinating committee engagement, and Dabuka could not understand the reason for engaging in strategic planning sessions outside a managerial dimension. This is further confirmed by the claim that, *we are always in the dark in this school*, which shows that even if the school engages in such planning, very little communication, if any, reaches stakeholders of the school.

Members of the school community have a right to be informed about developments in the school, for instance, an SMS can be used to inform staff and parents, as suggested by the e-Education policy (DoE, 2004:39). This view is supported by Karagiorgi (2005:24), who states that, "implementers of ICT should have a clear understanding of what to do. Policies, written guides, in-service programmes can help clarify the meaning". Such understanding will motivate teachers to participate in school activities and will prevent them feeling marginalised or disrespected. Listening carefully to Dabuka, in particular, *I thought … planning is only done by managers*, it seems that he felt empowered and emancipated by participating in the strategic planning session and by his membership of the coordinating team. The PAR had apparently developed humanitarian practices among the stakeholders, practices characterised by hope, fairness, care, love and respect for each other, which implies that participants benefitted by being involved in the coordinating teams. Their membership taught them better ways of doing things.

The extracts above show that Bomba's knowledge and understanding of human relations were nurtured and passed on to him through relationships with other research participants. It seems that Bomba was drawing his views from the wealth of capital acquired over time to ensure day-to-day survival, as well as from an understanding of how the role of the principal can be enhanced. Bomba's argument is similar to that of Habermas, when the latter argues that it is self-evident that the illegitimate hierarchies and fixed social roles of

societies prevent majorities and minorities alike from realising their full human potential (Fraser, 2001:362).

The central argument of the extracts above is that strategic planning has not been practiced at the school. The discourses suggest a need for a cult of competency in leadership that is in agreement with a system technology theory, and which assumes that successful integration of ICT in teaching depends largely on factors within the school. The discussions above suggest that a dynamic school culture that is open and fair can only be sustained through strategic planning supported by transparent leadership. They further confirm a common notion, namely, that leadership plays a critical role in supporting teachers to integrate ICT in professional curriculum practices. The participants illustrated the importance of strategic planning as prerequisite for ICT usage to be implemented successfully in a school.

4.5.5 Reflection on collaboration and networking dimension

The aim was to combine components of the policy guideline document and strategies to enable the research project to achieve the aim and the objective of the study. The research project proved, beyond a doubt, that the researcher and the co-researchers were on target in attempting to answer the third question of the research project. What was even more exciting was the level of understanding among researcher and co-researchers of what was actually happening. There was less confusion on the part of the participants; everyone seemed to be confident regarding the definition of ICT, and as a result all the researchers displayed more open and free behaviour towards each other. It was as if we were indebted to each other, and this lead to the relationship becoming more cordial. We defined ourselves as equals, for example, although learners were also involved in the research project everyone was either called by his or her name or our common name, Maloko (member). While attempting to answer the research question we became very critical of our own actions. The emancipatory action research produced power effects that are easy to oversee when consensual development is being sought. For example, it might appear that someone is exercising authoritative power over others when he/she stands in

front of others or addresses the team while others are seated. On the other hand, it could also be seen as a sign of respect since in some cultures if you talk to people while seated, particularly in a large crowd, it can be interpreted as showing disrespect to them, especially when they are seated. Thus, consciousness was the driving force behind the behaviour and actions of the researcher and the research participants.

4.6 CONCLUSION

This chapter focused on the analysis and interpretation of data collected with the aim of designing of a framework to enhance the principal's leadership role in the use of ICT at the school. The chapter began by examining how the data analysis was conducted and how text and talk, social structure and discursive practices were examined through the use of CDA as advocated by Teun van Dijk. The data generated was primarily in line with the theoretical perspective based on the constructs associated with each objective of the study. Meaning-making from the extracts and photo voices, guided by CDA, raised important questions relating to power, domination, oppression and hegemony.

Exploring the path followed by the coordinating team through the PAR paradigm, and focusing on the principal's leadership role in persuading teachers to use ICTs in their professional curriculum practice within the school, was deliberated on the basis of the three emerging themes. In order to understand the principal's leadership role in the use of ICT, the chapter analysed the data from the pedagogical dimension, with special focus on the principal's provision of sustainable leadership. The contributions of the principal's leadership role in influencing teachers to use ICT in professional curriculum practices were dealt with, with a special focus on the technical dimension theme. The policy recommendations and the strategy or the framework for technology integration in the school were also presented and discussed under the theme of collaboration and network.

The discussions based on the principal's leadership role in the use of ICT were developed from the three constructs introduced in Chapter 2, viz. (i) pedagogical dimension; (ii) technical dimension; and (iii) collaboration and networking. Each theme was further divided into four subthemes that emerged from the constructs, and which are in line with

the expected performance standard of all principals in South African schools. Finally, the data sheds light on the evidence of practicability of the framework for enhancing the principal's leadership role in the use of ICT.

The next chapter presents a summary of the findings and draws conclusions, makes recommendations and presents the framework proposed for enhancing the leadership role of the principal in the use of ICT at a school. Chapter 5 which is subsequent is presented in the succeeding page.

CHAPTER 5

SUMMARY OF FINDINGS, CONCLUSIONS, RECOMMENDATIONS, AND SUGGESTIONS FOR FURTHER RESEARCH

> ICT is becoming a familiar feature of pupils' lives and consequently is in danger of being regarded as a medium of entertainment rather than a serious medium for learning.
>
> Kennewell (2003:28)

5.1 INTRODUCTION

This study is about designing a framework to enhance the principal's leadership role regarding the use of information communication technology (ICT) in a school. This chapter gives a summary of the findings, draws conclusions, and recommends policies for the implementation of a sustainable framework for enhancing the principal's leadership role in the use of ICT at a school. The chapter is divided into two parts. The first presents the summary of findings, draws conclusions from the discussion of the findings, and continues with recommendations for improving professional curriculum practice in the school through the use of ICT. The second part concentrates on the implementation of a framework for enhancing the principal's leadership role in the use of ICT in a school, exploring the initial action that sparked the research process and then documenting the sequence of activities embarked upon that culminated in the design of the framework. The initiatives relating to the design of a framework emanate from Stage 4 of the participatory action research (PAR) approach, through the process of knowledge accumulation and enlightenment (see Figure 3.1). This chapter is driven by the following research questions:

- What role does the school principal play in the use of ICT for teaching and learning at school?
- How does the principal's leadership role in the use of ICT contribute to teacher professional practice to improve performance in a school?

- What strategies and guidelines can be used to support principals in sustaining teaching and learning through the use of ICT in class?

One of the surprising and exciting outcomes of this reading was the formation of relationships that brought participants with diverse experiences together to work to enhance teaching and learning in order to improve outcomes. The principal's leadership role in the use of ICT became a focal point, particularly the operationalisation of critical leadership studies (CLS) anchored in critical emancipatory research (CER); these studies had a significant impact on the design of the framework as a result of the CLS principles that value human beings. This principle was crystallised through PAR, enabling this reading to address the limitations evident in the frameworks designed by previous research.

In addressing this lacuna, the reading was couched in CLS, which is based on a theoretical framework that, in order to improve teaching and learning, involves all the participants at every stage of managerial action. CER, therefore, shaped the researcher's and the research participants' views, forming connections among affected parties in attempt to improve the understanding of the principal's leadership role in ICT implementation, through planning, education, action and reflection.

The engagements were enabled by a coordinating team that included all members of the school community, namely, management, teaching staff, learners, non-teaching staff, parents and other influential members of the community. The team became a reliable emancipatory hub that ensured representation by all stakeholders. Participation was based on principles of freedom as advocated by the constitution of the Republic of South Africa, particularly Chapter 2, which focuses on the bill of rights (RSA, 1996:6). It is through the efforts and sacrifices of the team that the aim of the study was achieved, namely, the design of a framework enhancing the principal's leadership in the use of ICT.

5.2 THE FINDINGS

The findings are presented under three dimensions linked to the research questions. The first set of findings emerged from an attempt to understand a principal's leadership role in the use of ICTs for teaching and learning, thus, the focus was on the establishment of positive relationships with the principal, first, as a teacher using ICT for teaching and learning and, second, as leader influencing other teachers to use ICT in professional curriculum practice. The second set of findings addressed the second question posed by this research, which related to establishing how the principal's leadership role in the use of ICT has contributed to teachers' professional practice, with the end goal of improving performance in a school. Finally, the third set of findings related to the question, what strategies and guidelines can be used to help principals sustain teaching and learning through ICT in class? The argument that follows deliberates on the major findings that emerged from the data presented in the previous chapter.

5.2.1 Pedagogical dimension

This theme focuses mainly on professional curriculum practice, also referred to as classroom teaching and learning. The research question linked to this theme is as follows: What role does the school principal play in the use of ICT for teaching and learning at school?

5.2.1.1 Inability to activate the role of creating a suitable environment

A school principal is expected to create a positive learning environment that enables the learners to participate actively and to achieve success in the learning process (ELRC, 2003:10). In support of this view, Siemens (2008:56) avers that learning and knowledge rest in diversity of opinions, and learning is a process of connecting nodes or information sources. Both literature (see Paragraph 2.5.1.1) and the data generated (Paragraph 4.3.1) reveal that the principal's leadership role did not involve mediating learning by using ICT for the creation of a suitable learning environment in which learners could connect and expand to include access to resources, creative artefacts and innovation, as required by

the curriculum assessment policy statement (CAPS). The principal's inability to adopt technology impeded his leadership role as mediator of learning. Thus, this finding indicates that the principal's understanding of ICT infusion was, in most cases, inadequate, although the principal is supposed to be the key integrator of ICT in the curriculum.

5.2.1.2 Inadequate technological pedagogical content knowledge in ICT

The use of ICT as a medium for teaching and facilitation of learning requires the principal's leadership role to involve acting as interpreter and designer of learning programmes and developer of teaching material (ELRC, 2003:C-95). Literature (see Paragraph 2.5.1.2) reveals that the principal's leadership role has to be mindful of learning theories and learning styles (Stanley & Jones, 2003:40), while data generated in the present case study (see Paragraph 4.3.2) showed that the principal lacked technological pedagogical content knowledge because he was overwhelmed by recent developments in curriculum reform in South Africa. It can thus be concluded that the principal as a leader lacked a vision for using technology for teaching and learning in the school. The finding also indicates that the principal's leadership role in ICT integration was hesitant.

5.2.1.3 Lack of lesson planning, presentation and management

School principals in South Africa are compelled by statutory requirements to teach, since their core duty is professional curriculum practice, and they are appraised of their core duties (ELRC, 2011:55). However, not all principals are directly involved in professional curriculum practice (Bush, Joubert, Kiggundu & Rooyen, 2010:163), which involves lesson planning, presentation and management. Both the literature (see Paragraph 2.5.1.3) and the generated data (see Paragraph 4.3.3) reveal principals lack this experience. Principal, lack experience in curriculum practice because they don't teach – they have not been allocated classes, or are too busy with administrative duties.

5.2.1.4 Unsustainable assessment and record keeping

Principals in South Africa are expected to demonstrate competencies in monitoring and assessing learner progress and achievement, a process of four steps, which are, (i) generating and collecting evidence of achievement, (ii) evaluating this evidence, (iii) recording the findings, and (iv) using this information to understand and thereby assist the learner's development in order to improve the process of learning and teaching (DBE, 2011:25; RSA, 2004:16).

Literature (see Paragraph 2.5.1.4) indicates that professional curriculum leaders must know how to use technology in order to support their role as assessors in schools. The data generated by this study (see Paragraph 4.3.4) shows that the principal does not display competencies in using technology for assessment.

5.2.2 Technological dimension

The technological dimension involves scientific ways of working with people and the ability to select, use and support a range of ICT gargets to create a sustainable leaning environment. This theme is linked to the second research question, namely, how does the principal's leadership role in the use of ICT contribute to teacher professional practice to improve performance in a school?

5.2.2.1 Support of professional development in ICT for the staff

The performance standard expected by the Department of Basic Education (DBE) from each teacher is that a teacher must engage in professional development activities that are demonstrated in her/his willingness to acquire new knowledge and additional skills, including that relating to ICT. Whether the principal, as a leader, contributes to enabling teachers to acquire ICT skills was answered in the literature (see Paragraph 2.5.2.1), which indicates that training in ICT skills was a critical requirement for school leaders if they were to motivate teachers to use ICT in professional curriculum practice. On the other hand, empirical evidence (see Paragraph 4.4.1) reveals that teacher agency exists in the

school, which could be enhanced by support by curriculum leaders. It can be concluded that support of staff by the principal is likely to be dependent on the support of the school community, district, province or national DBE.

5.2.2.2 Human relations and contribution to ICT use in the school

The integrated quality measurement system (IQMS) (RSA, 2004:20) expects teachers to engage in appropriate interpersonal relationships with learners, parents, staff and partners in order to contribute to the development of the school. The IQMS advises that the teacher whose actions and behaviour responds to the question on whether the teacher creates and maintains sound human relations with colleagues and learners, is the right person to implement ICT use in order to improve teaching and learning (see Paragraph 2.5.2.2). The empirical data reveals that sound human relations were lacking in the school being researched, which contributed to slow or low appreciation of ICT as a tool for teaching and learning (see Paragraph 4.4.2). It can therefore be concluded that the use of ICT in teaching and learning is a complex process that requires curriculum leadership that bases its activities on a sound vision, in which every human is treated with respect irrespective of age, gender, creed and class.

5.2.2.3 Participation in extracurricular and co-curricular practices for ICT integration

There are three central practices of thinking, namely, visual, aural and physical (Tanner, 2007:8); people have diverse inclinations in learning, some prefer to listen, others to use their eyes, and others like touching and moving things. The school principal has to be knowledgeable about different learning styles and theories (Stanley & Jones, 2007:42). An area in which more creative ways of learning can be applied easily is extracurricular and co-curricular activities. In the school under study this was an area that was missing, despite the DBE (RSA, 2004:22) expecting teachers to participate in these activities in a way that supplements the learning process and leads to the holistic development of the learners (see Paragraph 2.5.2.3). Literature confirms that extracurricular and co-curricular

activities can be introduced to improve teaching and learning with the aid of ICT. The school management was an obstacle to integrating ICT with extra-curricular and co-curricular activities (see Paragraph 4.4.3), thus, it can be concluded that the principal's leadership role contributed to teachers' failure to adopt and failure to use ICT.

5.2.2.4 Technological developments compelling changes in administration

Performance Standard No. 8 for school principals expects them to administer records in a productive and sustainable way to enable smooth functioning of the school (ELRC, 2004:24), but this was not the case in the school being studied. The national DBE is driving technological transformation of administration in schools but evidence from the empirical data indicates that the principal's leadership role contributes towards administration of the school with a low degree of application of technology on the part of the school principal. (see Paragraph 4.4.4). This is confirmed by literature (see Paragraph 2.5.2.4), therefore, it can be concluded that the principal depends on the DBE to improve administration of the school.

5.2.3 Collaboration and networking dimension

This theme focuses on the value added by learning collaboration and networking between members of the school community in order to improve teaching and learning. This theme is also linked to the third question of the research project, and addresses sub-themes necessary to provide direction for all teachers, veteran and novice. This theme is geared towards responding to the following research question: What strategies and guidelines can be used to support principals to sustain teaching and learning through ICT in class? The themes are categorised in four sub-themes, presented as follows.

5.2.3.1 Establishing a dedicated personnel corps to encourage ICT use

Establishing a dedicated personnel corps to encourage the use of ICT in the school was curtailed in order to ensure that all stakeholders were involved in a supportive and dedicated manner. This process did not proceed smoothly or without hurdles. It addressed

issues relating to social justice, peace, truth, power relations, and equity. This had to be done because principals have to manage and develop personnel in a way that leads to the achievement of the vision of the institution, in accordance with Performance Standard No. 9 of the IQMS (RSA, 2004:23). Consequently, a significant number of diverse stakeholders were involved in finding ways to enable sustainable use of ICT in order to improve teaching and learning. The suitability of this approach was confirmed by the literature (see Paragraph 2.5.3.1). The empirical evidence revealed that the leadership did not reside in an individual but in the collective (see Paragraph 4.5.1), thus, it can be concluded that the principal's leadership role will depend largely on team work and collaboration, which can be used to support the principal to sustain teaching and learning through ICT in class.

5.2.3.2 Decision-making and accountability

All professional curriculum leaders must know where to start using ICT for teaching and learning, because any action taken by a person requires accountability. The principal's leadership role regarding the use of ICT is expected to provide guidance to all stakeholders and to establish procedures that enable democratic decision-making and accountability (RSA, 2004:29). Although literature attests that some principals find it difficult to take decisions, particularly if they experience a situation for the first time, this was not the case in the school under study (see Paragraph 2.5.3.2). The empirical evidence contradicts the literature, because the principal was able to take a decision with the collective support of the stakeholders. It can thus be concluded that a principal will have confidence in taking a decision within a collaborative collective because accountability will rest with the collective (see Paragraph 4.5.2).

5.2.3.3 Leadership and serving the school governing body

The duties of the school governing body (SGB), as stipulated in the South African Schools Act of 1996, are that, among other responsibilities, it must help the principal, teachers and other staff members to perform their professional duties in the school. On the other hand,

the principal has to provide leadership and serve the SGB. It is interesting to note that the type of leadership style applied by the principal in the school gradually developed towards collective leadership, which enabled SGB members to be more involved in their tasks, such as formulation of a vision and mission for the school. Literature provides an account of the implications of leadership, because not all members are highly educated (see Paragraph 2.5.3.3). The empirical data provides evidence that collaboration can produce the inclusionary leadership necessary for sustainable service to all who have a stake in the school (see Paragraph 4.5.3.). It can therefore be concluded that a collective and communal approach to leadership will enable the SGB to understand policies and the guidelines, and their implications for teaching and learning.

5.2.3.4 Formulation of a strategic plan for ICT use

Performance Standard No. 12 states that every principal must be competent in planning and in education management development. This process involves strategic planning, financial planning, project planning and communication of the plans (RSA, 2004:35). In the school under study it was clear that there had been no strategic planning in the recent past. Literature also indicates that principals are unsure about where to begin with strategic planning as it is regarded as a boardroom exercise for big business (see Paragraph 2.5.3.4). This situation was also a reality in the school prior to the intervention process, as revealed by the empirical data generated (see Paragraph 4.5.4). After the study it can be concluded that strategic planning can be carried out by “ordinary” members of the school as long as everyone is involved and they share a common vision and mission.

5.3 FORMULATING A FRAMEWORK

The process of formulating a framework began in the initial stage of the research project, and was the main objective of this study. The unfortunate and undesirable performance of the school generated interest among stakeholders in the school and the community, as the poor performance impacted negatively on society. This lead to cooperation amongst stakeholders, and a collaborative effort to answer the three questions mentioned above.

Despite the commitment of stakeholders to work together, the process did not always proceed smoothly.

5.3.1 Provisioning

We realised we were obligated to design a curriculum pertinent to the 21st century, in which ICT competence is crucial. We engaged in thorough preparation for the task we intended venturing into by developing a solid plan that focused on taking stock of what we already had amongst ourselves as individuals, and pledging to attend to the challenges posed by undesirable results in the school. We detailed all our plans step by step, thus, the reading was devoted to equipping all stakeholders so that everyone was working in the same direction. Special attention was paid to integrating ICT in professional curriculum practice, engaging all stakeholders in the project, acting on the mandate and developing themes for the project.

5.3.1.1 Integrating ICT in professional curriculum practice

This section refers to a relatively abstract stage, in which a great deal of thinking was applied to prepare for the research process. The preparation at this level was centred on understanding the curriculum and philosophy of teaching and learning (see Paragraph 3.1); another focus area was understanding the meaning of the term ICT. This was achieved by distributing information among participants. A secretary of the coordinating team kept records secure and made them available when needed, and when participants were finished with the documents they were circulated amongst the members. This was a theorising stage, in which commonality of understanding what we were doing was tested and concretised. We analysed what we had in terms of expertise (Zuber-Skerritt, 2002:98), observed our existing conditions and clarified constraints. We used a suggestion box to keep the line of communication open between staff and the coordinating team, and arranged our seating layout in the form of circle, with the intention of reducing obstructions relating to vision, increasing transparency and demystifying elements of seniority and power.

Our main objective was to bring about practical improvement, innovation and change, or development of social practice and practitioners. We conducted a literature search on two aspects, namely curriculum and ICT, and looked into how four different countries integrated ICT in teaching and learning. Everyone expressed an interest in the process (some personal interest could not be ruled out), and consequently the study was operationalised in a PAR mode. This process is depicted in Figure 5.1.

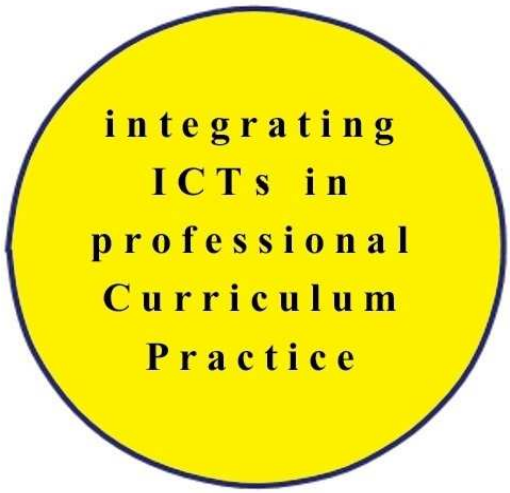

Figure 5.1: The integration/theoretical stage

5.3.2. Engaging stakeholders

This section is an extension of the abstract stage, in which carefully identified individuals participating in the project were engaged in open talk, an exercise that led to a point at which an audit of our skills was conducted. All the participants were either elected to the project or volunteered their participation. The secretary made provision for clarifying ethical issues among all members, and explained that participants should not expect

remuneration. We engaged each other in a PAR approach, based on the view of De Vos (2005: 395) that,

> *to develop technology in the human service professional fields requires a special type of research, mainly akin to the developmental research undertaken in the field of engineering and business and adopted to the needs of the human professions, such as social work and others.*

The study paid attention to learners, parents, teachers, the principal, non-teaching staff, a learning facilitator, school management developer and governance (SMDG) official, police officer, community development worker, and a faith-based leader, as depicted in Figure 5.2.

Figure 5.2: Stakeholders engaged

The next step was to describe all the stakeholders in the project.

5.3.2.1 Learners

The learners in this project are seen as the most important component because designing and interpreting a learning programme as a curriculum will affect them. As argued by Pring (2007:127), to improve learning one must attend to the learners' voices, an approach that the best work of humanity has long understood. The voice of the learner thus becomes the curriculum. Although a total of 1 900 learners were enrolled in the school only 120 were enrolled for computer applications technology (CAT). The research team opted to involve only Grade 10 and 11 learners, excluding 40 learners who were in Grade 12 whom the team decided to exclude so that they could engage in external projects exclusive to them. Thus, a total of 80 learners in Grades 10 and 11 and three from the representative council of learners (RCL) were eligible to participate in the study. From this total of 83, three were elected to the coordinating team (see Paragraph 3.9.3).

5.3.2.2 Partners

The research team could involve a variety of partners, however, we approached a police officer who voluntarily adopted the school under his care, so as to provide support in dealing with disciplinary matters. The officer had been involved with the school for more than five years and therefore had a good understanding of it, though it was the first time he was involved in a project that involved teaching and learning, as evident from his statement,

> *Hey, Nna ke simolola go bua ka tsa classroom teach e ka re go tla Votha.*
>
> *Hi, I am starting to talk about classroom teaching for the first time, it seems that it will be hot.*

Another partner who was involved was a former learner at the school who had a flair for technology and who possessed ICT expertise and who had volunteered at another school. He was requested by the SGB to lend his expertise as an administrative officer at the school. Another partner was a former teacher who had started a teaching career at the school and was also keen to use ICT for teaching and learning (see Paragraph 1.2).

Another expert who was assigned briefly but who did not participate to the end of the project was an ICT expert from a local telecommunications network, who possessed extensive experience and ICT technical skills (see Paragraph 3.9.10).

5.3.2.3 District officials

The project involved the services of two officials from the DBE, one from the senior management of the provincial education department, who had been with the school for more than five years. The responsibility of the official was to develop school management teams (SMTs) and to guide the SGB (see Paragraph 3.9.8). The project was initiated at the school after the district official had requested that something be done to improve the situation. The second official was a senior education specialist, assigned to facilitate learning in IT and CAT. Both officials were also co-opted into the coordinating team (see Paragraph 3.9.9).

5.3.2.4 Parents

More than 80 parents of the learners who had registered for CAT at the school were also involved in the project. Three, who were employed as cleaners and whose children also took CAT, were elected to the coordinating team and had to be capacitated to use computers and register email accounts for the first time, since the team's correspondence and communication was conducted through ICT (see Paragraph 3.9.4). Members of the SGB were also classified under the group of parents (cf. Paragraph 3.9.12), as were non-teaching staff, because their children were enrolled in the school. These parents were committed to supporting the school to achieve desirable results, and were employed by the SGB to clean classrooms at the school.

5.3.2.5 Faith-based community leader

A local pastor was elected in a parents' meeting to form part of the coordinating team (see Paragraph 3.9.13). The pastor, an active member of the community who had worked with

the school for more than six years, was also conversant with the community project and had good knowledge of PAR.

5.3.2.6 Community development worker

The community development worker was an official of the Department of Social Development and was assigned to work with social matters in the school. She had been with the school for three years and had a grasp of the social issues facing the learners (see Paragraph 3.9.11).

5.3.2.7 Teachers

It was essential to encourage and elucidate concerns with the teachers, who are pivotal contributors to an educational setting (Murtaza, 2010:213). Collaboration amongst teachers and learners in the schooling and learning process greatly affects enactment, and as implementers of learning, teachers are expected to keep up with curriculum reform and new trends in curriculum development. Due to deficiencies in self-directed scholarship in learners, teaching and learning cannot be effective without teachers. The two CAT teachers were also involved in the project and served the coordinating team as resource personnel.

5.3.2.8 The school principal

The principal and one deputy principal were fully trained in school leadership of ICT and had successfully completed their advanced certificates in school leadership.

5.3.3 Action on mission

This section deals with the actual research project and the way it was put into motion. The tools that were used to facilitate the project are depicted in Figure 5.3.

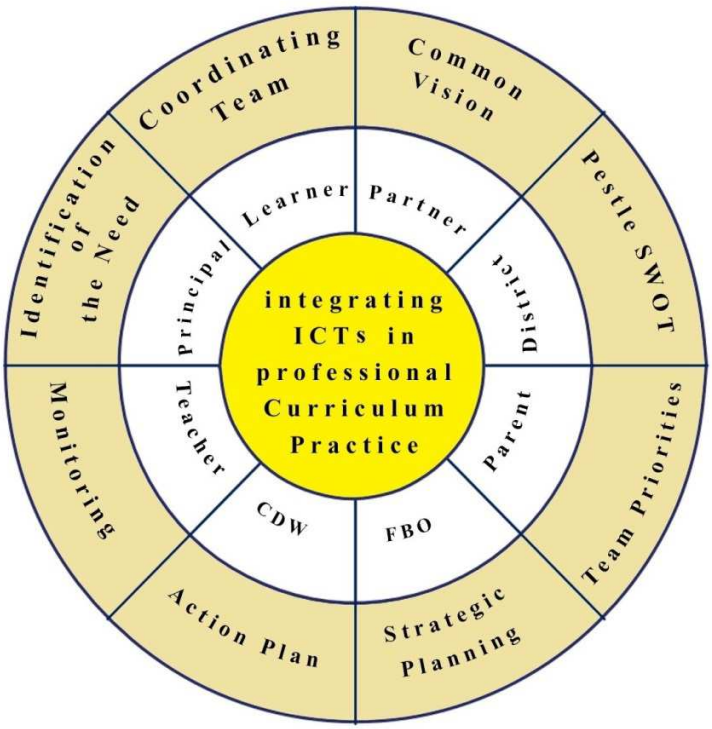

Figure 5.3: Action on mission

5.3.3.1 Identification of the need

The identification of the need to enhance the principal's leadership role in the use of ICT was crystallised when the school invited all stakeholders to a consultative forum (see Paragraph 3.2), at which the SMGD presented the results of the whole school over a period of three years. The general feeling among the stakeholders was that the results were unsatisfactory. Although some learners joked during the presentation the mood gradually changed, from excitement to silence and anxiety. The presenter ended the presentation with the following words:

> *Jaanong Bagaecho re ne re kopa go re lo rethuse go fetola boemo joo le rona re ke re tshwane le dikolo tse dingwe*
>
> *Now, family, we were asking for your help to change this situation so that we can also perform like other schools around.*

It was clear that performance over three years had fluctuated, but generally academic performance had been poor. One parent asked somewhat rhetorically:

> *What can we do to help improve the performance in the school? Yes, we can see that something must be done. We are not teachers, remember?*

The answer was clear – everyone was willing to help but not sure how to go about it. One parent suggested that the forum elected people who could look into the possibility of improving teaching and learning by integrating ICT. This led to the second step, presented below.

5.3.3.2 Establishing a coordination team

The establishment of the coordinating team was crucial to ensure coordination of the activities of various participants and for sustainability of the initiative. The consultative forum resolved to establish a coordinating team that was mandated with spearheading the integration of technology in teaching and learning (see Paragraph 3.3.1). The objective was based on the view that, "ICT is becoming a familiar feature of pupils' lives and consequently is in danger of being regarded as a medium of entertainment rather than a serious medium for learning" (Kennewell, 2003:28). Issues were elucidated with potential members with ingenuity and transparency, which resulted in the principal agreeing to contribute to the team and other stakeholders democratically electing stakeholders. The consultative forum believed that if ICT was not applied in classrooms, teaching and learning would not be sustainable, because learners are enthusiastic about ICT (Babbie & Mouton 2001:318). The elections verified trust that the elected members would represent the interests of those affected. By agreeing to be part of the team, members also verified their positive attitude, their sympathy to the purpose, and made a compassionate contribution to activities that required addressing, namely the inconsistent results.

The coordinating team's brief was broad but centred on enhancing teaching and learning using ICT. Since the research was located within teaching and the target was a school, it was necessary to contact the district director in order to secure permission to conduct the

study. This was in accordance with ethical considerations and also with the CER values of respect, humility, peace and hope, which were geared to establishing mutual trust (Ledwith, 2007:608; Mahlomaholo & Netshandama, 2012:35). The principal was also consulted for endorsement of the inquiry. The team was elected and further tasked with responsibility for positions such as chairperson, secretary, resource persons, peacemaker, timekeeper, ICT experts, representatives of SGB, teachers, learners, and the SMT.

5.3.3.3 Common vision

The team was involved in a number of activities that involved identifying three strong and three weak points about themselves, in order to learn about collaborative work and to get to know each other better. A shared vision arose from discussions among the coordinating team members who, in turn, discussed inputs with the different constituencies (see Paragraph 3.3.2). For instance, representatives of stakeholders consulted their respective constituencies regarding a shared vision, and thereafter presented their inputs to the coordinating team in a meeting. The process of developing and implementing a shared vision was also a priority, because the coordinating team believed that this would ensure that all members would work together without disruption to attain the goal they had set for themselves. With the vision and mission upon which they had agreed, participants began to recognise the significance of PAR (Babbie & Mouton, 2001:318).

5.3.3.4 PESTLE and SWOT analysis

It was important to analyse the political, economic, social, technological and legal environment (PESTLE) in order to obtain a clear picture of the contextual matters that might have a positive or negative bearing on the project, and to address all necessary issues that arose (see Paragraph 3.3.3). It was also necessary to analyse strengths, weaknesses, opportunities and threats (SWOT) inherent in backgrounds and circumstances and that could have an impact on the use of ICT in teaching and learning (see Paragraph 3.3.4), and so seek solutions to problems that arose.

5.3.3.5 Team priorities

After the coordinating team developed and adopted a vision they set a number of priorities in order to become operational and engage in open talk, debates and reasoning regarding priorities (see Paragraph 3.3.5). They reached agreement on the priorities that were deemed achievable and within their capabilities. The team identified 12 priorities that focused on the performance standard of the principal, as prescribed by the IQMS (RSA, 2004:12).

5.3.3.6 Strategic planning

It was important to conduct strategic planning in order to enable the coordinating team to have direction and, most importantly, to achieve the aim of the study. The process was guided by the vision of the team (see Paragraph 3.3.6), and although tedious and lengthy the team members sacrificed their time to complete it, out of a strong motivation to change the situation. This involved operationalising the critical theory intention to transform the school (Babbie & Mouton, 2001:34). The coordinating team developed and integrated a strategic plan, which integrated the action plan (see Annexure C).

5.3.3.7 Action plan

An action plan was necessary to demonstrate the wealth of leadership skills and ability possessed in the school that may as yet be untapped. The team brought their skills and shared them as a communal product for the entire school's benefit. The action plan was integrated in the strategic plan and it captured the following aspects (see Annexure C): the activity to be executed, the person responsible, the resources required, and the evidence to indicate whether the activity had been executed successfully The action plan also showed the duration of the activity.

5.3.3.8 Evaluating and monitoring progress

The coordinating team also developed a monitoring instrument called programme planning evaluation (PPE), which served as a checklist that had to be completed after each activity,

and discussed during reflective meetings (see Paragraph 3.7). The plan was important for evaluating the progress of the project; it enabled the team to pick up any deviation and to correct the occurrence, thus helping the team to determine if the project would fail or succeed. Monitoring was a continuous activity and it had to be completed by the secretary of the coordinating team, however, since all members were assigned some activity in the action plan it was their responsibility to report back during the reflection session.

5.3.4 Thematising the project

The study constructed three themes that are linked to the research questions (see Figure 5.4 below), each of which is further linked to four performance standards, constructed from the literature review in order to operationalise the study. The first theme, based on teaching and learning, focuses on the actions of the curriculum leaders or practitioners, specifically the teacher. Thus, the first theme is derived from critical pedagogy and called the pedagogical dimension. According to Wink (2005:67), pedagogy is the interaction between teaching and learning.

The second theme focuses on the contribution the principal makes, positive or negative, towards encouraging teachers to use ICT in teaching and learning. The theme is about the technical aspects that have a bearing on professional curriculum practice. The coordinating team, inclusive of the principal, courageously looked into the actions of the principal, boldly reflected on his actions, and instituted plans to transform the deficits identified, guided by literature.

The third theme is also based on the way the leadership role of the principal in the use of ICT is experienced by the school community. It focuses on the collaboration and networking dimension, using four performance standards as directives of IQMS policy. Collaboration and networking are based on the actions of the leader in his/her performance of his/her role.

5.4 RECOMMENDATIONS

This section deals with recommendations based on the findings of the research. Maintaining the quality of leadership is an important but daunting task faced by principals, especially during a period of curriculum reform that appears to be biased towards ICT integration, which is required in 21st century classrooms. Research produced to date provides evidence that the principal's leadership role is crucial if teaching and learning is to be sustainable (Fullan, 2005:178; Davies, 2010:58; Newhouse, 2012:7; Jita & Mokhele, 2013:s126). However, the problematic issues discussed in the reading point to a lacuna in the approach to leadership regarding the themes of pedagogy, technical aspects and collaboration and networking. To enhance the principal's leadership role in the use of ICT, the following recommendations are offered.

5.4.1 Recommendations for the principal's leadership role

This section focuses on recommendations emanating from three themes discussed earlier in this work. The first set of recommendations relates to professional curriculum practice or classroom teaching and learning, the second to the contribution of the principal's leadership role in influencing teachers to use ICT, and the third to what can be done to encourage teachers to use ICT in professional curriculum practice.

Professional curriculum practice involves the art of teaching and learning, and after a literature review the study concluded that inconsistencies exist regarding the actual role of the principal. These inconsistencies are caused by contextual factors in different situations, with some principals not involved in teaching – this affects the morale of both teachers and the learners negatively. The reading recommends that educational reformists and policymakers create conditions in which all leaders contribute to professional curriculum practice as a core role in the school. School leaders should mediate teaching and learning.

The study also recommends that inadequate technological pedagogical content knowledge regarding ICT is supplemented with a compulsory introductory ICT course

offered by provincial authorities as a prerequisite for occupation of the principal's post. This means that the professional development of curriculum leaders (subject heads, heads of departments, deputies and principals) be tailor-made for the school. The course content should also provide a comprehensive definition of ICT for school leaders. Attaining practical skills on lesson planning using ICT, assessments, such as electronic assignments, tests, blogs, discussion boards and adoption of the Thutong portal, is also recommended.

The study is of the opinion that support and encouragement for teachers to adopt ICT is possible if professional development is prioritised by the provincial authority, and the principal's leadership role can only become a reality when positive human relations are a priority not to be compromised. When participation in extracurricular and co-curricular activities through ICT is adopted, the use of ICT in administration will be encouraged by the professional curriculum leader.

The study further recommends that the principal takes a leadership role in the use of ICT to facilitate the creation of a committed team that would identify the need to address the ICT gap, followed by development of a common vision, and PESTLE and SWOT analyses. The team should focus on setting priorities, conducting strategic planning, developing an action plan and monitoring the project. This recommendation is consistent with other research (Razzak, 2013b:9).

5.4.2 Recommendations for policy improvement

Recommendations by the researcher for guidelines and policies that could be followed involves a framework tailored to the institution experiencing the problem (see Paragraph 5.5). The researcher further proposes a leadership orientated toward communal ownership, and with an emancipatory agenda.

5.4.3 Recommendations for further research

Based on the limitations of the research (see Paragraph 1.6) this reading can be replicated on a larger scale. A study could be conducted on enhancing the application of the intranet to enhance professional curriculum practice, which proved to be a challenge for investigating technical knowledge and skill related to ICT gadgets. One unique finding that may warrant further study relates to the language used in ICT. The Bill of Rights (RSA, 1996:22) states that everyone has a right to receive education in the official language or language of their choice in a public educational institution. This can pose a challenge because most of the software and computer programs are in English. The language used in ICT can be researched.

5.5 PRESENTATION OF THE FRAMEWORK

The coordinating team designed and implemented the framework to enhance the principal's leadership role in the use of ICT, which confirms the argument that "social reality is constructed and social science knowledge is similarly a construct of social inquiry. There is no independent social reality that exists outside of human reflection and inquiry" (Babbie & Mouton, 2001:40). The first stage of building towards the framework was operationalised through PAR. People were brought into a space to reflect on the performance of the school. After they had gained a deeper understanding of the situation the team resolved to transform the situation while simultaneously working towards self-empowerment and an emancipatory agenda framed and set by the consultative forum. Merely reflecting on the undesirable situation validates the research project, thus the coordinating team owned the problem and felt responsible and accountable for solving it through teamwork and following a thorough cyclical approach to the problem (Zuber-Skerritt, 1996:84).

The second part, the integration stage, is characterised by stakeholder interest and their awareness of the impact the undesirable situation has. The stakeholders are not ranked in order of importance, except that the team acknowleged that learners are key, because

teaching and learning centres on them. The other key role among the stakeholders is that of the principal, because the aim of the research is to enhance his or her role in the use of ICT. Most frameworks overlook this fact, which makes this study different from other studies (see Paragraph 2.5.3.4).

The third part, the action on mission, is the actual PAR process in which all the participants engaged in identifying the need to enhance the principal's leadership role in the use of ICT, up to monitoring and evaluating the programme for ICT implementation in a school. The seven aspects addressed by the team were:

1. Identifying the need
2. Compiling a common vision
3. Conducting PESTLE and SWOT analyses
4. Setting team priorities
5. Conducting strategic planning
6. Compiling and implementing an action plan
7. Monitoring

These components had to be embarked upon because the emancipatory agenda can only be realised through involvement of everyone who owns the project, from identification to monitoring. The framework is depicted in Figure 5.4.

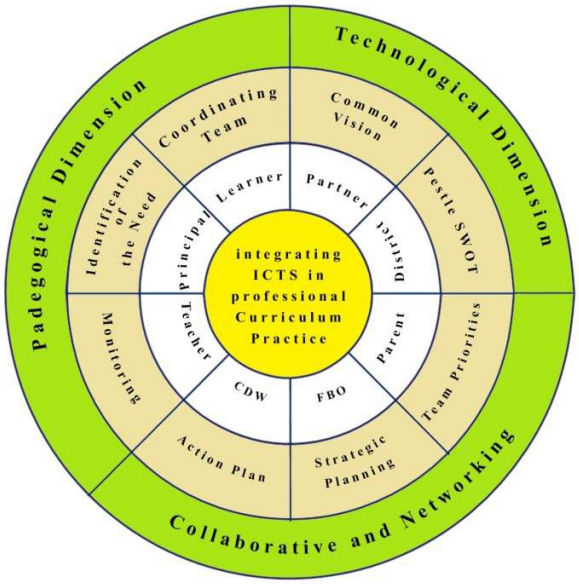

Figure 5.4: Framework for enhancing the principal's leadership role in the use of ICT

5.6 SUMMARY OF THE RESEARCH

This research project, including the recommendations above, achieved its main objective of designing a framework to enhance the principal's leadership role in the use of ICT in a school. However, this reading would have been much more significant had the number of schools and number of participants been larger, because focus would have been on the district rather than on only one school. Nevertheless, the research project has a deeper and "thicker" view of the answers to the three main questions the study aimed to answer. With the knowledge that education is a subjective practice, the argument of Habermas (1973:11) is relevant, namely, that

> *the meaning of a truth or untruth of a statement does not consist in the conditions guaranteeing the objectivity of our experience but in the possibility of argumentative corroboration of a truth claim which is falsifiable in principle.*

This research project could not have been completely free from bias or of subjective standpoints, particularly as the researcher belongs to the community of the school, as a

resident and a former teacher at the school. However, the lens and conceptual framework for the project was indicated in the initial stages of the project so as to account for any unintentional tinting of the analysis of data that might have occurred.

Although thorough collective reflection on the data served to validate data analysis, there is no assurance that the co-researchers as participants were completely honest during the reflection stages of the PAR report. Thus, the methodological approach chosen for the project, although time-consuming, is critical. Self-critical reflection on the whole process is emancipatory, empowering, and transformational, and produces real change and improvement (Zuber-Skerritt, 1996:99). Despite these limitations, it is the only study that has used PAR and CLS anchored in CER discreetly, because it appears to be the first of its kind to convey humanitarianism in managerial and ICT fields, which are largely carried in phenomenological and positivistic paradigms. This research therefore addresses a lacuna in the South African educational literature and contributes in the international context by raising several inferences in the ICT and school leadership discipline.

5.7 CONCLUSION

This research aimed to design a framework to enhance the principal's leadership role in the use of ICT at a particular school. The aim was to improve the general performance in teaching and learning and thus the performance outcomes of the school. The description of the process above serves as evidence that the project achieved the aim.

The study proved that leadership does not reside in an individual but in a communal relationship. Engaging and involving others in the project can go a long way in compelling others to commit to the project, in part because their inputs are valued and appreciated. The study identified a common problem, and sought a solution by involving people within the school to work together in a team to address common problems and, where possible, individual problems. This, in turn, lead people to formulate a common vision or purpose, after which, further consolidation of the context of the project was concretised through the analytical approaches of either PESTLE or SWOT, or both. This exercise can lead to

further ideas that have to be addressed and prioritised. These ideas can be interrogated critically to develop strategic planning that can be converted into an action plan. The last step in the planning process is ongoing, namely that of continuous evaluation and monitoring. The study demonstrated that the framework for enhancing the principal's leadership role in the use of ICT can work, as it was implemented and has proven to be comprehensive enough for the school under investigation.

This study taught me, a scholar in school leadership, a few lessons, and I refer to two lessons in particular. The first lesson relates to understanding the principal's leadership role in the use of ICT in a school. The second lesson emanates from the first lesson and relates to the attitudes and behaviour of the school principal as a curriculum leader in the school. The first lesson was a demonstration of how key the principal's leadership role is in infusing the use of ICT into teaching and learning in a school. It requires of a school principal to be conscious of her/his role as a curriculum leader in the school. The second lesson provides theoretical underpinnings that justify the determining factors for improving teaching and learning through the use of ICT in curriculum practice – these factors are the attitude and actions of a school principal's leadership role in the use of ICT in professional curriculum practice.

The lessons clarified what can be done to support learners and teachers in the use of ICT for teaching and learning. I also learned that, for an educational activity to take place, team effort is required. Throughout this project it was clear that, when participatory action research was involved, the process does not come to an end easily. It also became clear that the answers to research questions are not readily available, but require digging ever deeper to obtain answers – there are no shortcuts. The reflection process involved in data analysis validates the interpretations of the generated data.

The research journey was a humbling experience that was painstaking and sometimes costly to both family and friend, but it had a rewarding outcome, particularly when I realised I had made a contribution to the community. The journey changed the way I viewed people in my community and I realised that everyone can make a contribution

irrespective of status. What I know now is that, in education, the learner is the curriculum, and listening to the learner will enable the teacher to be more productive.

BIBLIOGRAPHY

Abidogun, G.B. 2011. Information and communication technology (ICT) use in teaching and learning at the pre-primary level in Nigeria: the role of the teacher: *The International Journal of Interdisciplinary Social Science* 6(1): 1833-1883.

Achuonye, K.A. 2002. A comparative study of problem-based and lecturer-based learning in secondary school student motivation to learn science*. International Journal of Science and Technology Education Research* 1(6):126-131.

Adegbesan, S.O. 2013. Effect of principals' leadership style on teachers' attitude to work in Ogun State secondary schools, Nigeria. *Turkish Online Journal of Distance Education*. 14(1):14-28.

Adeyemi, T.O and Olaleye, F.O. 2010. Information communication and technology (ICT) for effective management of secondary schools for sustainable development in Ekiti state, Nigeria. *American-Eurasian Journal of Scientific Research* 5(2):106-113.

Adomi, E.E, and Kpangban, E. 2010. Application of ICTS in Nigerian secondary schools. *Library Philosophy and Practice (e-journal)* Paper 345. http://digitalcommons.unl.edu/libphilprac/345

Aduke, A.F. 2008. Usage and challenges of information communication technology (ICT) in teaching and learning in Nigerian Universities. *Asian Journal of Information Technology* 7(7):290-295.

Aduwa-Ogiegbaen, S.E. and Iyamu, E.O.S. 2005. Using information and communication technology in secondary schools in Nigeria: Problems and prospects. *Educational Technology & Society* 8(1):104-112.

Afshari, M., Bakar, A.K., Luan, S.W., Samah, B.A. and Fooi, S.F. 2008. School leadership and information communication Technology. *The Turkish Journal of Educational Technology* 7(4):9-18.

Agyeman, O.T. 2007. ICT for Education in Nigeria. *Survey of ICT and education in Africa: Nigeria Country Report.* June.

Akpor, B., Muchie, M., Tapper, H. and Nyambura, M. 2011. *Assessment of environmental, institutional and individual leadership capacity needs for the knowledge society in Africa: A situational and needs analysis in four countries. Mauritius, South Africa, Tanzania, Zambia:* A situational needs analysis. African Leadership in ICT (ALICT) Report. GESCI.

Al Sharija, M. and Watters, J.J. 2012. Innovative leadership by school principals: Embedding information communication and technology in Kuwaiti schools. *Journal of International Education Research* 8(4):425-434.

Aluede, O. 2013. Enhancement of pedagogical skills in Nigerian schools through information and communication technology (ICT): issues for the future*. Research in Education* 89(5):90-101.

Alvesson, M. and Spicer, A. 2012a. A stupidity-based theory of organizations. *Journal of Management Studies* 49(7).

Alvesson, M. and Spicer, A. 2012b. Critical leadership studies: The case for critical performativity. *Human Relations* 55(3):367-390.

Alvesson, M. and Willmott, H. 2012. Making sense of management: A critical introduction*.* London: Sage.

Anderson, R.E., and Dexter, S. 2005. School technology leadership: An empirical investigation of prevalence and effect. *Educational Administration Quarterly 41*(1):49-82.

Assan, T. and Thomas, R. 2012. Information and communication technology integration into teaching and learning: Opportunities and challenges for commerce educators in South Africa. *International Journal of Education and Development using Information Communication Technology* 8(2):4-16.

Asiabaka, C.C. 2010. *Scaling up agricultural technology for food security and poverty reduction: whose knowledge counts, the farmer or the scientist?* 16th Inaugural Lecture of the Federal University of Technology, Owerri, Imo State, Nigeria.

Aubusson, P., Schuck, S and Burden, K. 2009. Mobile learning for teacher professional learning: benefits, obstacles and issues. *Research in Learning Technology* 17(3):233-247.

Avolio, G.J. 2011. *Full range leadership development* (2nd Edition.). Thousand Oaks, CA: Sage.

Babbie, E. and Mouton, J. 2001. *The practice of social research*. Cape Town: Oxford University Press.

Balanskat, A., Blamire, R. and Kefala, S. 2006. *A review of studies of ICT impact on schools in Europe*. The ICT Impact Report. European Schoolnet. European Communities.

Bartenschlag, A. and Funk, B. 2013. Enhancing leadership quality. Ohio: Battelle for kids.

Baum, F., MacDougall, C., Smith, D. 2006. Participatory action research. *Journal of Epidemiology Community Health* 60:854-857.

Becta. 2006. The Becta Review 2006: Evidence on the progress of ICT in education: Becta ICT Research. Document Numbe

Bhasin, B. 2012. Integration of information and communication technologies in enhancing teaching and learning. *Contemporary Educational Technology* 3(2): 130-140.

Bialobrzeska, M. and Cohen, S. (Eds). 2003. *Managing ICTs in South African schools*. A guide for school principals. Developed for school managers by SAIDE. http://www.education.gov.za/LinkClick.aspx?fileticket=4rn8m810sXw%3D&tabid=452&mid=1036. Accessed 18 January 2015.

Bisaso, R., Kereteletswe, O., Selwood, I. and Visscher, A. 2008. The use of information technology for educational management in Uganda and Botswana. *International Journal of Educational Development* 28(6):656-668.

Bloch, G. 2009. *The toxic mix: What's wrong with South African schools and how to fix it*. Cape Town: Tafelberg.

Bloch, G. and Hibbert, L. (Eds). 2012. *The liberatory discourse of education*. Cape Town: Tafelberg.

Blommaert, J. and Bulcaen, C. 2000. Critical discourse analysis. *Annual Review of Anthropology:* 447-466.

Bourdieu, P. 2010 Distinction. Routledge: London.

Bourdieu, P. 1999. Postscript. In P. Bourdieu, A. Accardo, G. Balazs, S. Beaud, F. Bonvin, E. Bourdie, P. Bourgios, S. Broccolichi., P. Champagne, R. Christin, J. Faguer, S. Garcia, C. Brunton & Associates (Eds.). 2003. *Policy Handbook for Educators-ELRC*. Universal Print Group, City Press.

Bourdieu, P.1988. HomoAcademicus. Cambridge: Polity Press, Blackwell.

Brenner, P. 2009. An empirical study of the European corporate leniency program. *Industrial Organization* 4: 639-645.

Brown, K.M. 2004. Leadership for social justice and equity: Weaving a Transformative framework and pedagogy. *Educational Administration Quarterly* 40(1):77-108.

Brydon-Miller, M. and Maguire, P. 2009. Participatory action research: Contributions to the development of practitioner inquiry in education. *Educational Action Research 17*(1):79-93.

Burciaga, R. and Erbstein, N. (Eds). 2010. Challenging assumptions, Revealing community cultural wealth: Young adult wisdom on hope in hardship. *Healthy youth/healthy regions working paper*. Published by Center for Regional Change, UC Davis

Bush, R, 2007. *Poverty and neoliberalism. Persistence and reproduction in the global south*. London: Pluto Books.

Bush, T. (Ed.). 1995. *Theories of educational management*. London: Sage.

Bush, T. 1998. The national professional qualification for headship: The key to effective school leadership. *School Leadership and Management* 18(3):321–337.

Bush, Joubert, Kiggundu and Rooyen, 2010

Cameron, J. & Gibson, K. 2005. Participatory action research in a poststructuralist vein. *Geoforum* 36: 315-331.

Carmen, C., de la Luz, F. & Salustiano, M. 2006. Influence of top management team vision and work team characteristics on innovation: the Spanish case. *European Journal of Innovation Management* 9(2):179-201.

Carreño, I.D.V.G. 2014. Emergent leadership: E-leadership implications for virtual education. *Revista de Estudios para el Desarrollo Social de la Comunicación* (10):309.

Castells, M. 2007. Communication, power and counter-power in the network society. *International Journal of Communication 1*(1):29.

Chapman, R.A. and Dold, C.J. 2009. Finding a voice: Results of a youth participatory action research survey. Paper presented at the annual meeting of the Research and Training Center on Family Support and Children's Mental Health Conference. Portland, Oregon.

Chapman, D. and Mahlck, L. 2004. Adapting technology for school improvement: A global perspective. Paris: International Institute for Educational Planning.

Cheeseman, N. 2011. The internal dynamics of power-sharing in Africa. *Journal of Democratization* 18(20):336-365.

Chisholm, L., Dhunpath, R. and Paterson, A. 2004. The use of ICTs in the curriculum in Botswana, Namibia and Seychelles. Report for SACHES: Commissioned by Southern African Development Community Education Policy Support. http://www.nied.edu.na/publications/other%20resources/ICTs%20FINAL%20REPORT.ag.8.6.2004.pdf. Accessed 2 July 2012.

Clarke, A. 2007. *The handbook of school management*. Cape Town: Kate McCallum.

Cohen, L. Manion, L. and Morrison, K. (Eds). 2011. *Research methods in education.* London: Routledge.

Collins English Dictionary. 2004. http://www.collinsdictionary.com/dictionary/english/team-leader. Accessed 7 June 2012.

Collins, R. 2014. *Interaction ritual chains*. Princeton University Press.

Collinson, D. 2012. Prozac leadership and the limits of positive thinking. *Leadership* 8(2):87-107.

Cranston, N. & Enrich, L. 2005. Leadership and management: Enhancing the effectiveness of senior management teams in schools. *Profile Report* 33:79-9.

Creswell, J.W. 2007. *Qualitative, quantitative and mixed methods approaches.* London: Sage.

Creswell, J.W. 2009. *Qualitative*, *quantitative and mixed methods approaches*. London: Sage.

Dalai Lama 2013. Change your mind change the world. University of Wisconsin-Madison. http://cmcw2013.wisc.edu/ Accessed February 2014.

Davies, P.M. 2010. On school educational technology leadership. *Management in Education* 24(2):55-61.

Depalma, R. 2010. Socially just research for social justice: negotiating consent and safety in a participatory action research project. *International Journal of Research & Method in Education* 33(3):215-227.

Department of Basic Education (DBE) 2013. EMIS System training course for Department of Basic Education. Pretoria: Government Printing Works.

Department of Basic Education. 2012. Education statistics in South Africa in 2010. Pretoria: Government Printing Works.

Department of Basic Education (DBE) 2011. *Report on the Annual National Assessments of 2011.* Pretoria.Goverment printing works. http://www.education.gov.za Accessed 10 June 2012

Department of Education (DoE) 2004. Draft white paper on e-Education. Transforming learning and teaching through information and communication technologies (ICTs). Government Gazette. No. 26734.Pretoria: Government printing works.

Department of Education (DoE), 2003. Review of financing, resourcing and costs of education in public schools. Pretoria: Government Printing Works.

De Vos, A.S., Delport, C.S.L., Fouché, C.B. and Strydom, H. 2011. *Research at grass roots: A primer for the social science and human services professions*. Pretoria: Van Schaik.

De Vos, A.S., Strydom, H. and Fouché, C.B. (Eds.). 2005. *Research at grass roots for social sciences and human services professions*. Pretoria: Van Schaik.

Dhunpath, R. 2004. Country case studies: Botswana. In L. Chisholm, R. Dhunpath, and A. Paterson, The use of ICTs in the curriculum in Botswana, Namibia and Sychelles. For SACHES: Commissioned by SADC EPSI, pp. 23-48.
http://unpan1.un.org/intradoc/groups/public/documents/cpsi/unpan038422.pdf

Dimmock, C. 2012. *Leadership capacity building and school improvement*: *concepts*, *themes and impact*. New York: Routledge.

Divaharan, S., and Ping, L. C. 2010. Secondary school socio-cultural context influencing ICT integration: A case study approach. *Australasian Journal of Educational Technology* 26 (6):741-763.

Donnelly, D., McGarr, O. and O'Reilly, J. 2011. A framework for teachers' integration of ICT into their classroom practice. *Computers & Education* 57(2):1469-1483.

Donnelly, R.R. 2007. *Improving Scottish education: ICT in learning and teaching.* Livingston: HMIE.

Downes, S. 2008. Places to go: Connectivism and connective knowledge. *Innovante* 5(1). http://www.academia.edu/2869475/Places_to_go_Connectivism_and_connective_knowledge. Accessed 29 September 2012).

Drucker, P.F. (2006). *Classic Drucker: Essential wisdom of Peter Drucker from the pages of Harvard Business Review*. Harvard Business Press.

Dunn, W.N. and Muller, D.Y. 2007. A critical of the new public management and the neo-Weberian State: Advancing a critical theory of administrative reform. *Public Organization Review* 7(4):345-358.

Dutton, W.H. 1996. *Information and communication technologies: Visions and realities*. Oxford University Press.

Dutta S. and Coury, M.E. 2002. ICT challenges for the Arab world. http://www.mafhoum.com/press7/218T42.pdf

Duze, C.O. 2012. Leadership styles of principals and job performance of staff in secondary schools in Delta State of Nigeria. *An International Journal of Arts and Humanities* 1(2):224-245.

Dworski-Riggs, D. and Langhout, R.D. 2010. Elucidating the power in empowerment and participatory action research: A story about research team and elementary school change. *Community Psychology* 45:215-230.

Ebersohn, L. and Ferreira, R. 2012. Rurality and resilience in education: place-based partnerships and agency to moderate time and space constraints. *Perspectives in Education* 30(1):30-42.

Edwards-Groves, C., Brennan Kemmis, R., Hardy, I. and Ponte, P. 2010. Relational architectures: Recovering solidarity and agency and living practices in education. *Pedagogy, Culture & Society* 18(1):43-54.

Elam, C., Stratton, T. and Gibson, D.D. 2007. Welcoming a new generation to college: The millennial students. *Journal of College Admission* Spring 2007:20-25.

Elliott, G. 2013. Critical practice leadership in post-compulsory education. *Educational Management Administration and Leadership* 7. http://ema.sagepub.com

Education Labour Relations Council (ELRC) 2011. Annual report: 15 years of negotiating professionalism through sound labour relations. Pretoria: Government Printing Works.

Education Labour Relations Council (ELRC) 2003. C*ollective Agreement No. 3 (Protocol) and 8, Integrated Quality Management System.* Pretoria: Gorvernment Printing Works.

Education Labour Relations Council (ELRC) 2008. *Collective Agreement No. 1 of 2008. Framework for the Establishment of an Occupation Specific Dispensation (OSD) for Educators in Public Education*. 1 April. Centurion: Pretoria: Government Printing Works.

Encyclopaedia Britannica 1958. A new survey of universal knowledge. Volume 8. Chicago: Encyclopedia Britannica. http://www.britannica.com:online

English, F.W. 2008.*The art of educational leadership: Balancing performance and accountability*. California. Sage.

Eruera, M. 2010. Ma Te Whānau Te Huarahi Motuhake: Whānau Participatory Action Research groups. *MAI Review* 3.
http://www.review.mai.ac.nz/index.php/MR/article/viewFile/393/549. Accessed 1 January 2013.

European Computer driving licence study guide, 2004. *ECDL module: ATTI Advanced Technology Training Institute*. ATTI: unpublished module.

Fairclough, N. 2003. *Analysing discourse: Textual analysis for social research*. Psychology Press.

Fairhurst, G.T. and Grant, D. 2010. The social construction of leadership: A sailing guide. *Management Communication Quarterly*. 24(2):171-210.

Farivarsadri, G. 2001. A critical view on pedagogical dimension of introductory design in architectural education. *Architectural Education Exchange* 2001:11-12.

Farrell, G. and Isaacs. S. 2007. Survey of ICT and education in Africa: A summary report, based on 53 country surveys. Washington, DC: infoDev/World Bank. http://www.infodev.org/en/Publication.353.htm

Flanagan, L. and Jacobsen, M. 2003. Technology leadership for the twenty-first century principal. *Journal of Educational Administration* 41(2):124-142.

Forcier, R.C. and Descy, D.E. 2002. *The computer as an educational tool: Productivity and problem solving*. Upper Saddle River, NJ: Merrill Prentice Hall.

Franssila, H. and Pehkonen, M. 2005. Why do ICT-strategy implementation in schools fail and ICT-practices do not develop? Proceedings Media Skills and Competence Conference. Tampere, Finland 26-27 May 2005. pp. 9-16.

Fraser, R.W. 2001. Using principal-agent theory to deal with output slippage in the European Union set-aside policy. *Journal of Agricultural Economics* 52(2):339-341.

Torres, J.A. and Freire, J.C. 2007. SiGe: C BiCMOS monolithic millimeter wave integrated circuits. In Conference Proceedings of Design of Circuits and Integrated Systems Conference, DCIS.

Friesner, T. 2011. History of SWOT analysis. *Marketing Teacher* 2000-2010.

Fuchs, C. 2012. With or without Marx? With or without capitalism? A rejoinder to Adam Arvidsson and Eleanor Colleoni. *Triple C* J*ournal for a Global Sustainable Information Society* 10(2): 633–698.

Fullan, M. 2007. The new meaning educational change. (4th edition). Amsterdam: Routledge.

Fullan, M. 2006. Turnaround leadership. San Francisco: Jossey Bass.

Fullan, M. 2005. Turnaround leadership. *The Educational Forum* 69:175-189.

Fullan, M. 2002. The change. *Educational Leadership 59*(8):16-60.

Fullan, M. 2001. *Leading in culture of change*. San Francisco: Jossey-Bass.

Fullan, M.G. 1993. Why teachers must become change agents. *Educational Leadership* 50:12-17.

Galletta, A. and Jones, V. 2010. Why are you doing this? Questions on purpose, structure and outcomes in participatory action research engaging youth and teacher candidates. *Journal for Educational Studies* 4:337–357.

Gao, C.Y and Peng, D.H. 2011. Consolidating SWOT analysis with nonhomogeneous uncertain preference information. *Knowledge-Based Systems 24(6):*796-808.

Garegae, K.G. and Moalosi, S.S. 2011. *Botswana ICT policy and curriculum: Does school connectivity guarantee technology integration into mathematics classrooms?* Hershey: Information Science Reference.

Gibson, W. 2006. The future is here, it's just not evenly distributed yet. What futures have you seen that are here, but unrecognised? TED Conversation Archives. http://www.ted.com/conversations/69/william_gibson_said_the_futur.html

Giglavyi, A.V. 2011. Introduction. *Programming and Computer Software* 37(6):271-272.

Gotskaya, I. 2010. Modern areas and prospects of ICT use in the general education of Russia. Proceedings. ICT in teacher education: Policy, open educational resources and partnership. 15-16 November 2010. St. Petersburg, Russian Federation.

Govender, D. and Muthukrishna, N. 2012. Towards sustainable learning environments. Deconstructing discourses of social justice in the English home language classroom. *Name of Journal* 17:21-24.

Greenwood, D.J. 1993. *Contractual arrangements and conditions of contract for engagement of specialist engineering contractors for construction projects.* London: CASEC.

Grobler, B., Bisschoff, T. and Beeka, A. 2012. Changing perceptions of teachers regarding the importance and competence of their principals as leaders. *South African Journal of Education* 32:40-55.

Gronow, M. 2007. ICT leadership in education. Directions for Catholic Education Leadership in the 21st Century. Australian Catholic University Conference.

Gronow, M. 2007. ICT leadership in school education. *Australian Catholic University*.http://www.scribd.com/doc/11002583/ICT-Leadership-in-School-Education. Accessed 2 June 2012.

Gulcan, M.G. 2012. Research on instructional leadership competencies of school principals. *Education* 132(3):625-635.

Gunter, H. 2001. Critical approaches to leadership in education. *Journal of Educational Enquiry* 2(2):105.

Habermas, J. 1973. *Legitimationsprobleme des Spätkapitalismus.* Frankfurt am Main: Suhrkamp.

Hall, D., Gunter, H. and Bragg, J. 2012. Leadership, new public management and the re-modelling and regulation of teacher identities. *International Journal of Leadership in Education* 16(2):173-190.

Harasim, L. (Ed.). 2012. *Learning theory and online technologies*. New York: Routledge.

Hardy, C., Palmer, I. and Phillips, N. 2013. Discourse as a strategic resource. *Human Relations* 53(9):1227-1248.

Hargreaves, A. and Fink, D. The seven principles of sustainable leadership: *Leading in Tough Times* 61:8-13.

Harris, A., Day, C., Hadfield, M., Hopkins, D., Hargreaves, A. and Chapman, C. 2003. *Effective leadership for school improvement*. London: Routledge.

Hawkins, B.A. 2008. Perspectives in biogeography: Recent progress toward understanding the global diversity gradient. *IBS Newsletter* 6:5-7.

Hayes, D. 2006.: Making all flashy stuff work: The role of the principal in ICT integration. *Cambridge Journal of Education* 36(4):565-578.

Hayes, D.N.A. 2007. ICT and learning: Lessons from Australian classrooms*. Journal of Computers & Education 49(2):385-395.*

Hennessy, S., Harrison, D. and Wamakote, L. 2010. Teacher factors influencing classroom use of ICT in sub-Saharan Africa. *Itupale Online Journal of African Studies* 2(1):39-54.

Henning, E., Van Rensburg, W. and Smit, B. 2004. *Finding your way in qualitative research*. Pretoria: Van Schaik.

Higham, R., Hopkins, D. and Matthews, P. 2009. *System leadership in practice*. New York: Open University Press.

Hindle, D. 2007. *Guidelines for teacher training and professional development in ICT*. Pretoria: Government Printing Works.

Hoadley, C. 2012. What is a community of practice and how can we support it? *Theoretical foundations of learning environments*, 286. https://steinhardt.nyu.edu/scmsAdmin/uploads/006/677/CHAP12HOADLEY.pdf

Hoegl, M. 2005. Smaller teams – better teamwork: How to keep project teams small. *Business Horizons* 48(3):209-214.

Hoegl, M. and Schulze, A. 2005. How to support knowledge creation in new product development: An investigation of knowledge management methods. *European Management Journal* 23(3):263-273.

McMillian-Culp, K., Honey, M. and Mandinach, E. 2003. *A retrospective on twenty years of education technology policy.* Washington, DC: Department of Education, Office of Educational Technology.

Hongwana, V. A. (2009). *Deconstructing higher education transformation as trauma through narratives.* Potchefstroom: Science Africa.

Hooker, M., Mwiyeria, E. and Verma, A. 2011. *ICT competency framework for teachers in Tanzania*. Teacher's development for 21st century (TDv21) pilot. A Ministry of Education and Vocational Education Tanzania, World Bank and GSCI initiative.

Howie, J.S. and Blignaut, S. 2009. South Africa's readiness to integrate ICT into mathematics and science pedagogy in secondary schools. *Education Information Technology* 14:345-353.

Imenda, S.N. and Muyangwa, M.M. 2006. *Introduction to research in education and behavioural sciences*. Pretoria: TUT.

Iysens 2000

Hornby, A.S. 2009. *Oxford advanced learner's dictionary: International students' edition*. New York: Oxford University Press.

James, B. 2012. Becoming an "authorised" postgraduate research writer. *Innovations in Education and Teaching International* 49(1):41-50.

Jita, L.C. and Mokhele, L. 2013. The role of lead teachers in instructional leadership: A case study of environmental learning in South Africa*. Education as Change* 17(S1):S123-S135.

Jita, L.C. 2004. Resource of biography: Teacher identities and science teaching. *Perspectives in Education* 22(4):11-27.

Jita, L.C. 2010. Instructional leadership for the improvement of science and mathematics in South Africa. *Procedia – Social and Behavioural Sciences* 9:851-854.

Julie, F. 2007. *The art of leadership and management on the ground – A guide for leaders and managers to build sustainable organizations*. South Africa: Creda Communications.

Kangro, A. and Kangro, I. (2004). Integration of ICT in teacher education and different school subjects in Latvia. *Educational Media International 41*(1):31-37.

Kareem, J. 2012. ICT usage in secondary schools. *Indian Streams Research Journal* 2(1):1-4.

Karagiorgi, Y. 2005. Throwing light into the black box of implementation: ICT in Cyprus elementary schools. *Educational Media International* 42(1):19-32.

Kaser, L. and Halbert, J. 2009. *Leadership mindsets*: *Innovation and learning in the transformation of schools*. New York: Routledge.

Keeney, B. 2010. N/om and transformative leadership: Considering the embodied know-how of the Kalahari Bushman n/om-Kxaosi. *ReVision* Winter:51-56.

Kekäle, J. and Pirttila, J. 2006. Participatory action research as a method of developing leadership and quality. *International Journal of Leadership in Education: Theory and Practice* 9(3):251-268.

Kelechukwu, N. 2011. Analysis of administrative roles of principals in private secondary schools in an aba education zone of Abia state. *Journal of Education Research* 4(1):18-27.

Kemmis, S. 2011. What is professional practice? Recognizing and respecting diversity in understandings of practice. In C. Kanes, *Elaborating professionalism*. Studies in Practice and Theory: 5. New York: Springer.

Kemmis, S. 2010a. Research for praxis: knowing doing. *Pedagogy, Culture and Society* 18(1): 9-27.

Kemmis, S. 2010b. What is to be done? The place of action research. *Educational Action Research* 18(4): 417-427.

Kemmis, S. 2006. Participatory action research and the public sphere. *Educational Action Research* 14 (4):459-476.

Kemmis, S. and McTaggart, R. 2008. Participatory action research: Communicative action and the public sphere. In N. Denzin and Y. Lincoln (Eds.), *Strategies of qualitative inquiry*. Thousand Oaks: Sage. pp. 271-330.

Kemmis, S. and McTaggart, M.C. 2006. Participatory action research and the public sphere. *Educational Action Research* 14(4):459-476.

Kemmis, S. and McTaggart, M.C. 2005. Communicative action and the public sphere. In N.K. Denzin, and Y.S. Lincoln, (Eds.), *The Sage handbook of qualitative research*. No. 3. pp. 559-603.

Kemmis, S. and McTaggart, M.C. 2000. Participatory action research: Communicative action and the public sphere. In N.K. Denzin & Y.S. Lincoln (Eds). pp. 271-330.

Kemmis, S., Wilkinson. J., Hardy. I., and Edward-Groves, C. 2010. Leading and learning: Developing ecologies of educational practice. Symposium: Ecologies of Practice. Paper Code WIL091156. 091125 Final_AARE Leading learning-08sk.doc

Kennedy, E. 2011. Perception of teachers toward the utilization of information and communication technology (ICT) in teaching introductory technology in secondary schools in Delta state in Nigeria. *Journal of Education and Social Research* 2(7):122-168.

Kennewell, P. 2003. Technology evaluation: ISIS-104838, OraSense. *Current Opinion in Molecular Therapeutics 5*(1):76-80.

Kiryukhin, M.V. and Tsvetkova. M.S. 2010. Strategy for ICT skills teachers and informatics Olympiad coaches development. *Olympiads in Information* 4:30-51.

Klein, H.S. 2011. *A concise history of Bolivia*. Cambridge University Press.

Korpelainen, E. 2011. *Theories of ICT system implementation and adoption – A critical review.* Working paper. Helsinki*:* Department of Industrial Engineering and Management, Aalto University. https://aaltodoc.aalto.fi/bitstream/handle/123456789/5019/isbn9789526041506.pdf?sequence=1. Accessed 18 January 2015.

Kriek, J. & Stols, G. 2010. Teachers' beliefs and their information to use simulations in their classrooms. *South African Journal of Education* 30:439-456.

Kumar, N., Rose, R.C. and D'Silva, J.L. 2008. Teachers' readiness to use technology in the classroom: an empirical study. *European Journal of Scientific Research* 21(4): 603-616.

Kurland, H., Peretz, H. and Hertz-Lazarowitz, R. 2010. Leadership style and organizational learning: The mediate effect of school vision. *Journal of Educational Administration* 48(1):7-30.

Ladkin, D. 2010. Rethinking leadership: A new look at old leadership questions. New Horizons in Leadership Studies series. Cheltenham: Edward Elgar.

Lai, K.W. and Pratt, K. 2004. Information and communication technology (ICT) in secondary schools: the role of the computer coordinator. *British Journal of Educational Technology* 34(4):461-475.

Larrotta, C. and Yamamura, E.K. 2011. A community culture wealth approach to Latina/o parent involvement. The promise of family literacy. *Adult Basic Education and Literacy Journal* 5(2):74-83.

Law, N., Lee, M.W. and Chan, A. 2010. Policy impacts on pedagogical practice and ICT use: an exploration of the results from SITES 2006. *Journal of Computer Assisted Learning* 26:465-477.

Ledwith, M. 2007. On being critical: Unifying theory and practice through emancipatory action. *Educational Action Research* 15(4):597-611.

Leedy, P.D. and Ormrod, J.E. 2010. Practical research. (9th Ed.). New Jersey: Pearson Prentice Hall.

Leithwood. K.A., Day. C., Sammons. P., Harris. A. and Hopkins. D. 2006. Successful school leadership: what it is and how it influences pupil learning. Research Report Nol RR800. National College for School leadership, Department for Education and Skills. http://illinoisschoolleader.org/research_compendium/documents/successful_school_leadership.pdf

Levin, T. and Wadmany, R. 2008. Teachers' views on factors affecting effective integration of information technology in the classroom: Developmental scenery. *Journal of Technology and Teacher Education* 16(2):233-263.

Leykum, L.C., Pugh, J.A., Lanham, H.J., Harmon, J. and MacDaniel, R.R. 2009. Implementation research design: Integrating participatory action research into randomized controlled trials. *Implementation Science* 4:69.

Light, D. and Pierson, E. 2012. *Highlighting chances in two Russian schools with successful one-to-one program: Moscow and Nizhny Novgorod case studies.* Center for Children and Technology, Education Development Center. http://files.eric.ed.gov/fulltext/ED543175.pdf

Lim, C.P., Chai, S.C. and Churchill, D. 2011. *A framework for developing pre-service teachers' competencies in using technologies to enhance teaching and learning.* Educational Media International 48(2): 69-83.

Lin, M.J., Wang. P.Y. and Lin, I.C. 2012. Pedagogy and technology: A two-dimensional model for teachers. *British Journal of Education and Technology* 43(1):97-108.

Linney, J. S. 2013. *Assessing Behavioral Intention to Use Low Social Presence ICTs For Interpersonal Task Completion among College Students: With Special Consideration toward Short Message Service (SMS) Text-Messaging* (Doctoral dissertation, Nova Southeastern University).

Liou, D.D., Antrop-Gonz'alez, R. and Cooper, R. 2009. Unveiling the promise of community cultural wealth to sustaining Latina/o students' college-going information network. *Educational Studies* 45:534-555:

Lunenburg, F.C. 2010. The principal as instructional leader. *National Forum of Educational and Supervision Journal* 27(4):1-7. http://www.schoolturnaroundsupport.org/sites/default/files/resources/Lunenburg,%20Fred%20C.%20The%20Principal%20as%20Instructional%20Leader%20NFEASJ%20V27%20N4%202010.pdf. Accessed 18 January 2015.

Mabogoane, T. 2006. Recognising behaviour that increases learning: The possible role of incentives in the teaching profession. *Perspectives in Education* 24(2):127-139.

Mafora, P. 2013a. Against leadership odds: A township school principal's crusade for social justice. *Mediterranean Journal of Social Sciences* 4(4).

Mafora, P. 2013b. Learners and teachers perception of principals' leadership in Soweto secondary schools: a social justice analysis. *South African Journal of Education* 33(3).

Mafora, P. 2013c. Transformative leadership for social justice: Perceptions and experience of South African township secondary school principals. *Journal Social Sciences* 34(1):37-45.

Mahlangu, V. 2011. Dilemma of school districts in managing career counseling in South Africa. *Journal of Emerging Trends in Educational Research and Policy Studies 2*(4):239-245.

Mahlomaholo, M.G. 2012b. Academic network and sustainability environments. Networks in the Global World Conference. Global networks Conference at St Petersburg State University, Russia, 22-24 June.

Mahlomaholo, S. 2009 *Re-membering the organic intellectual in the mirror: Inaugural lecture*. Potchefstroom: University of North-West.

Mahlomaholo, S. and Netshandama, V. 2012. Post-apartheid organic intellectual and knowledge creation. *At the Interface/Probing the Boundaries 78*.

Mahlomaholo, S. and Netshandama, V. 2010. Sustainable empowering learning environments: Conversations with Gramci's organic intellectual. http://www.inter-disciplinary.net/wp-content/uploads/2010/04/Mahlomaholo-paper.pdf. Accessed 26 January 2015.Mahlomaholo, S., Piper, H. and Piper, J. 2009. *Educational research and transformation in South Africa*. Potchefstroom: Science Africa.

Maina, A.G. 2007. Leadership model for integration of ICT in science: Perceptions Practices and Possibilities.

Maitlamo. 2004. ICT sector survey in Botswana: Report of National ICT Consultancy for Botswana. Gaborone: Consulting and Audit Canada. pp. 1-68.

Maki, C. 2008.Information and communication technology for administration and management for secondary schools in Cyprus. *Journal of Online Learning and Teaching* 4(3):1-25.

Makoelle, T.M. 2012. Analysing the use of action research to develop practices of inclusion: A case of a South African school. *Journal of Sociology and Social Anthropology* 3(2):93-102.

Mattsson, M. and Kemmis, S. 2007. Praxis-related research: serving two masters? *Pedagogy, Culture & Society* 15(2):185-214.

McGarr, O. and Kearney. G. 2009. The role of the teaching principal in promoting ICT use in small primary schools in Ireland. *Technology, Pedagogy and Education* 18(1):81-102.

McNamara, K.E. and McNamara, J.P. 2011. Using participatory action research to share knowledge of the local environment and climate change: case study of Erub Island, Torres Straight. *Indigenous Education* 40: 30-39.

Mdlongwa, T. 2012. Information and communication technology (ICT) as a means of enhancing education in schools in South Africa: Challenges, benefits and recommendations. *Africa Institute of South Africa*. Policy briefing 80. http://www.ai.org.za/uop-content/uploads/downloads-8-ICT

Medjahed, B., Benatallah, B., Bougeuettaya, A., Ngu, A.H.H. and Elmagarid, A.K. 2003. Business-to-business interactions: issues and enabling technologies. *The International Journal on Very Large Data Bases* 12(1):59-85.

Mejia, A.P., Quiroz, O., Morales, Y., Ponce, R., Chavez, G.L. and Torre, E.O. 2013. From madres to mujusrista: Latinas making change with photovoice. *Action Research* 11(4):301-321.

Melber, H. 2013. Africa and the middle class(es). *African Spectrum* 48(3):111-120.

Mentz, E. and Mentz, K. 2003. Managing technology integration into schools: A South African perspective. *Journal of Educational Administration 41*(2):186-200.

Mentz, E. and Mentz, K. (2002). Managing Challenges to the Integration of Technology into Schools in a Developing Country: A South African Perspective.New Orleans: ERIC

Mertens, D.M. (2009). *Transformative research and evaluation*. Guildford Press.

Mertens, D.M. and Ginsberg. P.E. 2008. Deep in ethical waters: Transformative Perspectives for Qualitative Social Work Research. *Qualitative Social Work* 7(4):484-503.

Mestry, R., Hendricks, I. and Bisschoff, T. 2009. Perceptions of teachers on the benefits of teacher development programmes in one province of South Africa. *South African Journal* of *Education* 29:475-490.

Meulenberg-Buskens, I. 2011. Free attitude interview technique. London: Unpublished notes.

Michaelides, R., Morton, S.C., Michaelides, Z., Lyons, A.C. and Liu, W. 2013. Collaboration networks and collaboration tools: a match for SMEs? *International Journal of Production Research 51*(7):2034-2048.

Moiseeva, M. 2005. Distance education in Russia: Between the past and the future: early development in Russia. *The Quarterly Review of Distance Education* 6(6):217-225.

Mokhele, L.M. and Jita, C.L. 2012. When professional development works: South African teachers' perspectives. *Anthropologist* 14(6):575-585.

Mondal, A. and Mete, J. 2012. ICT in higher education: opportunities and challenges. *Institutions 21*(60):4.

Moswela, B. 2010. Instructional supervision in Botswana secondary schools: An investigation. *Educational Management Administration and Leadership* 38(1):71-87.

Motlanthe, P.K. 2013. African communist: The alliance the state of the state billing the cat. *South African Communist Party* 1(185):11-14.

Mtimuney, M. 2011. *Driving e-Government success in South Africa*. Pretoria: Government Printing Works.

Mulford, B. 2003. *Changing role and impact on teacher and school effectiveness*. University of Tasmania: Tasmania.

Newhouse, C.P. 2010. School leadership critical to maximising the impact of ICT on learning. Empowering learners with ICT is a battle against educational fundamentalism. ACEC2010 Digital Diversity Conference. 6-9 April, Melbourne, Australia.

Newhouse, C.P. 2012. Effective school leadership for return on investment in ICT. Proceedings of Australian Computers in Education Conference (ACEC). pp. 7-16.

Niemi, H., Kynäslahti, H. and Vahtivuori-Hanninen, S. 2013. Towards ICT in everyday life in Finnish Schools: Seeking conditions for good practices. *Learning, Media and Technology 38*(1):57-71.

Nikoaev. D. and Chugunuv, D. 2012. The education system in the Russian Federation: Education Brief 2012. Washington DC: World Bank.

Nkoane, M.M. 2013. Creating sustainable postgraduate supervision learning environments through critical emancipatory research. *The Journal for Transdisciplinary Research in South Africa* 9(3):393.

Nkwe, N. 2012. E-Government: Challenges and opportunities in Botswana. International Journal of Humanities and Social Science 2(17):39-48

Nwonwu, F.O. (Ed.). 2008. *Millennium Development Goals: Achievements and Prospects of Meeting the Targets in*

Oblinger, D. 2005. Learners, learning and technology. *EDUCAUSE review* September/October 2005 https://net.educause.edu.

Okojie, M. 2011a. Can computer games motivate and sustain learning? In M. Cruz-Cunha, V.H. Varvalho and P. Tavares (Eds.) *Computer games as educational and management tools: Uses and approaches*. IGI Global. pp. 280-289.

Okojie, M. 2011b. The changing role of teachers in a technology learning setting. *Journal of Technology Studies* 38(1):33-41.

Olawale, I.F., Olayiwola, I.F., Wahab, A.A., Salami, T.S. and Sani, B. 2013. The mass media and ICT: Predictable strategies for sustainable extension Services in Nigeria. *IOSR Journal of Humanities and Social Sciences* 9(5):71-76.

Oliver, R.L. 1997. *Satisfaction: A behavioral perspective on the consumer*. Irwin: McGraw-Hill.

Ololube, N.P. 2006. Teachers' instructional material utilization competencies in secondary schools in sub-Saharan Africa: Professional and non-professional teachers' perspective. Proceedings of the 6th International Educational Technology Conference EMU, 19-21 April. Cyprus.

Oluwadare, A. 2011. Principals' competency needs for effective schools' administration in Nigeria. *Journal of Education and Practice* 2(4):16-23.

Opdenakker, R. 2006. Advantages and Disadvantages of Four Interview Techniques in

Qualitative Research. *Forum: Qualitative Social Research,* 7(4): 1-13.

O'Reilly, D. and Reed, M. 2010. Leaderism: An evolution of managerialism in UK public service reform. *Journal for Public Administration* 88(4):960-978.

Osakwe, N.R. 2011. Management of school records by secondary school principals in Delta state, Nigeria. *The Social Sciences* 6(1):40-44.

Ospina, S. and Sorenson, G. 2006. A constructionist lens on leadership: Charting new territory. In G. Goethals and G. Sorenson (Eds.), *The quest for a general theory of leadership*. Edward Elgar Publishers.

Ovodenko, A. and Muskhina, O. 2010. UNESCO chair and IITE cooperation in the field of ICT in Education programmes Development and Realisation. Proceedings of IITE 2010: ICT in Teacher Education: Policy, Open Educational Resources and Partnership. 15-16

November, St. Petersburg, Russia. UNESCO press. pp. 145-146. http://unesdoc.unesco.org/images/0019/001936/193658e.pdf

Oye, N.D., Obi, M.C., Mohd, T.N. and Bernice, A. 2012. Guidance and counseling in Nigerian secondary schools: The role of ICT. *International Journal of Modern Education and Computer Science* 4(8):26-33.

Paltridge, D. 2006. Prevocational medical training in Australia: Where does it need to go? *Medical Journal of Australia* 184(7):349.

Pansiri, N.O. 2011. Performativity in school leadership in Botswana*. Education Management, Administration and Leadership* 39(6):751-766.

Parker, J.K. 2010. *Teaching tech-savvy kids: Bringing digital media into the classroom, Grades 5-12.* United States of America: Corwin

Peng, G.C.A. and Nunes, M.B. 2007. Using PEST analysis as a tool for refining and focusing contexts for information systems research. 6th European conference on research methodology for business and management studies, Lisbon, Portugal. July. pp. 229-236.

Pelgrum, W.J. 2001. Obstacles to the integration of ICT in education: results from a worldwide educational assessment. *Computers and Education* 37:163-178.

Pelgrum, H. 2000. *Spatial aggregation of land surface characteristics: impact of resolution of remote sensing data on land surface modelling*. Landbouwuniversiteit Wageningen (Wageningen Agricultural University).

Pillay, D. and Saloojee, S. 2012. Revisiting rurality and school: A teacher's story. *Perspectives in Education* 30(1):43-52.

Plomp, T., Anderson, R.E., Law, N. and Quale, A. 2009. *Cross-national information and communication technology policies and practices in education*. United States of America: Information Age Publishing.

Popkewitz, T.S. and Fendler, L.1999.(Eds). *Critical theories in education: Changing terrains of knowledge and politics*. London: Routlege.

Pring, R. 2007. The common school. *Journal of Philosophy of Education 41*(4):503-522.

Pringle, I. and Subramanian, S. 2004. *Profiles and experiences in ICT innovation for poverty reduction*. New Delhi: UNESCO.

Rangriz, V. and Raja, B. 2011. Analysis of impact of information and communication technology on productivity and economic performance. *The IUP Journal of Information Technology* VII(3).

Razzak, N.A. 2014a. In-service Teachers' Attitudes Towards Technology Integration in the Bahraini Classroom. *World Journal on Educational Technology 6*(1).

Razzak, N.A. 2014b. In-service teachers' attitudes towards technology integration in the Bahraini classroom. *World Journal on Educational Technology* 6(1):60-70.

Razzak, N.A. 2013a. The effectiveness of a university-based professional development program in developing Bahraini school leaders' management and leadership competencies of implementing effective school-wide professional development and ICT integration. *Professional Development in Education 39*(5):732-753.

Razzak, N.A. 2013b. Challenges facing school leadership in promoting ICT integration in instruction in the public schools of Bahrain CCEAM 2012 Conference Limassol, Cyprus, 3-7 November 2012. http://www.cceam2012.com/presentation_pdf/1.pdf

Reason, J. 2000. Human error: Models and management. *British Medical Journal* 320(7237):768-770.

Reason, P. and Bradbury, H. (Eds.). 2001. *Handbook of action research: Participative inquiry and practice*. Sage.

Rebore, W.R. 2011. *Human resources administration in education: A management approach*. Boston: Library of Congress.

Reference Boss Dictionary Dictionary.com .http://dictionary.reference.com/browse/boss

Republic of South Africa (RSA). 2011a. *Budget vote address for the Free State, Department of Education by Honourable MEC Education Mr P.H.I. Makgoe.* Pretoria: Government Printing Works.

Republic of South Africa (RSA). 2007a. *Advanced Certificate in Education School Leadership: field testing phase.* Pretoria: Government Printing Works.

Republic of South Africa (RSA). 2006. *Budget vote address by Honourable MEC education, Mrs M.A. Tsopo*. Pretoria: Government Printing Works.

Republic of South Africa (RSA). 2004. *White Paper on e-Education: Transforming learning and teaching through information and communication technologies.* Pretoria: Government Printing Works.

Republic of South Africa (RSA). 2003. *The constitution of the Republic of South Africa, 1996. Act 108 of 1996.* Pretoria: Government Printing Works.

Republic of South Africa (RSA). 1996. *Education Labour Relations Council: Policy handbook for educators.* Pretoria: Government Printing Works.

Rumiantseva, T. 2009. Education transformation in Russia. 1:1 eLearning programs help students develop 21st century skills. Case Study. http://www.intel.com/content/dam/doc/case-study/learning-series-education-transformation-study.pdf

Russian Ministry of Education and Science, 2001

Ryan, J. (Ed.). 2006. *Inclusive leadership.* San Francisco: Jossey-Bass.

Ryan, J., 1998. Changes in organic carbon in long-term rotation and tillage trials in northern Syria. In R. Lal, J.M. Kimble, R.F. Follett and B.A. Stewart (Eds.), *Management of carbon sequestration in soil.* Boca Raton: CRC Press. pp. 245-295.

Sanginga, P.C., Kamugisha, R.N. and Martin, A.M. 2010. Strengthening social capital for adaptive governance of natural resources. A participatory learning and research for bylaws reforms in Uganda. *Society and Natural Resources* 23: 695-710.

Santamaria, L.J. and Santamaria, A.P. (Eds). 2012. *Applied critical leadership in education. Choosing change*. New York: Routledge.

Schiller, J. 2003. The elementary school principal as a change facilitator in ICT integration. *The Technology Source* July/August. http://technologysource.org/article/elementary

Schmidt, Ganguli-Mitra, Torgersen, Kelle, Deplazes and Biller-Andorno 2009

School Profile. 2011. The school profile, updated 2011. Unpublished document.

Semenov, A. 2005. *Information and communication technologies in schools: A handbook for teachers or how ICT can create new, open learning environments.* Paris: UNESCO Press.

Seyal, A.F. 2012. A preliminary study of school administrators' use of information & communication technologies: Bruneian perspective. *International Journal of Educational and Development using Information and Communication Technology* 8(1):29-45.

Shea, M.J., Poudrier, J., Thomas, R., Jeffery, B. and Kiskotagan, L. 2013 Reflections from a creative community-based participatory research project exploring health and body image with first nations girls. *International Journal of Qualitative Methods* 12(2013) http://ejournals.library.ualberta.ca/index.php/IJQM/article/view/17401. Accessed 18 January 2015.

Shirky, C. 2009. How social media can make history. TED Talk. http://ed.ted.com/lessons/clay-shirky-how-social-media-can-make-history

Shopen, G. 2013. Discourse analysis: An introduction [Book Review]. *Australian Review of Applied Linguistics 36*(2):221.

Shor, I. & Freire, P. 1987. *Freire for the classroom: A sourcebook for liberatory teaching*. Portsmouth. Boynton/Cook Publisher.

Siemens, G. 2008. Learning and knowing in networks: Changing roles for educators and designers. *ITFORUM for Discussion*:1-26.

Siemens, G. 2004. Connectivism. A learning theory for the digital age. *http://www. elearnspace. org/Articles/connectivism.* Accessed 7 July 2004.

Simonson, M., Smaldino, S., Albright, M., & Zvacek, S. 2014. *Teaching and learning at a distance*. Information Age Pub.

Sinclair, T.A. 2013. *A history of Greek political thought.* Routledge Library Editions: Political Science Volume 34. Routledge.

Sinek, S. 2010. How great leaders inspire action. TED Talk, September. http://www.ted.com/talks. Accessed 2 December 2013.

Sinek, S. (2009). *Start with why: How great leaders inspire everyone to take action*. Penguin.

Sithole, K. 2012. *The innovative use of spreadsheets for teaching and learning in an ODL environment*. Pretoria: UNISA.

Sparks, J.L., Rutkowski, L. and Rutkowski, D. 2008. ICT, education and the knowledge economy: Goals, support and practice. Paper presented at the 3rd IEA International Research Conference. Taipei, Taiwan.

Spicker, P. 2009) What is a priority?. *Journal of Health Services Research & Policy 14*(2):112-116.

Spillane, J.P., Diamond, B.J. and Jita, L. 2003. Leading instruction: The distribution of leadership for instruction. *Journal of Curriculum Studies* 35(5):533-543.

Spillane, J.P., Diamond, B.J., Burch, P., Hallett, T. Jita, L. and Zoltners, J. 2002. Managing in the middle: school leaders and the enactment of accountability policy. *Educational Policy* 16 (5):731-762.

Spillane, J.P., Diamond, B.J., Walker, J.l., Halverson, R. and Jita, L. 2001. Urban school leadership for elementary science instruction: Identifying and activating resources in an undervalued school subject. *Journal of Research Science Teaching* 38(2):918-940.

Stahl, B.C., Tremblay, M.C. and LeRouge, C.M. 2011. Focus group and critical social IS research. How the choice of method can promote emancipation of respondents and research. *European Journal of Information Systems* 20(4):378-394Stake, R.E. 2010. *Qualitative research: Studying how things work.* London: The Guilford Press.

Steinberg, S.R., and Kincheloe, J.L. 2010. Power, emancipation, and complexity: employing critical theory. *Power and Education* 2(2): 140-151.

Stuart, L.H., Mills, A.M. and Remus, U. 2009. School leaders, ICT competence and championing innovations. *Computers & Education* 53(3):733-741.

Sutherland, R., Armstrong, V., Barnes, S., Brawn, R., Breeze, N. Gall, M., Matthewman, S., Olivero, F., Taylor, A., Triggs, P., Wishart, J. and John, P. 2004. Transforming teaching and learning: embedding ICT into everyday classroom practices. *Journal of Computer Assisted Learning* 20(6):413-425.

Tallis, H., Levin, P.S., Ruckelshaus, M., Lester, S.E., McLeod, K.L., Fluharty, D.L. and Halpern, B.S. 2010. The many faces of ecosystem-based management: making the process work today in real places. *Marine Policy 34*(2):340-348.

Tanner, H. 2007. *Learning to teach ICT in secondary school: The place of ICT in secondary education.* London: Routledge Falmer.

Tearle, P.A. 2004. Theoretical and industrial framework for implementing changes in education. *Cambridge Journal of Education* 34(3):332-346.

Tella, A. and Adu, E.O. 2009. Information communication technology (ICT) and curriculum development: The challenges for education for sustainable development. *Indian Journal of Science and Technology 2*(3):55-59.

Tella, A., Tella, A. Toyobo, O.M., Adika, L.O. and Adeyinka, A.A. 2007. Assessment of secondary school teachers' uses of ICTs: Implications for further development of ICT use in Nigerian secondary schools. *The Turkish Online Journal of Educational Technology* 6(3):1-13.

Tezci, E. 2011. Factors that influence pre-service teachers' ICT usage in education. *European Journal of Teacher Education* 34(4):483-499.

Thornton, S. and Reynolds, N. 2006. Analysing classroom interactions using critical discourse analysis. Proceedings of the 30th Conference of the International Group for the Psychology of Mathematics Education. Volume 5. Prague, 16-21 July. pp. 273-280.

Titterton, P.A. and Smart, M.H. 2008. Can participatory research be a route to empowerment? A case study of a disadvantaged Scottish community. *Community Development Journal* 43(1):52-64.

Tomas, S., Chie, Q.T., Abraham, M., Raj, S.J. and Beh, L.S. 2014. Aqualitative review of literature on peer review of teaching in higher education: An application of SWOT framework. *Review of educational Research* 84(1):112-159.

Tondeur, J., Devosac, G., Van Houtteb, M., van Braaka, J. and Valckea, M. 2009. Understanding structural and cultural school characteristics in relation to educational change: The case of ICT integration. *Educational Studies* 35(2):223-235.

Tondeur, J., Van Keer, H., van Braak, J., and Valcke, M. 2008. ICT integration in the classroom: Challenging the potential of a school policy. *Computers & Education 51*(1):212-223.

Toots, A. 2003. The role of values in citizenship education: A comparative study of Estonian-and Russian-speaking schools in Estonia. *International Journal of Educational Research 39*(6):565-576.

Totolo, A. 2011. Adoption and use of computer technology among school principals in Botswana secondary schools. *The International Information & Library Review* 43:70-78.

Totolo, A. 2007. Adoption and use of computer technology among school principals in Botswana secondary schools. *Electronic Theses, Treaties and Dissertations*. Paper 1229. http://diginole.lib.fsu.edu/cgi/viewcontent.cgi?article=5114&context=etd. Accessed 18 January 2015.

Tosun, N., and Baris, M.F. 2011. Using information and communication technologies in school improvement. *Turkish Online Journal of Educational Technology-TOJET* 10(1):223-231.

Tsephe, J. (Ed). 2008. *The Millennium Development Goals. Achievement and prospects of meeting the targets*. Africa Institute of South Africa: Pretoria.

Tshelane, M.D. 2014. Democratic postgraduate student leadership for a sustainable learning environment. *Journal of Higher Education* 28(3):717-732.

Tshelane, M.D. 2013. Participatory action research and the construction of academic identity among postgraduate research students. *The Journal for Transdisciplinary Research in Southern Africa* 9(3):401-429.

Tshelane, M.D. (Ed.) 2008. *Implementation of the integrated quality management system in Thaba Nchu high schools*. Tshwane: Tshwane University of Technology.

Tulloch, S. (Ed.) 1993. *Oxford complete wordfinder*. London: Reader's Digest.

Unachukwu, G.O. and Nwankwo, C.A. 2012. Principals' readiness for the use ICT in school administration in Anambra state of Nigeria. *Research Journal in Organizational Psychology and Education Studies* 1(2):112-128.

UNESCO. 2010. *Reaching the marginalized. EFA global monitoring report*. UNESCO Publishing, Oxford University Press.
http://unesdoc.unesco.org/images/0018/001866/186606E.pdf

UNESCO. 2008. *ICT competency standards for teachers: Towards ICT*. Global monitoring report. Paris UNESCO.

Ushakov, D.V. 2010. Olympics of the mind as a method to identify giftedness: Soviet and Russian experience. *Learning and Individual Differences 20*(4):337-344.

Vaara, E., Sorsa, V. and Pälli, P. 2010. On the force potential of strategy texts: A critical discourse analysis of a strategic plan and its power effects in a city organization. *Organization 17*(6):685-702.

Van den Aardweg, E.M. 1988. *Dictionary of empirical education/educational psychology*. Pretoria: E and E Enterprise.

Van der Berg, S. and Moses, E. 2012. How better targeting of social spending affects social delivery in South Africa. *Development Southern Africa* 29(1):127-139.

Vanderlinde, R. and Van Braak, J. 2010a. Implementing an ICT curriculum in a decentralised policy context: Description of ICT practices in three Flemish primary schools. *British Journal of Educational Technology* 41(6): E139-141.

Van der Westhuizen, J. 2012. Falling on fertile ground? The story of emerging powers' claims for redistribution and the global poverty debate. *Global Society* 26(3):331-350.

Van Dijk, T. A. (Ed.). 2011. *Discourse studies: A multidisciplinary introduction*. Sage.

Van Dijk, T.A. 2009. Critical discourse studies. A socio-cognitive approach. In R. Wodak and M. Meyer (Eds.), *Methods of critical discourse analysis*. London: Sage.

Van Dijk, T.A. 2003. Principles of critical discourse analysis. *Discourse and Society* 4(2):249-283.

Van Dijk, T.A. 1993. *Principles of critical discourse analysis*. London: Sage. 2(2):249-283.

Van Niekerk, M. and Blignant, S. 2014. A Framework for information and communication technology integration in schools through teacher professional development, Africa. *Education Review* 11(2):236-253.

Van Tonder, M., Cilliers, C. and Greyling, J. 2008. A framework for gaze selection techniques. Proceedings of the 2008 Annual Research Conference of the South African institute of Computer Scientists and Information Technologists on IT Research in Developing Countries: Riding the wave of technology. 6-8 October. Wilderness, South Africa. http://doi.acm.org/10.1145/1456659.1456690

Van Wyk, K. 2009. Teacher Laptop … fiasco. www.e4africa.co.za. Accessed 6 June 2011.

Weindling, D. 1993. *"Strategic planning in schools" in managing for effective schools.* Course E630. Milton Keynes: The Open University.

Wagner, W. 1996. The social change model of leadership: A brief overview. http://web.edu/Documents/studentsaffairs docs/Assessments/Social%2520change.

Wallance, S.C. 2013. Guided bone regeneration for socket preservation in molar extraction sites: Histomorphometric and 3D computerized tomography analysis. *Journal of Oral Implant-ology* 39:503-509.

Wang, Q. 2008. A generic model for guiding the integration of ICT into teaching and learning. *Innovations in Education and Teaching International* 45(4):411-419.

Wang, Q. and Woo, H.L. 2007. Systematic planning for ICT integration in topic learning. *Educational Technology and Society* 10(1):148-156.

Waters, T., Marzano, R.J. and McNulty, B. 2003. Balanced leadership: What 30 years of research tells us about the effect of leadership on student achievement. A Working Paper. Aurora, CO: Mid-continent Research for Education and Learning.

Watson, S.L. and Watson, W.R. 2011a. The role of technology and computer-based instruction in a disadvantaged alternative school's culture of learning. *Computers in the School* 28(1):39-55.

Watters, J. and Comeau, S. 2010. *Participatory action research: An educational tool for citizen-user of community health services.* Canada: University of Manitoba.

Webb, G. 1996. *Understanding staff development*. Buckingham: Open University Press.

Weber, E. 2005. New controls and accountability for South African teachers and schools: The integrated quality management system. *Perspectives in Education* 23(2):64.

Wehmeier, S. (Ed). 2006. *Oxford advanced learner's dictionary*: *international students*. New York: Oxford University.

Wink, J. (Ed.) 2005. *Critical pedagogy and notes from the real world*. Stanislaus Turloc, CA: California State University. http://www.joanwink.com/scheditems/CP-050911-Part1.pdf

Wood, R.C. 2002. Ivan Karamazov's mistake. *First Thing*s December. http://www.firstthings.com/article/2002/12/ivan-karamazovs-mistake. Accessed 1 June 2012.

Wood, L. and Zuber-Skerrit, O. 2013. PALAR as methodology for community engagement by faculties of education. *South African Journal of Education* 33(4):1-15.

World Bank, 2008. *Annual report: Year in review*. Washington DC: World Bank.

Soukhanov, A.H. 1999. Encarta World English Dictionary. St. Martin's Press.

Wright, L. (Ed). 2012. *South Africa's education crisis: Views from the Eastern Cape*. Grahamstown: NISC.

Wysocki, D.K. 2008. *Readings in social research methods. (*3rd Edition.) Belmont: Thomson Wadsworth.

Yakovleva, N.M. 2011. Focus of education at higher school to forming professionally targeted to pedagogy future teachers. *Contemporary Higher Education: Innovative Aspects/Sovremennaia Vysshaia Shkola: Innovatsionny Aspect* 4.

Yee, N. 2006. The demographics, motivations and derived experiences of users of massively-multiuser online graphical environments. *PRESENCE*: *Teleoperators and Virtual Environments* 15:309–329.

Yee, D.I. 2000. Images of school principals' information and communication technology leadership. *Journal of Information for Teacher Education* 9(3):287-300.

Yosso, T.J. 2006. *Critical race counterstories along the Chicana/Chicano educational pipeline*. New York: Routledge.

Yosso, T.J. 2005. Whose culture has capital? A critical race theory discussion of community cultural wealth. *Race, Ethnicity and Education* 8(1):69-91.

Yosso, T.J. and Garcia, D.G. 2007. This is no slum! A critical race theory analysis of community cultural wealth in culture clash's Chavez Ravine. *A Journal of Chicano Studies* 32(1):145-179.

Young, R. 2004. *White mythologies: Writing history and the West*. Psychology Press.

Yuen, A.H.K., Law, A. and Wong, K.C. 2003. *ICT* implementation and school leadership: Case studies of ICT integration in teaching. *Journal of Educational Administration* 41(2):158-170.

Yusuf, M.O. 2005. Information and communication education: Analyzing the Nigerian national policy for information technology. *International Education Journal* 6(3):316-321.

Yusuf, O.M. and Yusuf, T.H. 2009. Educational reforms in Nigeria: The potential of information and communication technology. *University of Nigeria Academic Journals* 4(5):225.

Zajda, J. 2005. The educational reform and transformation in Russia: *International handbook on globalisation, education and policy research*: 405-430.

Zhouying, S. & Weidong, L. 2013. The challenge of wide application of information and communication technology to traditional location theory. *Journal* of *Geography and Science* 23(2):315-330.

Ziglar, Z. 2001. You can reach the top: Life principles from American's #1 motivator. Oklahoma: River Oak.

Zoho, W. 2004. *Treat refurbs and Africa with respect, towards a framework on refurbished computers for African schools*.
www.schoolnetafrica.net. Accessed 2 June 2011.

Zuber-Skerrit, O. 1996. *New directions in action research*. London: Falmer Press.

Zuber-Skerrit, O. 2002. A model for designing action learning and action research programs. *Learning Organization* 9(4):143-149.

Zeybekoqlu, Z and Tabancalı, E. 2009. New curriculum and new challenges: What do school administrators really do? *International Journal of Social Sciences* 4(2):112-116.

ANNEXURE A

Strategic plan indicating the 12 priorities located in the pedagogic, technical and collaboration and network dimensions

Table 1: Strategic Priority No. 1

No.	ACTIVITY DESCRIPTION	PERSON RESPONSIBLE	RESOURCES NEEDED	PERFORMANCE INDICATOR	DURATION
1	Workshop on situation analysis for using ICT in class	CAT learning facilitator	Flesh book Hand-outs Laptop	List of resource available, including human	Five days
2.	ICT professional development for management, teaching and learning workshop with special focus on subject knowledge	SMGD	Hand-outs Flip charts Fibre tip pen Laptop Data projector and screen	Attendance register Minutes of the proceedings	2 hours 30 minutes
T3	Creating Learning Community regarding lesson planning, presentation with ICT, info-share	Deputy principal	Hand-outs. Flip chart Fibre tip pen	Attendance register Minutes of the proceedings	1 hour
4	Watching and discussing videos on emerging and inclusive ICT and YouTube (demonstrations)	Computer application technology teacher HoD for maths, science and technology	Laptop Data projector and screen Internet	Attendance register Minutes of the proceedings	45 minutes
5	Coordinating team modelling learning process of learners	Researcher and co-researcher (all members of coordinating team)	Tutor (learning facilitator) Internet access Text book	Class attendance register email address	Ongoing

Table 2: Strategic Priority No. 2

No.	ACTIVITY DESCRIPTION	PERSON RESPONSIBLE	RESOURCES NEEDED	PERFORMANCE INDICATOR	DURATION
1	ICT training on the use of new ICT gargets (workshop)	Researcher Representative of a telecommunications network company	Flesh book Hand-outs Tablet	Capability ICT knowledge Attendance register	4 hours
2.	Workshop on ICTISE project	Computer applications technology teacher	Data projector and screen Laptop	Attendance register Minutes of the proceedings	2 hours 30 minutes
3	Workshop on pedagogy of ICT (learning theories)	Deputy principal	Internet access	Attendance register Minutes of the proceedings	1 hour
4	Setting up email addresses for members without email facility	Computer applications technology teacher HoD for maths, science and technology	Laptop Data projector and screen Internet	Attendance register Minutes of the proceedings	Ongoing
5	Regular electronic communication	The researcher and co-researcher (all members of coordinating team)	Internet, access Cell phones Blackberry messenger Text book	email communication documents	Ongoing

Table 3: Strategic Priority No. 3

No.	ACTIVITY DESCRIPTION	PERSON RESPONSIBLE	RESOURCES NEEDED	PERFORMANCE INDICATOR	DURATION
1	Workshop on different learning theories (deep learning theories) for ICT lesson integration	Learning facilitator	Flesh book Hand-outs Laptop	List of resource available, including human	Five days
2.	Symposium entitled: Understanding the value of lesson planning	Retired teacher	Hand-outs Flip charts Fibre tip pen Laptop Data projector and screen	Attendance register Minutes of the proceedings	2 hours 30 minutes
3	Recordkeeping (Excel workshop)	Mathematics teacher	Hand-outs. Flip chart Fibre tip pen	Attendance register Minutes of the proceedings	1 hour

Table 4: Strategic Priority No. 4

No.	ACTIVITY DESCRIPTION	PERSON RESPONSIBLE	RESOURCES NEEDED	PERFORMANCE INDICATOR	DURATION
1	Information session workshop on legal issues relating to using ICT, (cyber) law regarding downloading	CAT Learning facilitator	Flesh book Hand-outs Laptop YouTube video	List of resource available, including human	2 days
2.	How to do electronic filing	School clerk	Hand-outs Flip charts Fibre tip pen Laptop Data projector and screen	Attendance register Minutes of the proceedings	2 hours 30 minutes
3	General review of the use of SA-SAMS	Deputy principal and school clerk	Hand outs. Flip chart Fibre tip pen	Attendance register Minutes of the proceedings	1hours
4	Knowledge of CAPS and how to use the curriculum	Teachers	Laptop Data projector and screen Internet	Attendance register Minutes of the proceedings	45 minutes
5	Suggestions from Grade 10 and 11 CAT learners	RCL	Mobile phones internet (mobile learning tools)	Class attendance register, email address	45 minutes

Table 5: Strategic Priority No. 5

No.	ACTIVITY DESCRIPTION	PERSON RESPONSIBLE	RECOURSES NEEDED	PERFORMANCE INDICATOR	DURATION
1	Capacity development on integrating ICT in teaching	Teacher	PowerPoint presentation Laptop	Using PowerPoint for teaching and learning Attendance register	1 hour
2.	Coaching on mobile learning theories	Learning facilitator	PowerPoint presentation Laptop	Using PowerPoint for teaching and learning Attendance register	45 minutes
3.	Exploring Thutong portal as a learning management system	Teacher	Laptops Internet	Attendance register	30 minutes

Table 6: Strategic Priority No. 6

No	ACTIVITY DESCRIPTION	PERSON RESPONSIBLE	RESOURCES NEEDED	PERFORMANCE INDICATOR	DURATION
1.	Group dynamics	Pastor	PowerPoint Laptop	Attendance register	1 hour
2.	Team-building exercise	Non-teaching staff (parents)	Flesh book	Attendance register	1 hour
3.	Review of school vision and mission	SGB chairperson	Flip chart Fibre tip pen Laptop Data projector and screen	Attendance register Revised mission statement	2 hours
4.	Symposium on the topic of conflict management	Principal	Hand-outs	Attendance register	1 hour
5.	Debriefing on Stop Keep and Start (SKS)	SMGD	Flip chart Fibre tip pen	Attendance register Resolutions list	1 hour 30 minutes

Table 7: Strategic Priority No. 7

No.	ACTIVITY DESCRIPTION	PERSON RESPONSIBLE	RESOURCES NEEDED	PERFORMANCE INDICATOR	DURATION
1	Attending Conference on ICT	Coordinating team	Transport	Conference material Registration form invoice ICT wise sustainable team	3 days
2.	Using the school Facebook page for communication	A former learner	Laptop Access to internet	Discussion on school matters sharing photos	Ongoing
3	Sharing thoughts and Ideas in how to improve teaching with ICTs on social media	A former learner	Laptop Data projector and screen Internet	Attendance register Visit Facebook pages	1 hour
4	Photo voices of Grade 10 and 11 learners	A Grade 10 learner	Digital camera Laptop Data projector and screen Printer Photo paper	Photo paper, photos, laptop and	5 days
5	Photo voices of the whole staff	Teacher	Digital camera Laptop Data projector and screen Printer Photo paper	Photo paper, photos, laptop and	5 days

Table 8: Strategic Priority No. 8

No.	ACTIVITY DESCRIPTION	PERSON RESPONSIBLE	RESOURCES NEEDED	PERFORMANCE INDICATOR	DURATION
1	Demonstration of SA-SAMS operation	School clerk	Flesh book Hand-outs Laptop Thutong portal	List of resource available including human	5 days
2.	Workshop on the use of database program to keep learner records	SMGD	Hand-outs Flip charts Fibre tip pen Laptop Data projector and screen	Attendance register Minutes of the proceedings	2 hours 30 minutes
3	Workshop on inventories	Deputy principal	Hand outs Flip chart Fibre tip pen	Attendance register Minutes of the proceedings	1 hour
4	Capacity-building workshop on Pastel program	School clerk	Hand outs Flip chart Fibre tip pen	Attendance register Minutes of the proceedings	1 hour
5	Capacity building on electronic bookkeeping	School secretary	Hand outs Flip chart Fibre tip pen	Attendance register Minutes of the proceedings	1 hour

Table no 9: Strategic Priority No. 9

No.	ACTIVITY DESCRIPTION	PERSON RESPONSIBLE	RESOURCES NEEDED	PERFORMANCE INDICATOR	DURATION
1.	Team-building exercise	Pastor	Hand-outs Flip charts Fibre tip pen Laptop Data projector and screen	Attendance register, Minutes of the proceedings	2 hours
2.	Review of school vision and mission	SGB secretary	Hand-outs Flip charts Fibre tip pen Laptop Data projector and screen	Attendance register, Minutes of the proceedings	2 hours
3.	Planning for team teaching	HoD	Hand-outs Flip charts Fibre tip pen Laptop Data projector and screen	Attendance register, Minutes of the proceedings	2 hours

Table 10: Strategic Priority No. 10

No.	ACTIVITY DESCRIPTION	PERSON RESPONSIBLE	RESOURCES NEEDED	PERFORMANCE INDICATOR	DURATION
1.	Workshop on protocols and roles of school management team with regard to the use of ICTs	SMGD	Hand-outs Flip charts Fibre tip pen Laptop Data projector and screen	Attendance register	2 hours
2.	Advocacy on the adoption of ICT for teaching and learning	Principal	Hand-outs Flip charts Fibre tip pen Laptop Data projector and screen	Attendance register	1 hours
3.	Establishing committee for ICT use in the school	Learning facilitator	Hand-outs Flip charts Fibre tip pen Laptop Data projector and screen	Attendance register	45 minutes
4.	Choosing a safe website for the school	CAT teacher	Hand-outs Flip charts Fibre tip pen Laptop Data projector and screen	Attendance register	45 minute

Table 11: Strategic Priority No. 11

No.	ACTIVITY DESCRIPTION	PERSON RESPONSIBLE	RESOURCES NEEDED	PERFORMANCE INDICATOR	DURATION
1.	Capacity-building workshop for all stakeholders on a shared vision concerning how ICT is to be used for teaching and learning	SMDG	PowerPoint Laptop Data projector and screen	Hand-outs Attendance register	2 hours
2.	Workshop on how reduce costs of using internet	Teacher	Internet access Laptop Data projector and screen	Attendance register Minutes	1 hour
3.	Discussion forum on how to support the school ICT champion	Non-teaching staff	Round table	Notes Attendance register Minutes	45 minutes
4.	Information session on how to use Thutong portal	Teacher	Access to intranet	Notes Attendance register	45 minutes
5.	Plan for information sharing amongst colleagues in the school using Facebook	Teacher and learner	Cell phones Labtop Internet	School Face Book wall	1 hour

Table 12: Strategic Priority No. 12

No.	ACTIVITY DESCRIPTION	PERSON RESPONSIBLE	RESOURSES NEEDED	PERFORMANCE INDICATOR	DURATION
1	Workshop on Programme Planning Evaluation and Monitoring (PPEM)	Expert from TEASA organised by deputy principal	Attendance register Hand-outs	Minutes	2 hours
2.	Collecting data on the number of educators using ICT for teaching and learning purposes	Teacher	Handbook Pen	List of educators who use ICT	5 days
3.	Presenting and explaining the school budget using Microsoft Excel	Principal	Hand-outs Laptop Excel document	Attendance register	1 hour

ANNEXURE B

2012-01-27

Dear Mr Tshelane

Student number: 1996462485

SUBJECT: PhD REGISTRATION PROCEDURE

Thank you for your application for admission to the PhD (Education Management) qualification in the School of Education Studies.

We wish to reiterate that if you have already registered as a student, or intend to register in due course, this is considered a *provisional* registration. The conditions which apply include the **compulsory attendance of scheduled research training sessions** organised by the Faculty of Education. Training is scheduled to commence on **17 February 2012**. Further, you are required to **present your research topic** in front of a panel on **15 February 2012**. Components that should be clearly addressed are:

1. **Outline of the topic** (*Clear, Short, sharp, pithy and adequately captures the salient parameters and aspects of the proposal*)
2. **Background to the study** (*Are the reasons/motivation for this investigation convincing and sound enough?)*
3. **Problem statement (***Is the research question very clear and focused to can serve as the backbone/steel rod of the whole study?)*
4. **Brief literature review (***Is the role of the researcher clearly articulated based on the theoretical framework couching the study? Is the theoretical framework couching the study appropriately chosen in terms of the research question, aim and objectives of the study? Is the reader informed of the historical origins, objectives, steps formats as well as the relationships between the researcher and the participants in the operationalisation of this framework? Are this justified and meaningfully integrated in the flow of the study? Has related and most cutting edge literature been interrogated from good practices internationally, continentally, SADEC and locally for each of the objectives respectively?*)

Faculty of Education –
School of Education Studies/
Fakulteit Opvoedkunde
Skool vir Opvoedkunde Studie
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UNIVERSITY OF THE
UNIVERSITEIT VAN DI
YUNIVESITHI YA FREI

Appendix A

961 Crawford Thoka Street

Kagisanong

Bloemfontein 9323

Telephone: 051 435 8129

Cell: 0829708243

Email: laodi@webmail.co.za

26 April 2012

The Head: Education, for attention:

Director: Quality assurance

Syfrets Building

Private Bag X20565

Bloemfontein, 9301

Sir/Madam

PERMISION TO UNDERTAKE RESEARCH IN YOUR SCHOOL

I hereby request permission to conduct research in a School around Bloemfontein. The research is undertaken to fulfil the requirement for a Philosophiae Doctor (Education) degree at the University of Free State.

The aim is to design a framework for the use of Information Communication Technology at school.

The title of my thesis is: **Enhancing the principal's leadership role in the usage of Information and Communication Technology at school.**

The study involves no invasion of individual rights of privacy, nor will it apply any procedures, which may be found ethically objectionable. Personal information regarding those who participate in research will be made known.

I undertakes to:

- Share the outcome of the study with the directorate;
- To make a presentation of the outcome if required;
- To conduct the study outside normal tuition.
- and not to interfere with the school programme particularly during the fourth term.
- Present a letter of permission to the principal on site when visiting the school.

The research will be conducted under the supervision of Professor: L.C. Jita and Professor M.G. Mahlomaholo.

Attached find the copies consent forms to be used.

Yours Faithfully

_____

Tshelane Molaodi

Appendix B

education
Department of Education
FREE STATE PROVINCE

Enquiries: LV Alexander
Reference: 16/4/1/16 - 2012

Tel: 051 404 9283
Fax: 086 6678 678
E-mail: research@edu.fs.gov.za

2012 – 05 – 29

Mr M. D. Tshelane
961 Crawford Thoka Street
Kagisanong
BLOEMFONTEIN
9323

Dear Mr Tshelane

REGISTRATION OF RESEARCH PROJECT

1. This letter is in reply to your application for the registration of your research project.
2. Research topic: **ENHANCING THE PRINCIPAL'S LEADERSHIP ROLE IN THE USAGE OF INFORMATION AND COMMUNICATION TECHNOLOGY AT SCHOOL.**
3 Your research project has been registered with the Free State Education Department.
4. Approval is granted under the following conditions:-

4.1 The name of participants involved remains confidential.
4.2 The questionnaires are completed and the **interviews are conducted outside normal tuition time**.
4.3 This letter is shown to all participating persons.
4.4 A bound copy of the report and a summary on a computer disc on this study is donated to the Free State Department of Education.
4.5 Findings and recommendations are presented to relevant officials in the Department.

5. The costs relating to all the conditions mentioned above are your own responsibility.
6. **You are requested to confirm acceptance of the above conditions in writing to:**

DIRECTOR: STRATEGIC PLANNING, POLICY AND RESEARCH,
Old CNA Building, Maitland Street OR Private Bag X20565, BLOEMFONTEIN, 9301

We wish you every success with your research.

Yours sincerely

MJ MOTHEBE
DIRECTOR: STRATEGIC PLANNING, POLICY AND RESEARCH

3irectorate: Strategic Planning, Policy & Research - Private Bag X20565, Bloemfontein, 9300 – Room 301, Old CNA building, Maitland Street, Bloemfontein 9300 - **Tel: 051 404 9283**/ Fax: **086 6678 678** **E-mail: research@edu.fs.gov.za**

www.fsdoe.fs.gov.za

Appendix C

Researcher:
Mr Molaodi Tshelane

127 Winkie Direko
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T: +27(0)51401 9589
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tshelanemd@ufs.ac.za

Study Leader:
Prof LC Jita
Prof MGMahlomaholo
Room 121 Winkie Direko
UFS

T: +27(0)51 401 3420
F: +27(0)51 401 3077

mahlomaholomgl@ufs.ac.za

Letlha: 16 Feb. 12

TETLELELO: YA MOITHUTWANA

Motsaakarolo yo o rategang

Ke rata go go mema go nna le seabe mo projekeng eno ya patlisiso:

Tokafatso ya thulaganyo ya thuto le seabe sa ketapele ya mogokgo mo tirisong ya Tshedimosetso, Tlhaeletsano le Theknoloji mo sekolong.

Boithuti bo, bo mabapi le tiriso ya tshedimosetso, tlhaeletsano le theknoloji (ICT) mo dikolong le ka moo e ka tokafatsang go ruta le go ithuta ka teng.

Re rata fa o ka nna le seabe mmogo le rona mo patlisisong e ka gonne ke maiteko a tswharaganyetsweng ka maiteko a go akaretsa mongwe le mongwe yo o amegang mo sekolong.

Lebaka le le re susumetsang go dira boithuti bo ke go ema nokeng mogokgo jaaka moetapele wa thulaganyo ya dithuto (Kharikhulamo) mo tirisong ya Tshedimosetso, Tlhaeletsano le Theknoloji (ICT) go tokafatsa go ruta le go ithuta.

Matshosetsi/ditekeletso tse di ka nnang gone mo go nneng le seabe ga gago mo boithuting bo, ke go dira morago ga diura tsa tiro, kgotsa mafelo a beke mme re tshotse dikgato tse di latelang go go sireletsa mo matshosetsing/ditekeletsong tse ka go rulaganya sepalangwa le dilapolosi le go kopa tshireletso go tswa go Ditirelo tsa Maphodisi tsa Afrika Borwa (SAPS).

Ke Solofela gore o tla una molemo go tswa mo boithuting bo jaaka ngwana wa gago a tla kgona go nna le metswedi e mentsi e tlhokagalang ya thuto ebile gape o tla kgona go ithuta nonofo ya motheo ya Tshedimosetso, Tlhaeletsano le Theknoloji (ICT) le ka go kwadisa “email address”.

Le fa ke itumelela seabe sa gago segolothata mo boithuting bo bo botlhokwa bo le ketleetso e e boleng e o ka e dirang, seabe sa gago ke sa boithaopo mme ga o patelediwe go nna le seabe mo boithuting bo. Fa o tsaya tshwetso ya go nna le seabe, mme go be go tlhagelela kgang e e sa go kgotsofatseng, o ka khutlisa go nna le seabe nako enngwe le enngwe kwa ntle ga ditlamorago dipe.

Fa o itemogela go sa kgotsofaleng go go rileng kgotsa o sa itumelele mokgwa o patlisiso e dirwang ka ona, ka kopo se tshabe go ikgolaganya le nna ka tlhamalalo go sekaseka ntlha eo, mme gape o itse gore o letlelesegile go ikgolaganya le Mokaedi wa me wa boithuti(yo o boletsweng fa godimo).

Fa o ka nna le mathata mangwe le mangwe ka bowena mo tigatsong ya patlisiso e, ke tla netefatsa gore go ikgolangwa le moitseanape yo o nonofileng go ka go thusa.

Weno,

Appendix: D

Researcher:
Enter name here

Address line 1
Address line 2
Address line 3
Address line 4

T: +27(0)51 ###
F: +27(0)51 ###

Email@email address

Study Leader:
Enter name here

Address line 1
Address line 2
Address line 3
Address line 4

T: +27(0)51 ###
F: +27(0)51 ###

Email@email address

Date

TETLELELO: YA MOTSADI

Motsaakarolo yo o rategang

Ke rata go go mema go nna le seabe mo projekeng eno ya patlisiso:

Tokafatso ya thulaganyo ya thuto le seabe sa ketapele ya mogokgo mo tirisong ya Tshedimosetso, Tlhaeletsano le Theknoloji mo sekolong.

Boithuti bo, bo mabapi le tiriso ya tshedimosetso, tlhaeletsano le theknoloji (ICT) mo dikolong le ka moo e ka tokafatsang go ruta le go ithuta ka teng.

Re rata fa o ka nna le seabe mmogo le rona mo patlisisong e ka gonne ke maiteko a tswharaganyetsweng ka maiteko a go akaretsa mongwe le mongwe yo o amegang mo sekolong.

Lebaka le le re susumetsang go dira boithuti bo ke go ema nokeng mogokgo jaaka moetapele wa thulaganyo ya dithuto (Kharikhulamo) mo tirisong ya Tshedimosetso, Tlhaeletsano le Theknoloji (ICT) go tokafatsa go ruta le go ithuta.

Matshosetsi/ditekeletso tse di ka nnang gone mo go nneng le seabe ga gago mo boithuting bo, ke go dira morago ga diura tsa tiro, kgotsa mafelo a beke mme re tshotse dikgato tse di latelang go go sireletsa mo matshosetsing/ditekeletsong tse ka go rulaganya sepalangwa le dilapolosi le go kopa tshireletso go tswa go Ditirelo tsa Maphodisi tsa Afrika Borwa (SAPS).

Ke Solofela gore o tla una molemo go tswa mo boithuting bo jaaka ngwana wa gago a tla kgona go nna le metswedi e mentsi e tlhokagalang ya thuto ebile gape o tla kgona go ithuta nonofo ya motheo ya Tshedimosetso, Tlhaeletsano le Theknoloji (ICT) le ka go kwadisa “email address”.

Le fa ke itumelela seabe sa gago segolothata mo boithuting bo bo botlhokwa bo le ketleetso e e boleng e o ka e dirang, seabe sa gago ke sa boithaopo mme ga o patelediwe go nna le seabe mo boithuting bo. Fa o tsaya tshwetso ya go nna le seabe, mme go be go tlhagelela kgang e e sa go kgotsofatseng, o ka khutlisa go nna le seabe nako enngwe le enngwe kwa ntle ga ditlamorago dipe.

Fa o itemogela go sa kgotsofaleng go go rileng kgotsa o sa itumelele mokgwa o patlisiso e dirwang ka ona, ka kopo se tshabe go ikgolaganya le nna ka tlhamalalo go sekaseka ntlha eo, mme gape o itse gore o letlelesegile go ikgolaganya le Mokaedi wa me wa boithuti(yo o boletsweng fa godimo).

Fa o ka nna le mathata mangwe le mangwe ka bowena mo tigatsong ya patlisiso e, ke tla netefatsa gore go ikgolangwa le moitseanape yo o nonofileng go ka go thusa.

Weno,

_____

Molaodi Tshelane

Ka kopo tlatsa mme o buse tsebe e. Tshola lokwalo lo jaaka tshupetso mo isagong.

Boithuti: Tokafatso ya Thulaganyo ya thuto le seabe sa mogokgo mo tirisong ya Tshedimosetso, Tlhaeletsano le Theknoloji mo sekolong.

Mmatlisisi: Molaodi Tshelane

Leina le Sefane: _____

Dingwaga: _____

Motsadi _____

Nomoro ya kgolagano: _____

- Ke neelana fano ka tetlelelo le tumelo go nna le seabe mo boithuting ba patlisiso e e boletsweng fa godimo.
- Ke tlhaloganya se boithuti bo leng ka ga sona, gore ke ka ntlha ya eng ke nna le seabe le gore ditekeletso/matshosetsi le melemo ke efe.
- Ke neela mmatlisisi tetla ya go dirisa tshedimosetso e e kgobokantsweng mo go nneng le seabe ga me, go latela melawana/ dipeelo tse a di umakileng mo lokwalong lo lo fa godimo.

Appendix: E

Researcher:
Mr Molaodi Tshelane

127 Winkie Direko
UFS

T: +27(0)51401 9589
F: +27(0)51 401 3077

tshelanemd@ufs.ac.za

Study Leader:
Prof LC Jita
Prof MGMahlomaholo
Room 121 Winkie Direko
UFS

T: +27(0)51 401 3420
F: +27(0)51 401 3077

mahlomaholomgl@ufs.ac.za

February 16, 2012

INFORMED CONSENT: ICT SPECIALIST

Dear Sir

I would like to invite you to take part in this research project:

Enhancing the principal's leadership role in the usage of Information and Communication Technology at school

This study is about the use of ICT in schools and how it can improve teaching and learning.

We would like you to participate with us in this research because it is a collaborative effort that seeks to involve all affected stake holders in a school.

The reason we are doing this study is to support the principal as curriculum leaders in the use of ICT to improve teaching and learning.

The possible risks to you in taking part in this study are working after hours or weekends and we have taken the following steps to protect you from these risks Organise transport and refreshments and request security from SAPS.

I am sure you will benefit from this study as your child will be able to have much required educational resource and you can also learn ICT skills and even register for an email address.

While I greatly appreciate your participation in this important study and the valuable contribution you can make, your participation is entirely voluntary and you are under no obligation to take part in this study. If you do choose to take part, and an issue arises which makes you uncomfortable, you may at any time stop your participation with no further repercussions.

If you experience any discomfort or unhappiness with the way the research is being conducted, please feel free to contact me directly to discuss it, and also note that you are free to contact my study supervisor (indicated above).

Should any difficult personal issues arise during the course of this research, I will endeavour to see that a qualified expert is contacted and able to assist you.

Yours sincerely,

_____
Molaodi Tshelane

Please fill in and return this page. Keep the letter above for future reference
---

Study: Enhancing Curriculum leadership role of the principal in the use of Information and Communication Technology at school

Researcher: Molaodi Tshelane

Name and Surname: _____

Age: _____

Reverent_____

Contact number: _____

- I hereby give free and informed consent to participate in the abovementioned research study.
- I understand what the study is about, why I am participating and what the risks and benefits are.
- I give the researcher permission to make use of the data gathered from my participation, subject to the stipulations he/she has indicated in the above letter.

Signature: _____ Date: _____

Appendix: F

Researcher:
Mr Molaodi Tshelane

127 Winkie Direko
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T: +27(0)51401 9589
F: +27(0)51 401 3077

tshelanemd@ufs.ac.za

Study Leader:
Prof LC Jita
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Room 121 Winkie Direko
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F: +27(0)51 401 3077

mahlomaholomgl@ufs.ac.za

February 16, 2012

INFORMED CONSENT: FOR THE FAITH BASED COMMUNITY LEADER

Dear Madam

I would like to invite you to take part in this research project:

Enhancing the principal's leadership role in the usage of Information and Communication Technology at school

This study is about the use of ICT in schools and how it can improve teaching and learning.

We would like you to participate with us in this research because it is a collaborative effort that seeks to involve all affected stake holders in a school.

The reason we are doing this study is to support the principal as curriculum leaders in the use of ICT to improve teaching and learning.

The possible risks to you in taking part in this study are working after hours or weekends and we have taken the following steps to protect you from these risks Organise transport and refreshments and request security from SAPS.

I am sure you will benefit from this study as your child will be able to have much required educational resource and you can also learn ICT skills and even register for an email address.

While I greatly appreciate your participation in this important study and the valuable contribution you can make, your participation is entirely voluntary and you are under no obligation to take part in this study. If you do choose to take part, and an issue arises which makes you uncomfortable, you may at any time stop your participation with no further repercussions.

If you experience any discomfort or unhappiness with the way the research is being conducted, please feel free to contact me directly to discuss it, and also note that you are free to contact my study supervisor (indicated above).

Should any difficult personal issues arise during the course of this research, I will endeavour to see that a qualified expert is contacted and able to assist you.

Yours sincerely,

_____
Molaodi Tshelane

Please fill in and return this page. Keep the letter above for future reference
---

Study: Enhancing Curriculum leadership role of the principal in the use of Information and Communication Technology at school

Researcher: Molaodi Tshelane

Name and Surname: _____

Age: _____

Reverent_____

Contact number: _____

- I hereby give free and informed consent to participate in the abovementioned research study.
- I understand what the study is about, why I am participating and what the risks and benefits are.
- I give the researcher permission to make use of the data gathered from my participation, subject to the stipulations he/she has indicated in the above letter.

Signature: _____ Date: _____

Appendix: G

Researcher:

Mr Molaodi Tshelane

127 Winkie Direko
UFS

Study Leader:

Prof LC Jita

Prof MGMahlomaholo

Room 121 Winkie Direko
UFS

Letlha: 06 Feb 12

TETLELELO: YA MOAGI

Motsaakarolo yo o rategang

Ke rata go go mema go nna le seabe mo projekeng eno ya patlisiso:

Tokafatso ya thulaganyo ya thuto le seabe sa ketapele ya mogokgo mo tirisong ya Tshedimosetso, Tlhaeletsano le Theknoloji mo sekolong.

Boithuti bo, bo mabapi le tiriso ya tshedimosetso, tlhaeletsano le theknoloji (ICT) mo dikolong le ka moo e ka tokafatsang go ruta le go ithuta ka teng.

Re rata fa o ka nna le seabe mmogo le rona mo patlisisong e ka gonne ke maiteko a tswharaganyetsweng ka maiteko a go akaretsa mongwe le mongwe yo o amegang mo sekolong.

Lebaka le le re susumetsang go dira boithuti bo ke go ema nokeng mogokgo jaaka moetapele wa thulaganyo ya dithuto (Kharikhulamo) mo tirisong ya Tshedimosetso, Tlhaeletsano le Theknoloji (ICT) go tokafatsa go ruta le go ithuta.

Matshosetsi/ditekeletso tse di ka nnang gone mo go nneng le seabe ga gago mo boithuting bo, ke go dira morago ga diura tsa tiro, kgotsa mafelo a beke mme re tshotse dikgato tse di latelang go go sireletsa mo matshosetsing/ditekeletsong tse ka go rulaganya sepalangwa le dilapolosi le go kopa tshireletso go tswa go Ditirelo tsa Maphodisi tsa Afrika Borwa (SAPS).

Ke Solofela gore o tla una molemo go tswa mo boithuting bo jaaka ngwana wa gago a tla kgona go nna le metswedi e mentsi e tlhokagalang ya thuto ebile gape o tla kgona go ithuta nonofo ya motheo ya Tshedimosetso, Tlhaeletsano le Theknoloji (ICT) le ka go kwadisa “email address”.

Le fa ke itumelela seabe sa gago segolothata mo boithuting bo bo botlhokwa bo le ketleetso e e boleng e o ka e dirang, seabe sa gago ke sa boithaopo mme ga o patelediwe go nna le seabe mo boithuting bo. Fa o tsaya tshwetso ya go nna le seabe, mme go be go tlhagelela kgang e e sa go kgotsofatseng, o ka khutlisa go nna le seabe nako enngwe le enngwe kwa ntle ga ditlamorago dipe.

Fa o itemogela go sa kgotsofaleng go go rileng kgotsa o sa itumelele mokgwa o patlisiso e dirwang ka ona, ka kopo se tshabe go ikgolaganya le nna ka tlhamalalo go sekaseka ntlha eo, mme gape o itse gore o letlelesegile go ikgolaganya le Mokaedi wa me wa boithuti(yo o boletsweng fa godimo).

Fa o ka nna le mathata mangwe le mangwe ka bowena mo tigatsong ya patlisiso e, ke tla netefatsa gore go ikgolangwa le moitseanape yo o nonofileng go ka go thusa.

Weno,

_____
Molaodi Tshelane

Ka kopo tlatsa mme o buse tsebe e. Tshola lokwalo lo jaaka tshupetso mo isagong.

Boithuti: Tokafatso ya Thulaganyo ya thuto le seabe sa mogokgo mo tirisong ya Tshedimosetso, Tlhaeletsano le Theknoloji mo sekolong.

Mmatlisisi: Molaodi Tshelane

Leina le Sefane: _____

Dingwaga: _____

Moagi _____

Nomoro ya kgolagano: _____

- Ke neelana fano ka tetlelelo le tumelo go nna le seabe mo boithuting ba patlisiso e e boletsweng fa godimo.
- Ke tlhaloganya se boithuti bo leng ka ga sona, gore ke ka ntlha ya eng ke nna le seabe le gore ditekeletso/matshosetsi le melemo ke efe.
- Ke neela mmatlisisi tetla ya go dirisa tshedimosetso e e kgobokantsweng mo go nneng le seabe ga me, go latela melawana/ dipeelo tse a di umakileng mo lokwalong lo lo fa godimo.

Signature: _____ Date: _____

Appendix: H

Researcher:
Mr Molaodi Tshelane

127 Winkie Direko
UFS

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F: +27(0)51 401 3077

tshelanemd@ufs.ac.za

Study Leader:
Prof LC Jita
Prof MGMahlomaholo
Room 121 Winkie Direko
UFS

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F: +27(0)51 401 3077

mahlomaholomgl@ufs.ac.za

February 16, 2012

INFORMED CONSENT: FOR THE DEPUTY PRINCIPAL

Dear Madam

I would like to invite you to take part in this research project:

Enhancing the principal's leadership role in the usage of Information and Communication Technology at school

This study is about the use of ICT in schools and how it can improve teaching and learning.

We would like you to participate with us in this research because it is a collaborative effort that seeks to involve all affected stake holders in a school.

The reason we are doing this study is to support the principal as curriculum leaders in the use of ICT to improve teaching and learning.

The possible risks to you in taking part in this study are working after hours or weekends and we have taken the following steps to protect you from these risks Organise transport and refreshments and request security from SAPS.

I am sure you will benefit from this study as your child will be able to have much required educational resource and you can also learn ICT skills and even register for an email address.

While I greatly appreciate your participation in this important study and the valuable contribution you can make, your participation is entirely voluntary and you are under no obligation to take part in this study. If you do choose to take part, and an issue arises which makes you uncomfortable, you may at any time stop your participation with no further repercussions.

If you experience any discomfort or unhappiness with the way the research is being conducted, please feel free to contact me directly to discuss it, and also note that you are free to contact my study supervisor (indicated above).

Should any difficult personal issues arise during the course of this research, I will endeavour to see that a qualified expert is contacted and able to assist you.

Yours sincerely,

_____
Molaodi Tshelane

Researcher:
Mr Molaodi Tshelane

127 Winkie Direko
UFS

T: +27(0)51401 9589
F: +27(0)51 401 3077

tshelanemd@ufs.ac.za

Study Leader:
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Prof MGMahlomaholo
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UFS

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F: +27(0)51 401 3077

mahlomaholomgl@ufs.ac.za

Letlha:16 Feb. 12

TETLELELO: YA MOTSADI

Motsaakarolo yo o rategang

Ke rata go go mema go nna le seabe mo projekeng eno ya patlisiso:

Tokafatso ya thulaganyo ya thuto le seabe sa ketapele ya mogokgo mo tirisong ya Tshedimosetso, Tlhaeletsano le Theknoloji (ICT)mo sekolong.

Boithuti bo, bo mabapi le tiriso ya tshedimosetso, tlhaeletsano le theknoloji (ICT) mo dikolong le ka moo e ka tokafatsang go ruta le go ithuta ka teng.

Re rata fa o ka nna le seabe mmogo le rona mo patlisisong e ka gonne ke maiteko a tswharaganyetsweng ka maiteko a go akaretsa mongwe le mongwe yo o amegang mo sekolong.

Lebaka le le re susumetsang go dira boithuti bo ke go ema nokeng mogokgo jaaka moetapele wa thulaganyo ya dithuto (Kharikhulamo) mo tirisong ya Tshedimosetso, Tlhaeletsano le Theknoloji (ICT) go tokafatsa go ruta le go ithuta.

Matshosetsi/ditekeletso tse di ka nnang gone mo go nneng le seabe ga gago mo boithuting bo, ke go dira morago ga diura tsa tiro, kgotsa mafelo a beke mme re tshotse dikgato tse di latelang go go sireletsa mo matshosetsing/ditekeletsong tse ka go rulaganya sepalangwa le dilapolosi le go kopa tshireletso go tswa go Ditirelo tsa Maphodisi tsa Afrika Borwa (SAPS).

Ke Solofela gore o tla una molemo go tswa mo boithuting bo jaaka ngwana wa gago a tla kgona go nna le metswedi e mentsi e tlhokagalang ya thuto ebile gape o tla kgona go ithuta nonofo ya motheo ya Tshedimosetso, Tlhaeletsano le Theknoloji (ICT) le ka go kwadisa “email address”.

Le fa ke itumelela seabe sa gago segolothata mo boithuting bo bo botlhokwa bo le ketleetso e e boleng e o ka e dirang, seabe sa gago ke sa boithaopo mme ga o patelediwe go nna le seabe mo boithuting bo. Fa o tsaya tshwetso ya go nna le seabe, mme go be go tlhagelela kgang e e sa go kgotsofatseng, o ka khutlisa go nna le seabe nako enngwe le enngwe kwa ntle ga ditlamorago dipe.

Fa o itemogela go sa kgotsofaleng go go rileng kgotsa o sa itumelele mokgwa o patlisiso e dirwang ka ona, ka kopo se tshabe go ikgolaganya le nna ka tlhamalalo go sekaseka ntlha eo, mme gape o itse gore o letlelesegile go ikgolaganya le Mokaedi wa me wa boithuti(yo o boletsweng fa godimo).

Fa o ka nna le mathata mangwe le mangwe ka bowena mo tigatsong ya patlisiso e, ke tla netefatsa gore go ikgolangwa le moitseanape yo o nonofileng go ka go thusa.

Weno,

_____

Molaodi Tshelane

Ka kopo tlatsa mme o buse tsebe e. Tshola lokwalo lo jaaka tshupetso mo isagong.

Boithuti: Tokafatso ya Thulaganyo ya thuto le seabe sa mogokgo mo tirisong ya Tshedimosetso, Tlhaeletsano le Theknoloji mo sekolong.

Mmatlisisi: Molaodi Tshelane

Leina le Sefane: _____

Dingwaga: _____

Motsadi _____

Nomoro ya kgolagano: _____

- Ke neelana fano ka tetlelelo le tumelo go nna le seabe mo boithuting ba patlisiso e e boletsweng fa godimo.
- Ke tlhaloganya se boithuti bo leng ka ga sona, gore ke ka ntlha ya eng ke nna le seabe le gore ditekeletso/matshosetsi le melemo ke efe.
- Ke neela mmatlisisi tetla ya go dirisa tshedimosetso e e kgobokantsweng mo go nneng le seabe ga me, go latela melawana/ dipeelo tse a di umakileng mo lokwalong lo lo fa godimo.

Appendix: I

Researcher:
Enter name here

Address line 1
Address line 2
Address line 3
Address line 4

T: +27(0)51 ###
F: +27(0)51 ###

Email@email address

Study Leader:
Enter name here

Address line 1
Address line 2
Address line 3
Address line 4

T: +27(0)51 ###
F: +27(0)51 ###

Email@email address

Date

INFORMED CONSENT: FOR THE PRINCIPAL AND AND DEPUTY PRINCIPAL (SMT)

Dear Participant

I would like to invite you to take part in this research project:

Enhancing Curriculum leadership role of the principal in the use of Information and Communication Technology at school

This study is about the use of ICT in schools and how it can improve teaching and learning.

We would like you to participate with us in this research because It is a collaborative effort that seek to involve all affected stake holders in a school.

The reason we are doing this study is to support the principal as curriculum leaders in the use of ICT to improve teaching and learning.

The possible risks to you in taking part in this study are working after hours or weekends and we have taken the following steps to protect you from these risks Organise transport and refreshments and request security from SAPS.

I am sure you will benefit from this study as your child will be able to have much required educational resource and you can also learn basic ICT skill and even register for an email address.

While I greatly appreciate your participation in this important study and the valuable contribution you can make, your participation is entirely voluntary and you are under no obligation to take part in this study. If you do choose to take part, and an issue arises which makes you uncomfortable, you may at any time stop your participation with no further repercussions.

If you experience any discomfort or unhappiness with the way the research is being conducted, please feel free to contact me directly to discuss it, and also note that you are free to contact my study supervisor (indicated above).

Should any difficult personal issues arise during the course of this research, I will endeavour to see that a qualified expert is contacted and able to assist you.

Yours sincerely,

_____
Molaodi Tshelane

Please fill in and return this page. Keep the letter above for future reference
---

Study: Enhancing Curriculum leadership role of the principal in the use of Information and Communication Technology at school

Researcher: Molaodi Tshelane

Name and Surname: _____

Age: _____

Reverent_____

Contact number: _____

- I hereby give free and informed consent to participate in the abovementioned research study.
- I understand what the study is about, why I am participating and what the risks and benefits are.
- I give the researcher permission to make use of the data gathered from my participation, subject to the stipulations he/she has indicated in the above letter.

Signature: _____ Date: _____

Appendix: J

Researcher:
Mr Molaodi Tshelane

127 Winkie Direko
UFS

T: +27(0)51401 9589
F: +27(0)51 401 3077

tshelanemd@ufs.ac.za

Study Leader:
Prof LC Jita
Prof MGMahlomaholo
Room 121 Winkie Direko
UFS

T: +27(0)51 401 3420
F: +27(0)51 401 3077

mahlomaholomgl@ufs.ac.za

February 16, 2012

INFORMED CONSENT: FOR THE TEACHERS

Dear Sir/Madam

I would like to invite you to take part in this research project:

Enhancing the principal's leadership role in the usage of Information and Communication Technology at school

This study is about the use of ICT in schools and how it can improve teaching and learning.

We would like you to participate with us in this research because it is a collaborative effort that seeks to involve all affected stake holders in a school.

The reason we are doing this study is to support the principal as curriculum leaders in the use of ICT to improve teaching and learning.

The possible risks to you in taking part in this study are working after hours or weekends and we have taken the following steps to protect you from these risks Organise transport and refreshments and request security from SAPS.

I am sure you will benefit from this study as your child will be able to have much required educational resource and you can also learn ICT skills and even register for an email address.

While I greatly appreciate your participation in this important study and the valuable contribution you can make, your participation is entirely voluntary and you are under no obligation to take part in this study. If you do choose to take part, and an issue arises which makes you uncomfortable, you may at any time stop your participation with no further repercussions.

If you experience any discomfort or unhappiness with the way the research is being conducted, please feel free to contact me directly to discuss it, and also note that you are free to contact my study supervisor (indicated above).

Should any difficult personal issues arise during the course of this research, I will endeavour to see that a qualified expert is contacted and able to assist you.

Yours sincerely,

_____
Molaodi Tshelane

Please fill in and return this page. Keep the letter above for future reference
---

Study: Enhancing Curriculum leadership role of the principal in the use of Information and Communication Technology at school

Researcher: Molaodi Tshelane

Name and Surname: _____

Age: _____

Reverent_____

Contact number: _____

- I hereby give free and informed consent to participate in the abovementioned research study.
- I understand what the study is about, why I am participating and what the risks and benefits are.
- I give the researcher permission to make use of the data gathered from my participation, subject to the stipulations he/she has indicated in the above letter.

Signature: _____ Date: _____

Appendix K

Researcher:
Mr Molaodi Tshelane

127 Winkie Direko
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T: +27(0)51401 9589
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Study Leader:
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Room 121 Winkie Direko
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T: +27(0)51 401 3420
F: +27(0)51 401 3077

mahlomaholomgl@ufs.ac.za

February 16, 2012

INFORMED CONSENT: FOR SMDG

Dear Sir

I would like to invite you to take part in this research project:

Enhancing the principal's leadership role in the usage of Information and Communication Technology at school

This study is about the use of ICT in schools and how it can improve teaching and learning.

We would like you to participate with us in this research because it is a collaborative effort that seeks to involve all affected stake holders in a school.

The reason we are doing this study is to support the principal as curriculum leaders in the use of ICT to improve teaching and learning.

The possible risks to you in taking part in this study are working after hours or weekends and we have taken the following steps to protect you from these risks Organise transport and refreshments and request security from SAPS.

I am sure you will benefit from this study as your child will be able to have much required educational resource and you can also learn ICT skills and even register for an email address.

While I greatly appreciate your participation in this important study and the valuable contribution you can make, your participation is entirely voluntary and you are under no obligation to take part in this study. If you do choose to take part, and an issue arises which makes you uncomfortable, you may at any time stop your participation with no further repercussions.

If you experience any discomfort or unhappiness with the way the research is being conducted, please feel free to contact me directly to discuss it, and also note that you are free to contact my study supervisor (indicated above).

Should any difficult personal issues arise during the course of this research, I will endeavour to see that a qualified expert is contacted and able to assist you.

Yours sincerely,

_____
Molaodi Tshelane

Please fill in and return this page. Keep the letter above for future reference
---

Study: Enhancing Curriculum leadership role of the principal in the use of Information and Communication Technology at school

Researcher: Molaodi Tshelane

Name and Surname: _____

Age: _____

Reverent_____

Contact number: _____

- I hereby give free and informed consent to participate in the abovementioned research study.
- I understand what the study is about, why I am participating and what the risks and benefits are.
- I give the researcher permission to make use of the data gathered from my participation, subject to the stipulations he/she has indicated in the above letter.

Signature: _____ Date: _____

Appendix L

Researcher:
Mr Molaodi Tshelane

127 Winkie Direko
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T: +27(0)51401 9589
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tshelanemd@ufs.ac.za

Study Leader:
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Prof MGMahlomaholo
Room 121 Winkie Direko
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T: +27(0)51 401 3420
F: +27(0)51 401 3077

mahlomaholomgl@ufs.ac.za

February 16, 2012

INFORMED CONSENT: FOR LF

Dear Sir

I would like to invite you to take part in this research project:

Enhancing the principal's leadership role in the usage of Information and Communication Technology at school

This study is about the use of ICT in schools and how it can improve teaching and learning.

We would like you to participate with us in this research because it is a collaborative effort that seeks to involve all affected stake holders in a school.

The reason we are doing this study is to support the principal as curriculum leaders in the use of ICT to improve teaching and learning.

The possible risks to you in taking part in this study are working after hours or weekends and we have taken the following steps to protect you from these risks Organise transport and refreshments and request security from SAPS.

I am sure you will benefit from this study as your child will be able to have much required educational resource and you can also learn ICT skills and even register for an email address.

While I greatly appreciate your participation in this important study and the valuable contribution you can make, your participation is entirely voluntary and you are under no obligation to take part in this study. If you do choose to take part, and an issue arises which makes you uncomfortable, you may at any time stop your participation with no further repercussions.

If you experience any discomfort or unhappiness with the way the research is being conducted, please feel free to contact me directly to discuss it, and also note that you are free to contact my study supervisor (indicated above).

Should any difficult personal issues arise during the course of this research, I will endeavour to see that a qualified expert is contacted and able to assist you.

Yours sincerely,

_____
Molaodi Tshelane

Please fill in and return this page. Keep the letter above for future reference

---

Study: Enhancing Curriculum leadership role of the principal in the use of Information and Communication Technology at school

Researcher: Molaodi Tshelane

Name and Surname: _____

Age: _____

Reverent_____

Contact number: _____

- I hereby give free and informed consent to participate in the abovementioned research study.
- I understand what the study is about, why I am participating and what the risks and benefits are.
- I give the researcher permission to make use of the data gathered from my participation, subject to the stipulations he/she has indicated in the above letter.

Signature: _____ Date: _____

Appendix M

Minutes of the SLT held on Wednesday 5 March 2012 at the principal's office

Facebook Research

Proposal raised is to use Facebook

Faba: To use Facebook to communicate with learners and parents, but worring factor is rules and regulations. Example: When addressing learners after school, what kind of language are you to use because Facebook is more informal. School management was not comfortable about implementing Facebook to communicate with learners and parents. 90% of school learners have access to Facebook, e.g. If you can call a meeting through Facebook, you can expert a high attendance of parents and learners.

Problems (Katu)

Other learners said: they don't have access to Facebook. The other problem raised was if you have a teacher in your page and you are school child, you feel won't comfortable because you might offend your teacher indirectly, so, because at some point we will be talking about our kid staff and the teacher will be having access to our private staff, for example, lets say there is an event that is going to take place (fresher's ball) and I will be asking Faba, have you heard about the fresher's ball. Just that question. What if Mr. Mohlongo asks me that I heard you talking about fresher's ball instead of school staff?

Facebook is social platform

It's a social platform and the school is more formal, for instance you might find that when Ziki talking to Mamello about their staff and they are using the school platform. The other thing we don't have a day keeper to ensure that the school platform is not misused for private staff. That is where it failed to be successful. I heard Mr. Katu saying the site opened by Sehunelo learners is more active than the one opened by the school. This project of Mr Tshelane has made the school move forward but it's

hard to say we adopt it owned by the school because it does not have the constitution, rules and regulations that the school has laid on it. Mr. Lethuge always send mathematical learners a reminder on a Facebook about the assignment they have to submit the following day, stating that if you submit late I will deduct 10% of your marks. That way is powerful and is enhancing the education.

Mamello: If we can have a school website, with school information, batch and uniform. That can be used by teachers and learners to benefit the school.

Katu: Agrees with Mamello by saying 2012 we had fear, some of the teachers and SGB. They feared the same thing we spoke about, that we can open a website but it is not easily going to be controlled, because there are hackers (people who go through school information, e.g. some can say there is no school on Tuesday and Wednesday, that is internet fraud and there are no parameters). Unless we have a team that will be working on school website for protection.

Katu: as a learner receiving a notification that says there is no school, I will eventually sit home too.

Faba: even the time Facebook was still on discussion some of the features were not available because now you can limit your topic according to boundaries made available to you by Facebook features. The page Mr Tshelane created is doing well so far because learners are giving their correct details and the page is respected. It has order because most people inbox. The page also give an inspiration more especially when you hear from people who were attending at Sehunelo commenting on the page about the school. I will suggest we find solutions to the problems that might arise instead of cancelling the whole page. One of the advantages is that we can report threats on the Facebook.

Facebook is more convenient because most of my peers they like things that are formal in a manner you will have to give address, most youth go to social site for instance, am in Facebook responding to staff and at the time I go through school staff to see what is happening for instance on Sehunelo page there was an important information that Mr. Tshelane like to paste about bursaries and matriculates.

Teacher: I hear what Katu is saying, I was one of the teachers who had a fear with it because we work with authority, but since 2012 till now we have not experienced any problem so far.

Mamello: some parents might have a problem with social network and others not, so how do you get to convince such parents.

Highlight to a parent why is this social page recommended and how does it work, and what is expected to be achieved through this social network by the school.

Some of the learners have phones and others not. Some phones cannot access Facebook. Some learners wants to have phones but they can’t afford them due to situations at home (backgrounds they come from).

X: suggested YouTube because he thinks is cheaper and safer than Facebook.

Argument: with Facebook, learners from other school might view Sehunelo information, e.g. assignments, tests, memorandum and other staff. YouTube is more expensive.

H2O: agrees with Facebook subject because you can receive a message in terms of notification to your phone even though is not a smartphones.

Appendix N

Workshops of coordinating team held on 12 September 2014 at the school library at 14:30.

Participant 1. Proposal engwe ebileng teng ke ya horekisa Facebook, wa hopola ntate Katu? (X2 "Ee") ho sebedisa Facebook ho bua le batswadi le bana ba sekolo, but then di di di limits tsa teng, melao ya teng, I mean, ha setse re bua ka Facebook, ke bua le ngwana sekwele after school, language ke efe, wabona? Because Facebook is more informal, so okay, kha management wa sekolo osa nne comfortable ka yona, hey mane! E...re kopa le sala implementa element e ya Facebook gore sekolo se buwe le batsadi, se buwe le bana ba sekolo, like hao nahana nou yana tlo rere mohlomong 90% ya bana ba rona ba na le Facebook, hare bitsa meeting ba katla ba le bantsi le batsadi, mare anong Katu wena o kanna wa bua ka di problem tse tlhagileng ka yona,wa e gopola mose?

Participant 2 Among others akere gonne gona le bana ba bareng haba gone ho accessa Facebook, some of them ba ne ba sa gone ho accessa Facebook, babang problem engwe ene ya hlaya ke hore, like if ona le tichere mo facebukung, the next thing ole ngwana wa sekolo, which means at some point otlo mo offender indirectly because otlabe o bua ditaba tsa hao tse eleng hore ke tsa bana, the next thing ona le access ho tsona otlo dibona, then ke engwe ya di point tse ke dihopolang Babang bare they cannot feel comfortable hore once a bua jwalo whereas a tseba hore there are teachers even though asa buwe ntho tse blind but "ee" bane ba se comfortable, for example, there are so many things, maybe hona le event e etsahalang, maybe i don't even go there, tlo rere ke di beach party, botsa faba, faba o utlwile hore di beach party di neneng,just that question,what if mr mohloko during class aba mpotsa hore hao haka utlwa o botsa ka test or whatever ke utlwile o botsa ka di beach party,so ena le hoba uncomfortable bo itseng Facebook.then ya thats all i mean.

Participant 1 ke hore like fka re thusa,its social platform akere,eya but wautlwa environmemt ya rona its more formal,ene yona its social,o ka hihlela fore ha ziki a bua le mamello ka dilo tsa bona ba berekisa platform ya sekwele,then ke teng mo ho bua teng,ga gona [date keeper]or[day keeper] motho o dusting yalo gore aka conversation eo fore hee,ke teng mo ele gore,well okay;ha ya ka ya nna successful,mare you will be surprised,ke utlwile ntate kata are e activety early fore Facebook site ele fore bana ba sehunelo ba e butsi,[x3-lenna ke e bone]; “ee” so e functional research e,process e ya ntate tselane r dirile gore sekwele se move forward but thata e kare website re adopter e owner ke sekolo sa rona definitely because ha ena,constitution,ha ena protocol or melao elle hore re kare re ebile,hore rere ra e controller,like ntate lethuge o gona hore bana ban a ba maths hela bohle,aba ba romela reminder ka sontoha ‘ee’ gore la submita ka moso haosa submita late ke kgula 10percent,wabona etlabe ele powerful,etlabe e enhancer kapa e thusa education.

Participant 4 If hoka bulwa website ya sekolo, sehunelo primary school.ho bruwe di pictures tsa sehunelo, go beilwe le infor ya sehunelo,le hao batla sehunelo otlo kereya kae,then ethaba yona website ele hore ya sebediswa ke matichere le bana ba sekolo.

Participant 1 ke dumelana le mamello ntate lethuge, ke hore faba ke ska ka buwa thata, ketlo bua emong le emong a ntshe input ya gagwe,nna kere ke simula ka nna pele,nna kere 2012 re bile le fear,watlhaloganya baba ba matichere le batsamisaisi ba sekolo management ba tshoga selo se re bua ka sona sa gore website reka e bula are,ho e controller because e...e di hackers diteng batho ba gonang go tsena mo information ya sekolo, di marks le dilo tse dintsi wabona? Ke ka dira example emong ena aba fihla are labobedi le laboraro hahona sekwele, aba e poster a e romela bana ba 1400 le batsadi hela bohlo, wabona motho keng? Ke internet fraud! So yanong ke tshogile dilo fore harena parameters wabona? Hanne ele gore rena le team e kareng ke rona retlo dira gore website ya sekolo ebe safe.

Participant 5 Lenna ke le ngwana wa sekolo ke e bona, gothwe ga gona sekolo ka labobedi le laboraro, obviously gao tlotla.

Participant 2 Even ka nako eo ha hontse ho discusswa le motho eo, ke sao kene hanong, some of the features tsa Facebook di ne di soka dinna available like now, cos nou ke hona le feature eleng gore ke gona hore at least even topic yaka ebe le ha ele public, akere katseba hore rena le inbox, le public, so ka nako eo, like ke hopola hantle ekare ene sa gone hore hao batle mang a utlwe or o batla mang, cos nou ke their are such features and again nka etsa example ka page ya sekolo eleng hore ene startiwa ke Mr. Tshelane, aneng are batho ba try ho e support, page eo automatically yona e tsamaya hantle ebile ena le respect automatical because most of the learners watseba hore ke mabitso aka a nnete ao, then the next thing ke commenda mo paging ya sekolo because leha oka lo e sheba Mr. Lethugi yona ena le order a very good, (X6 dignity e teng) definitely sir. (X6 le privacy e teng), definitely Mr. Mohlongo, cos batho ba bangata ba inboxer babang then a buwe public fela maikutlo a hae ka sekolo, then sometimes o fila le inspired Mr. Mohlongo cos watseba neneng nnetse ke sheba bo di comment tsa batho, mare kere nale Sehunelo, (X6 babang ke Sehunelo sa kgale), ke ba kgale babang cos hone hona le ntate e mong aneng a commenta moo hore ene ele learner mona neng neng khatsa mentioner bo batho boeng, e good hampe and again nna nne ke ne ke sa bone hore, ke hore ke nahana Mr. Mohlongo page eo hokana ha etswa problem tse teng ha fanwa ka solution hona le hore e tlohelwe. (X1 o bua ka di problem difeng?), ke hore for example, tsona problem tsa bo privacy bo ding, cos tsona ke ntho tse manageable nou kena, like motho o gona hore a buwe taba tsa hae inbox if a fila hore ha batle hore dibe public o diposter mono, then the next thing, we know hore kemang atlaba a buwile at the end of the day, even le yona Facebook ka bo yona le gona le ho reporter di threats le whatever nou kena, and again e convenient Mr. Lethugi cos I know most of e e peers tsaka haba rate ntho tseleng hore di formal in a manner eleng hore dina le di rules tse ngata mo eleng hore “di di” like website otlamehile hore o tsenye address, the next thing e tlabe ele ntho tse, sometimes

even le English ya teng, at some point bana ba bangata ebile ba tsena mo interneteng but they go for social networks so e convenient, ntse kele mo facebukung, ke bua tjena le kanna, sometimes ke mo facebukung Mr. Mohlongo ke responder ditabeng tsaka neng neng ka nako ele kere let me see what is happening mo paging ya sekolo, ke gone ho bona everything cos I remember even le mo paging ya Sehunelo hone hona le information e e important especially ya mametric eleng hore Mr. Tshelane aneng a rata ho provider especially ka nako tseleng hore ho shebiwa bo di bursary, a ntse are tjhekang kae, etsang eng kae. So it is most convenient Mr. Lethugi hore wautlwa ha le Facebook, ha etlo coster motho hore are nou katswa mo Facebook, then keya ko saeteng e itseng ke etsa eng, No! Ke hore otlaba a ntse a le khara social network ene le message o gona ho passer monate ka social networking.

Participant 1 Which means nna se ke se utlwang ntate Lethugi! Nna ke ne ke wela group ya batho baneng bana le fear against yona cos I am a teacher. Nna le wena re operator with an atmosphere authority but ka utlwa ha Katu a buwa lenna hore so far ke 2012; 2013; 2014 ene hahona neks e silly e rereng ikile ya tlhaga sesalang ke hore e dirile environment eleng gore batho ba gona ho interacter le Sehunelo le batho ba kileng ba! So wena o promoter hore ene e tswele?

Participant 4 Hape tichery, okay Facebook page, fan page eo ya Sehunelo e kanna a tswela but re ka sheba that their some parents ba sa goneng ho accesser Facebook, so how about bona? Batlo fumana jwang information.

Participant 7 Some parents habano dumela hore bana ba bona babe le di Facebook, social what what, batswadi babang, nna motswadi waka ha rate hake ba le access le whatsapp and staff, tsona dilonyana tseo so etlaba jwang?

Participant 1 Ke kopa ho responder mo Mr. Mohlongo

Participant 8 Ke bona ele rege meneer because of e refa information about sekolo ho etsalang ka sekolo.

Participant 6 Challenge e reiswang ke bomme mole ke hore parents tse ding hadi comfortable, jaka Mr. Mohlongo le ntate Lethugti le principal ba se comfortable ka yona full full mare hela ya re berekela mare ra tshaba, yanong Faba wena parents tseleng hore o tshwanetse convincer papago wena oka dirang asa batle?

Participant 9 Ke montsha hore e sebetsa jwang Facebook le hore na re discusser eng mo, ke mohlalosetse le hore ho etsalang ka Facebook.

Participant 7 Ene le hape re tshwanetse re ba buwele ho batswadi. Bana ba bangata ha bana access mo di smartfounung babang ba tsamaya ka ditjarara tseleng hore access, babang o fihlela hore habana difounu, obviously habana difounu. So hase hore haba batle, but haba gone hore baka reka, ba reka founu ya smartphone. Smartphone di ya ka R400; R500 jwalo jwalosome of the learners habana tjhelete so what about bana bao he?

Participant 2 Ke kopa ho responder pointing tseo meneer cos now what is happening ke di social network Mr. Mohlongo! Ke se ke end up re, ke hore re balaha fact ya hore still learners bantse ba accesser di social networks ka baka la formality, cos nou Mr. Lethugi, if reka etsa research fela mo sekolong morerthan I guess bo ma 80% ya bana ba sekolo bana le difounu ba tsena mo interneteng, so nna Mr. Mohlongo ke bona Facebook, e ntse e tshwana fela le hao romela ngwana wa hao sekolong, cos hao moromele hore a lo tsuba ka dithwelete but at the end of the day ya etsahala hore maybe batsube or etse eng, so what happens hahona motswadi akareng ke ntsha ngwana sekolong hobane wa tsuba but o batla hore hobe le at least something eleng hore ya etsuwa hore a seka tsuba sekolong, so rekampa Mr.

Mohlongo, waba le something e etswang hore ba seka abuser Facebook, eseng fore ra etlosa at all cos the thing ke hore batswadi bona le haba sa batle mare nnete ke hore di statistics tse ngata, le hare ka lo disheba, bana ba bangata ba accesser Facebook hahola fela, especially in school Mr. Mohlongo, oka fumana bana ba bangata haholo bakene beke tsebang ele di friend tsaka mo Facebook. So even leha sekolo sona seka batla hore Facebook haeyo yona e teng ra e user ene haholo haseng hanyane. So wautlwa Mr. Mohlongo hore is like ke hore nou tjena e se mpa fela sekolo se denier a good site cos ena le advantage tsa teng le disadvantage but sekolo sona hasere hase batle ho user Facebook it doesn't mean Facebook etloba siko baneng ba sekolo e ntse tloba teng.

Participant 7 Disadvantage tsa Facebook tsona di tlo dira gore hadi diragala ditloba le damage e ngata ho feta advantages tsa teng

Participant 10 Ke nahana hore re sekaba ra sebedisa Facebook re sebedise YouTube because yona e safe, plus yona..... ke nahana hore ho berekiswe yona cos o gona ho bula account ya hao ka thoko le motho emong o gona hobula ya hae ko thoko, otlogo adder account ya hao ya e-mail kha, so hao ntseo kreya e-mail etlane e wele ka di e-mail ene di safe ka mo, le mo Facebook gona le di weakness gape gape tsa hore ne, selo setlo dirang Facebook, hona le bana batlo latelang go tsenya di friends tsa bona khao di eng eng e, so Facebook hae safe entlek nna hake e shebile.

Participant 7 Facebook, watseba? Hotshong setlo hlahela mo mateng waka hobane o gona ho kena mo facebukung yaka.

Participant 10 Ene e se tlhagele mo dikolong tse ding, wautlwa hao poster botsona di assignment mang le mang wabona bao tjhetang le bona ka Facebook. Neng neng

hao ntsha memorandum, bona Grade10 amang, oh! Ba ngola kang? Memorandum keo. Wautlwa batlo keriya access.

Participant 7 Etlabe ekare Sehunelo se provide information ya sekolo mo dikolong tse ding.

Participant 2 Mr. Mohlongo akere Sehunelo is not like we are selling drugs, what we are doing ke sekolo se fana ka education, its a public school, so retlamehile retle re understand hare bua ka privacy, what type of privacy? What are the private matters?

Participant 7 Ha retlo poster ntho tsabo di memo tsa ding. Di meetings ntho tsele tse batlang everyone abe teng. Ene hape di problems tsa fore di friends bana le access, you can follow it, motho o etsang this thing lets say poster something, e senwe mo walong ya rona, re ya mosheba, etla rebolela hore ke friend ya hao,rona retlaya ho ena, retla mo kereiya ene ena ya YouTube batho ba bangata like seriously its not easy, like lenna hakena yona.

Participant 6 Lena le fear? Kapa halena information? Halena knowledge? (everyone talking “e batla eba more expensive” cellphone rings ... ringing ...). Facebook we can say 80% ya bana ba Sehunelo bana le Facebook, (YouTube ena le difounu tse dikgethang).

Participant 10 Library ba provider ka service ya mahala akere for hour, so di YouTube tseo ba kanna ba dibula teng ko library mo otlareng bo mane neng hakena le nako fela are akore ke lo sheba ko sekolong hone hontse ho diragalang? Akere the time ha kereiya e-mail, otla gona le!, otla gona le go edela mo founung ya gagwe gore ga eclicka kwa library e clicke le mo go ena. So ga e fetsa go cllicka mo go ena otlaya kwa library alo sheba.

Participant 4 Lets say o dula Phase 5. Phase 5 hahona library, Phase4 haeyo, library le yona e toropong, e mane Phahameng, nkese ye mo ke yela e-mail e clickileng ya Sehunelo, (ha!ha!ha!ha!)! basenang di access tsa difounu ba berekisa tsone founu tse tshwanang le hao meneer, e e for bona batla e bula ko library.

Participant 7 Then library ke bona, ere kere e needer transport hape eja nako e ngata haholo because simply sekolo setswa ka (16h30), hao tswa sekolong oya library olo fihla nako mang? Babang ba dira matric, babang batlo gona ho seterateng, sometimes o tlhagelwa ke bo mabaka seterateng hao, then tjhelete haeyo ya transport, ene library hase wena o lemong, ene library e tshwana le internet cafe e batla tjhelete, wautlwa ba limita nako hore na eng ke bokae, then after that tjhelete ya hela, ke qala ko tlase hape, ho qala ko tlase, tjhelete e ntse e fela.

Participant 10 Di library tse tsa rona dibuliwe ka bo sateretaha mare dibe le di terms and conditions. Hore dibe safe, o seka waya fela ore olo tshameka ka internet.

Participant 7 Taba yane ya website e kanna ya sebetsa, if fela reka thola batho baka rethusang ho controller website, ha! ha! ha!.

Participant 6 Nna kere there was time, ebile hakere there was a time, taba e ya Facebook ke tshaela monwana , e e nou yana akere mo information ya hao o gona ho kenya di cell number tsa hao, and then whatever se se, lets say ke tsentswe mo groupung , once gona le information mo etlo gona go tsena mo founung in the form of sms, so information, nna ke nahana mo paging eo ya rona, Facebook ke tlabe ke tsaya wa maths wa e eng keo tsenya information e regarding sekolo, so if rena le parents meeting, ngwana ana le founu le motswadi ana le founu re motsentse mo Facebook, ha ho hlokahale hore ane a lo go tsena ko Facebook, and then a tsene a

check because once re motsentse bere poster eya ko founung ya gage in the form of sms, ha ho hlokahale le hore a responde because information yona atlabe a kereile.

Participant 7 Eo e reye mare ya hore tichere le ngwana wa sekolo babe le conversation yona eish!

Participant 6 That is why nna kereng, akere ene tla nna, information ka sekolo.

Participant 7 Ke hore ke Facebook ka Sehunelo hase ya tichere, e e keya Sehunelo, if tichere le ngwana wa sekolo ba kopana ka Facebook ke tsa bona tseo, keya bona because, I guess tichere akese, akese posti ntho tsa hae le ngwana sekolo Facebook paging ya Sehunelo, ee cannot happen.

Participant 8 Hotshong Facebook e ka sebetsa mare ebe ntho tse relevant kaofela.

Participant 1 Nna ne ke kopa yana ge, e simolotse ka go reflecta ko morao ko retswang teng, neh? So okay ke sa itsi jwalo ka le dutsi yalo le tshweredipampiri tsa lona ke tseo, setse le bone akere gore go diragalang, ya matcher le difoto tsa lona or le batla go di reverser, so ga re kopana nneng gape for 30 minutes next time, nna ne ke nahana ka moso gone ntse resa kopane magetlo a le mantsi, ntate Lethugi ga ke itsi re ka e dira break, because break barona bo setse bo le bokhutsane retla jela teng mo ba bajang or whatever, because after school re busy, nna keya proposer Faba, ke proposer ka moso 11:45–12:30, I mean 11:45–12:15.

APPENDIX O **DATA GENERATION AND CATEGORISATION**

PAR	No.	Research question	Theme	Strategic Priority 1	Strategic Priority 2	Strategic Priority 3	Strategic priority 4
Cycle One	1	What role does the school principal play in the use of ICT for teaching and learning at school?	Pedagogical dimension	Workshop on situation analysis for using ICT in class	ICT training on the use of new ICT gadgets (workshop)	Workshop on different learning theories (deep learning theories) for ICT lesson integration	Information sessions Workshop Legal issue on using ICT (cyber) law regarding downloading
				ICT professional development for management, teaching and learning workshop with special focus on subject knowledge	Workshop on ICTISE project	Symposium entitled, Understanding the value of a lesson plan	How to do electronic filing

				Creating learning community regarding lesson planning, presentation with ICT, info-share	Workshop on pedagogy of ICT (learning theories)	Record keeping (Excel workshop)	General review on the use of SA-SAMS
				Watching and discussing videos on emerging and inclusive ICT and YouTube (demonstrations)	Setting up email addresses for members with no email facility		Knowledge of CAPS and how to use the curriculum
					Coordinating team modelling learning process of learners		Suggestions from grade 10 and 11 CAT learners

	No.	Research question	Theme	Strategic Priority 5	Strategic Priority 6	Strategic Priority 7	Strategic Priority 8
Cycle Two	2	How does the principal's leadership role in the use of ICT contribute to teacher professional practice to improve performance in a school?	Technological dimension	Capacity development on integrating ICT in teaching	Group dynamics	Attending conference on ICT	Demonstration of SA-SAMS operation
				Coaching on mobile learning theories	Team building exercise	Using the school Facebook page for communication	Workshop on the usage of database programme: how to keep learner records
				Exploring Thutong portal as a learning management system	Review of school vision and mission	Sharing thoughts and ideas in how to improve teaching with ICTs on social media	Workshop on inventories

					Symposium: Conflict management	Photo voices of Grade 10 and 11 learners	Capacity workshop on Pastel program
					Debriefing on Stop Keep and Start (SKS)	Photo voices of the whole staff	Capacity building on electronic bookkeeping

	No.	Research question	Theme	Strategic Priority 9	Strategic Priority 10	Strategic Priority 11	Strategic Priority 12
Cycle Three	3	What strategies and guidelines can be used to support principals to sustain teaching and learning through using ICT in class?	Collaboration and networking environment dimension	Team building exercise	Workshop on protocols and roles of school management team with regard to the use of ICT	Capacity building workshop on a shared vision concerning how ICT is to be used for teaching and learning for all stakeholders	Workshop on Programme Planning Evaluation and Monitoring (PPEM)
				Review of school vision and mission	Advocacy on the adoption of ICT for teaching and learning	Workshop on how to reduce cost of using the internet.	Collect data on the number of educators using ICT for teaching and learning purposes
				Planning for team teaching	Establishing committee for ICT utilisation in the school	Discussion forum on how to support the school ICT champion	Presenting the school budget using Microsoft Excel to explain the budget

					Choosing a safe website for the school	Information session on how to use Thutong portal	
						Plan for information sharing amongst colleagues in the school using Facebook	