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Botha, Elizabeth Mathakga

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Effective use of assessment data to improve teaching and learning in primary schools in South Africa: Four case studies South of Johannesburg

Elizabeth Mathakga Botha

A thesis submitted to the Faculty of Humanities, University of the Witwatersrand, Johannesburg in fulfilment of the requirements of the degree of Doctor of Philosophy.

Johannesburg

Abstract

This research is an exploratory study of how data is used to promote teaching practice that improves learner achievement. Assessment data has been used to engage educators in an ongoing exploration of questions, with the intention to understand learner development. The international and Annual National Assessment benchmark tests to assess numeracy and literacy competence indicated poor learner performance in most South African schools, compared to learners in neighbouring countries and globally. Poor performance in South African schools is a challenge perceived as and related to a lack of effective school leadership. Research shows that effective leadership use of data for decision making is likely to facilitate change that promotes an effective culture of teaching and learning. Research also shows that use of data is effective when school leadership and teachers' decisions are based on assessments of learners. There is evidence of improved learner performance where school leaders encouraged the use of assessment data for decision making to promote teaching; more so than where this was not the case. This study used grounded theory to understand variations of the phenomenon of the use of assessment data and the role of school leadership to improve teaching and learning. It employed an intensive, qualitative, interpretative methodology, which included a constructivist perspective. This allowed for greater insight into educators' use of data for decision making. Case study methodology was used to collect and analyse data from school management teams and teacher focus groups for Maths and Languages. The data analysis from which the study drew includes specific coding and categorising of themes and patterns of data to ensure reliability. The research findings present evidence for the possible successful use of assessment data to improve teaching practice and learner performance. The data obtained from school management teams and teacher focus groups of one of the four case studies presented here, reveals a positive impact data-inquiry, and that through use of data, collaboration for decision making can provide opportunities for a successful teaching and learning culture. Continuous collaboration among teachers also provides for the creation of professional learning communities. A conceptual framework has been developed from the findings of this study. The '*evidence-informed inquiry and action processes'* conceptualisation of the findings demonstrates how, through use of data, schools can interactively reflect, collaborate, and develop into professional learning communities to promote academic support and improve effective teaching and learning.

Key words:

Use of data; teaching and learning; school leadership; interactively reflection; decision-making; collaboration; professional learning communities

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Declaration

I declare that this thesis is my own, unaided work. It is being submitted for the Degree of Doctor of Philosophy at the University of the Witwatersrand , Johannesburg, South Africa. It has not been submitted before for any degree or examination in any other University.

----------day of ----------2015

Dedication

I dedicate this work to my mother Esther Botipe Kganakga and my late father Lazarus Matome Kganakga who raised their children under difficult circumstances, yet they instilled a culture of hard work in whatever we did. Respect, perseverance and sharing were values I was raised with.

Dinoko – bakgalapa, ke a leboga.

I dedicate the literature review chapter to the late Kenneth Steven Burnley who became my mentor during my first visit at the University of Michigan in 2009, when I started exploring literature on use of data to improve teaching and learning. Dr Burnley and his wife Eileen each dedicated their time to enable me access and exposure to information and social life as this was my first visit in the USA. In that short space of time Kenneth and Eileen also exposed me to the social culture and education system in a few primary schools in Detroit. They arranged and took responsibility for my travelling and entertainment at their cost. This was my best family away from home.

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"I will praise you, O Lord, with all my heart; before the "gods"; I will sing your praise" Psalm: 138: 1

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Abbreviations

SMT/s :	school management committees
PIRLS:	Progress in International Reading Literacy Study
SACMEQ :	Southern and Eastern Africa Consortium for Monitoring Educational Quality
DoE :	Department of Education
PLCs :	Professional learning communities
NCLB :	No Child Left Behind
AYP :	Adequate Yearly Progress or
NSF :	National Science Foundation
DIPIP :	Data Informed Practice Improvement Project
GDE :	Gauteng Department of Education
LOLT :	language of learning and teaching
B Ed :	Bachelor of Education
FG:	Focus group
ANA	Annual National Assessment
HOD/s	Head of department/s
FP:	Foundation phase
T:	Teacher
SP:	Senior Primary
EMS:	Economics and Management Studies
SA'SAMs :	South African' Schools Administrative Systems
ACE :	Advanced Certificate in Education
GPLMS :	Gauteng Primary Literacy and Mathematics Strategy
NGO :	Non-government organisation

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1. Introduction

1.1 Background

With the inception in 1994 of the new democratic government in South Africa came a mandate to build a just and equal society upon the global terrain of which it was now a part (Christie, 2008). This raised high expectations for rapid and tangible changes within South African communities that had suffered under Apartheid. Among the many challenges experienced in the Apartheid era, inequalities in education deprived many communities of opportunities to take part in economic and financial transactions, perform dignified labour and be included in decision-making on the running the country.

The various changes in curricula happened to unite and transform the old system of education. The eighteen education departments were consolidated into nine provincial departments. The use of common curricula in all departments was intended to close gaps and improve imbalances in standards of education that existed as a result of the divisions of Apartheid. Curriculum standards gave teachers a common set of targets within which to frame classroom instructions. This meant that every learner, in each grade, should have been able to accomplish the same goals upon completion of a section of work they were taught. However, despite the alignment of content standards, the standards of learner performance have continued to decline in previously poor socio-economic communities in most urban and rural areas.

The publication of international and national benchmark tests data demonstrated poor leaner performance in South African schools in the areas of maths and literacy, as compared to

others globally and locally. This stimulated interest to explore how assessment data in primary schools is used to improve teaching and learning emerged. The reason for choosing to conduct this research in primary schools was because this is the beginning of, and lays the foundation for, a child's education. There were expectations that teaching would promote effective learning, which is a core requirement for better education outcomes. On the contrary, the Grade 3 and 6 literacy and maths results indicated very poor performance when compared to neighbouring countries in Africa and elsewhere. Research has established that data is used to encourage higher standards and accountability mandated to foster improvement in schools (Wayman & Cho, 2009). Schools, therefore, are challenged to improve school effectiveness and learner academic achievement using available assessment data. Research suggests that to promote change that improves school effectiveness and learner achievement, the school leader must focus on activities that maximize learning outcomes and learner performance (Hopkins, Ainscow, and West, 1994; Clarke, 1995; Hallinger & Heck, 1998). As a result of the present status of most school's performance, there is a need for more school leaders and teachers with informed knowledge and skills on the use of assessment data to improve teaching and learning. This requires well organised teacher development to promote and improve necessary knowledge and skills. These will enable school communities to use data to learn, understand learner needs and make evidence-based, informed decisions to improve teaching and learning.

1.2 Data use for teaching and learning inquiry

Research from The Institute of Education Sciences (2009) asserts that the use of data should be part of a cycle of instructional inquiry. This should be aimed at ongoing instructional improvement with the intention to encourage and motivate high learner performance. It

suggests that teachers can use learner goals to understand factors that may motivate learner performance, and then adjust their teaching practices. Various types of data such as age, how many children from the same family attend the school, families with children as the head of household, etc., can be used to understand learner progress and inhibitors to learning. On the other hand, available data that include the results of oral and written classroom tasks, weekly, monthly or quarterly tests, standardised tests, and projects, is valuable to use in evidence-based inquiry to improve teaching and learning. Love (2004) suggests that use of multiple data be encouraged, as teachers need to have the ability to examine multiple measures and multiple levels of data as no single set of assessment data is able to tell all they need to know in order to make well informed instructional decisions. Mason (2002) notes that the types of data collected for school improvement determine the types of decisions that are made for learner improvement. The Pathways to College Networks Study (n.d.) suggests that use of data is a powerful tool to strengthen academic outcomes for all learners, in particular the underserved. It further suggests, that to improve educational outcomes, data must provide schools, districts and national departments with opportunities to share best practices based on hard evidence (www.pathwaystocollege.net/pdf/data.pdf).

1.3 School leadership role to influence use of data

In schools with leadership that shares this vision of using data, facilitating examination of data in collaborative teams (Boudette & Steele, 2007) also enables teachers to learn about and understand learner needs, and reflect on these in order to improve teaching practice. The school leader, with a creative vision to promote effective teaching practices and learner achievement, is expected to create collaborative teams that will use questions that will enable the development of solutions to improve teaching and learning. Much international research,

as elaborated upon in the literature review chapter, focuses on how educational leaders can influence learner performance. The expectation is that leadership of each school should provide evidence of the school's values and purpose that will guide educational change.

There are emerging research studies in South Africa on the use of data to improve learner achievement. Some of these start as interventions to introduce schools to the study and use of data to address teaching and learning challenges and make decisions for improvement. One such research study shows that using data could provide teachers with opportunities to identify errors in learning and encourage learners to use their errors to improve performance (Brodie, 2013). The challenge is that there are few school personnel with the knowledge and skills necessary to use data to guide decision making to improve teaching and learning.

This research study was necessary to find out and learn how data is used on a small scale in primary schools and to discover the value and purpose schools find in using it. The study also learned of limitations in data usage and how effective use of data, from the findings and the literature, would inform how future interventions and research could increase knowledge that will inform schools, districts and provinces in the use of data to improve teaching and learning.

2. Problem Statement

Low or poor learner performance and progress in primary schools is of great concern. It affects learners' future prospects for further education, and possible absorption into the socio-economic system. In addition, school leaders who lack a vision for bringing about change in

their schools add to existing educational problems. The introduction of Department of Education initiatives for school improvement fails to recognise the significance and value of existing assessment data, based on learner performance, as a basis for understanding problems in teaching and learning.

Research shows that the collection of assessment data is an indication of a school's core values and purpose, and can identify weaknesses and help seek guidance for change, in order to improve the status of learning in schools. Suporitz and Klein (2003) argue that school leaders and teachers must use learner performance results to provide guidance for teachers on issues or areas that need more work to improve learner achievement. This also requires teachers to understand how learners think, why they get poor results, and what path learners take to get where they are (Mintz, Fiarman, and Buffet, 2008). The alignment of the school mission, goals, assessment, and action plans is necessary when using data for decision making. Data use is regarded as helpful when it provides evidence of differences between the 'espoused theories' and 'theories in use' (Holcomb, 1999). Data is also considered necessary in order to provide teachers with information relevant to the curriculum (Timperley, 2009).

The new Annual National Assessment tests for Grades 3, 6, and 9are intended to set a standard for promoting effective teaching and learning and to make schools accountable. In some schools learner poor performance shows that there is no drive to indicate that schools make it their responsibility to provide effective teaching and learning. This raises questions about the kind of leadership found in these schools, and its instructional role in the use of experience to influence good teaching, with high standards of learning. Robinson, Lloyd and Rowe (2009) claim that school leadership requires in-depth knowledge of the core business

of teaching and learning. This enables the advancement of the educational agenda of a high standard of teaching, in order to motivate high standards in learning. School leadership, with a vision of effective data usage, can engage in productive discussions that will enable the identification of learning challenges, and the development of solutions for decision making. Leadership in educational change is necessary to forge relationships that are required for sustained school improvement. This encourages school leaders to build trust relationships that foster the inquiry, risk taking, and collaborative effort necessary for school improvement. It is argued that teachers tend to trust leaders who they believe are knowledgeable and able to help solve problems in their teaching (Friedkin and Slater, 1994).

Research studies indicate that schools that use data to promote collaborative teams that share and learn from each other to learn and understand learning challenges. School leadership can encourage collaboration through data analysis, create capacity building for the use of data, and facilitate powerful conversations about data that will lead to improved teaching practice and effective learning (Love, 2004). Continuous collaboration can encourage the emergence of professional learning communities that facilitate changing culture in schools (Giles & Hargreaves, 2006). The existence of professional learning communities in South African schools may address problems that arise when teachers work in isolation, limiting opportunities to work with and learn from others. The creation of professional learning communities is a mind shift necessary for most schools as they consider the use of data to structure professional development with improved opportunities to reflect on effective teaching to promote learning.

Literature informed and shaped the main question for this research, in exploring how assessment data is used in primary schools to influence the improvement of teaching practice and learner achievement. The study also took an interest in the role of school leaders in the use of data, and their influence on teachers to collectively engage with data.

The purpose of this study was to explore how assessment data is used to improve teaching and learning in four primary schools in the south of Johannesburg.

3 Significance of the study

This research is a case study of four schools that aims to investigate evidence of the use of data for the purpose of making decisions that improve school effectiveness, and learner academic achievement. The intention is to publish the findings to influence schools to consider data as one of the ways they can improve teaching and learning. Previous research findings done in other parts of the world inform the possibilities and challenges of effective ways of using data.

Some of these research studies, which form part of the chapter on literature on the use of data, are important in determining effective processes for the improvement of school effectiveness and learner performance. As the literature indicates, the use of data can never be ignored, because schools have various collections of assessment data that school leadership and teachers can use as a basis for collaboration in decision making on school improvement.

4 Aims and objectives

The aim of this research was to find out how schools use data as evidence-based inquiry to inform school decision making to improve teaching practices and learner achievement. The sub-questions for the study are:

- What kinds of student data are schools using to understand the performance of their students?
- How is assessment data in South African primary schools used to improve teacher practice and learner achievement?
- Who is involved in decision making based on data and why?
- What questions do teachers develop when linking learner data and teaching practice?
- What factors promote or inhibit educators using data to inform practice in primary schools?

5. Thesis overview

- Chapter 1 Exploration and understanding of use of data to improve teaching and learning
- Chapter 2 Literature Review and theoretical framework
- Chapter 3 Research deign and methodology
- Chapter 4 – 7 Case studies' description of context and use of data
- Chapter 8 A cross-analysis of the four case studies
- Chapter 9 Summary, Limitations and Recommendations for Future Research

2. Literature Review

2.1 Introduction

2.1.1 Background

Two decades after South Africa obtained its new democratic government, teams of researchers are concerned with the quality of education, showing little or no improvement in teaching practice and student achievement (Taylor and Vinjevold, 1999; Morrow, 2007; Christie, 2008; Fleisch, 2008;). Education reform has been a priority in South Africa since the establishment of the Government of National Unity in 1994 and has attempted to redress the injustices of Apartheid. However, weaknesses at every level of the system – classroom, school and administrative structure – contribute to the continuing crisis in schooling (Taylor, 2008). The result is that the country is learning how difficult and slow it is to transform the school system, despite structural changes which have taken place. The interventions put in place to promote the role of school leadership in improving school effectiveness have been intensive, but have still met with mixed results.

The publication of the benchmark tests results from research done by the Progress in International Reading Literacy Study (PIRLS) and the Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ), among others, demonstrates poor performance by South African learners in literacy and numeracy (Howie, 2001; Reddy, 2006; Taylor 2007). Taylor (2008) states that these results show that South Africa is outperformed by eight surrounding countries including Mozambique, Kenya, Uganda and Tanzania, many of which are much poorer, with gross domestic products in the order of one-tenth to one-fifth of South Africa's. This demonstrates that while poverty is strongly associated with performance in general, many school systems achieve better results with far

fewer resources than those in South Africa. The South African school sector can be characterised as a high cost, high participation, low quality system (Taylor, Fleisch, & Shindler, 2007).

Research indicates that international scholars have been struggling with issues of how to improve schools' effectiveness and learner achievement for the past fifty years. Over this period, there have been various trends in the research and academic communities. At the beginning of the twenty-first century, the South African government and various interested non-governmental organisations (NGOs) participated in initiatives such as benchmark tests to monitor learning achievement in schools. In the United States, educational data has been used by states and districts to encourage higher standards and accountability mandates to foster schools' improvement (Wayman & Cho, 2009). In the 1980s there was increased emphasis on democratising schools, restructuring, and improved leadership. Starting in the 1990s, small groups of scholars in various parts of North America and England (Chrispeels, 1992; Codding & Rothman, 1999; Bernhardt, 2000a; Earl & Katz 2002; Proteroe, 2001), and later in South Africa (Schollar, 2004), began to explore how data on learner achievement could become an important part of improving teaching practices, and learner academic achievement. The difference between leading international school practices, and South African school practices, around data use had to do with both the scale of the initiatives and the continuity of focus. Other factors were the extent and enthusiasm with which teachers, leaders, districts and researchers engaged with these kinds of involvements.

What children learn is heavily dependent on what teachers know, and what they do in their classrooms. Although there are many other problems leading to poor learner performance, poor teaching practice is considered a contributing factor. Darling-Hammond and

McLaughlin (1995) mention that the vision of practice that underlies the nation's reform agenda requires many teachers to rethink their teaching, to construct new classroom roles and expectations about learners' outcomes, and to teach in ways they have never taught before. In response to the national crisis presented by international research results on literacy and numeracy, and the failure of public schools to meet the needs of all learners, the Minister of Basic Education, Angie Motshekga introduced the Annual National Assessment (ANA) benchmark tests to diagnose challenges in teaching and learning in schools. Using data practices to make better-informed decisions would not only improve the quality of instruction in the nations' lowest performing schools, but would ultimately begin to close the achievement gap between lowest and highest performing schools (Diamond & Cooper, 2007). The assessment data enabled the department of education (DoE) to identify and support poor performing schools. Since then, interventions have been put in place to improve learner performance. Teacher development programmes have also been instituted, in order to improve teaching practices in South African schools.

To effectively improve the educational setbacks in South African schools, school leaders must display competent leadership skills. These can support innovation and cultural change within schools. The action to initiate change requires that school leaders support shared leadership and focus heavily on academic improvement. The school leader is perceived to hold the key to resolving a number of problems experienced in the classroom. Educational leaders need to continually exceed the implementation of government legislation, in both curricular and assessment areas. In addition, they have to focus on promoting instructional practice "to redress issues of equality and by understanding the dynamics of the global actors which in effect need to be included in the purview of educational leadership" (Bottery, 2004:10).

In Datnow, Park, & Wohlstetter, (2007) study, data is considered important to help teachers pinpoint the root causes of learning problems. Other research studies showed that the use of data to make decisions and implement reforms differed in low performing and high performing schools. Low performing schools used data to develop quick-fix strategies to avoid the sanctions of a test-based accountability system, with focus on isolated groups of learners. On the other hand, high performing schools used data for school-wide system change. Data is analysed to measure effectiveness of classroom instruction and to monitor the needs of learners as a whole (Sanders, 2009). The differences outlined above may support arguments that schools reproduce social inequality (Bowles & Gintis, 1976; Bourdieu & Passeron, 1977; Collins, 1979). The central theme in reproduction theory believes that schools serve the interest of learners at the top rather than those at the bottom (Sanders, 2009:20). Sanders argues that to narrow achievement gaps between low and high performing schools, frequent, reliable data is needed. This will provide a clear picture of learners' strengths and weaknesses, as well as monitoring how well the instructional strategies used are working. Teachers need data to reflect, discuss, collaborate upon, and create, necessary instructional strategies. This can be achieved with effective professional development, so that teachers can tailor their instruction to meet the needs of learners (Sanders, 2009:28).

Halverson, Prichett, Grigg, & Thomas, (2005) argue that while teachers are ultimately responsible for improving learner achievement in schools, the school leader's central task is to change organisational conditions for improvement across all phases. The initial change described by researchers is a move towards data-driven decision making. At the heart of instructional leadership is the ability to shift schools from cultures of internal, to external, accountability. A principal with a vision to improve and change the school culture is regarded as the cornerstone of a school's successful data initiative implementation. The alignment of

the schools' mission, goals, and assessment and action plans are identified as necessary when using data for decision making. After every assessment the school leadership, in particular the heads of departments for phases (HODs) and/or subjects and teachers, are to study the data. This will enable them to understand the challenges of learning in areas that were taught and assessed. Data can also enable the principal to identify resources needed to support teachers in improving their work. Data is also considered valuable as it provides teachers with curriculum relevant information. This can be seen as something that informs teaching and learning, rather than as a reflection of the capability of individual students and [something] to be used for sorting, labelling and credentialing. Teachers need sufficient knowledge of the meaning of the assessment data to make appropriate adjustments to practice (Timperley, 2009:21). The development and implementation of data-driven decision making tools is considered a necessary step towards the effective use of data.

There are concerns that were collaboration is not yet a practised culture in schools, teachers work in their classrooms in isolation (Schmoker, 2004). This means that they remain vulnerable, and susceptible to failure to meet the requirements for effective teaching. According to Hargreaves, Halasz and Pont (2007:7), learning organisations are able to learn continuously, not just as an aggregation of individuals, but also collectively as a group. To enable teachers to improve teaching and learning, collaboration and information-sharing is regarded as a common theme in the improvement of education. Collaboration resulting from data use can benefit teaching beyond one-to-one relationships (Wayman, 2005). Other research also indicates that a collaborative culture can be fostered in the school through the use of an inquiry process. This is a culture in which educators use data "continually, collaboratively, and effectively" (Feldman & Tung, 2001:23) to increase school-wide improvements in teaching and learning.

Data enables members of staff to take responsibility for determining the types of decisions necessary for changes that address issues around teaching for improved learner performance. School leadership can encourage meaningful collaboration through data analysis, create capacity building for use of data, and facilitate in-depth conversations about data. These will lead to improved teaching practice and effective learning (Love, 2004). Other research studies describe schools with success in the improvement of instructional practice. These studies demonstrate growth from data analysis, where the principal sets aside time for analysis and so allows teachers and school leaders to collaborate in learning and understanding from the data in order to initiate necessary changes (Phillips, 2003).

Schools that provide opportunities for continual collaboration and sharing practices in sustainable professional learning communities (PLCs) can produce a change in the culture of their institutions. Cochran-Smith and Lytle, (1999) argue that the purpose of professional learning is to support teachers to develop "knowledge FOR and IN practice". Professional learning communities provide an opportunity for adults across the school system to learn and think together about how to improve their practice in ways that lead to learner achievement.

2.1.2 Structure of the literature review: relevant research

This literature review uses Maxwell's (2006) definition of a dissertation literature review, which emphasises the importance of learning to identify, analyse and integrate literature. Rather than attempting to summarise all related areas, the literature review focuses explicitly on research on the use of data, and how data can improve positive learner achievement. The

purpose of the literature review is to inform planning of the study, to create a focus, conceptual framework, design, and justification for the study.

This literature review will explore the ideas on the use of data, focusing on models of how data use works to improve teaching and learning in primary schools; the role played by school leaders in support of using data; how research conceptualises the role of data for school effectiveness and positive learner achievement; how data is perceived with regard to changes of practice; and what the challenges of the use of are. The literature will provide a conceptual framework that will be used to develop and design questions of inquiry on data use in primary schools.

2.1.3 Data use, using data, data-driven decision making for reform

Since the field emerged, there have been a variety of versions of data-driven development. For example, Lachat and Smith (2005); Kerr Marsh, Ikemoto, Darilek, & Barney (2006); and Ingram, Louis, & Schroeder (2004), have used the term "data use." On the other hand, Earl and Fullan (2003); Wayman, Stringfield and Millard (2004); Earl (2005); Amstrong and Anthes (2001); and Wayman and Stringfield (2005), have used the term "using data". Alternatively, "data-driven decision making" is used by Holcomb (1999); Wayman (2005); and Mandinach, Honey, & Light (2006), to indicate how teacher practice and learner achievement can be improved. Still others have adopted the term "data wise" following the work of Boudette, City and Murnane (2006). The central difference has to do with the different time periods in which the research was done, but all terms are used with the common aim of improving teacher practice and setting high standards for school

development. Additionally, to encourage positive learner academic performances that can expose learners to, and involve them in, new activities and assessment techniques (Timperley, 2009).

Van Barneveld (2008) points out that teachers use data as information to reflect and act on, and to enable them to identify the roots of educational challenges and track progress, as well as develop action plans that will impact positively on learner performance. Research studies on the use of data for improving learner achievement are case studies, and "few studies contain evaluations of these practices" (2008:1).

The key debates in the field began with assertions of the relationships between data and school improvement. In the initial stages, which predate the implementation of a seminal federal policy in the United States, No Child Left Behind (NCLB), the new emphasis on data necessitated new systems, knowledge and skills. These were lacking at district and school levels (Kerr, et al., 2006). Although many researchers present NCLB as effective in monitoring learner progress towards standards, and holding schools accountable, to some educators and researchers involved in data use NCLB was more "rhetorical than substantive" (Kerr, et al., 2006). However, recent research shows that the school reform movement drew attention to the need for systemic use of data to inform the policy, management and instructional changes that result in higher learner achievement (Bernhardt, 2000b).

Researchers are still in the process of coming to terms with the effective use of data, and more questions are being asked to get better results on the successful use of it (Ingram, Louis,

& Schroeder, 2004). Two of these questions are: (i) "What type of decisions do teachers make, and what types of data are meaningful to them?", and (ii) "What factors promote or impede teacher's use of data for decision making?" (2004:1259). These questions highlight the significance of the selection of relevant data available in schools. Data can provide teachers with knowledge about learners, and how to make decisions about their own teaching practice, in order to improve learner achievement. Protheroe (2009:1) points out that data-based decision making is not enough to enable educators to identify alternative solutions related to the assessment data problems. "Real questions should not be *whether* to ingrate the use of data in decision making, but *how*". Thus, obtaining the right questions to ask should be tailored to fit the needs of the school.

Some researchers indicate challenges in understanding and identifying what can inhibit teachers from the use of data to improve teaching and learning. The same challenges are raised by Holcomb (1999) concerning school leaders and teachers that identify problems about data use and pose questions such as: "What data and how much data do we collect? How do we analyse data and report it? How do we use the findings to improve learner academic improvement?" (1999: xiii) All of these questions indicate challenges that emerge from the use of data, particularly having to decide which data is relevant to enable teachers to make decisions that will improve teaching practices and learner achievement, and at what level data intervention should be made.

Apart from considering the effective use of data for learner improvement, using data to improve teaching practice is influenced by several key factors. These include the types of data available to school staff, capacity in terms of technological data systems; and school

conditions and practices that either promote or act as barriers to the use of data by staff (Lachat & Smith, 2005).

2.2 Research on data use

2.2.1 Evidence of the impact of data use on improvement of learner achievement

The use of data was employed as an accountability mandate for the No Child Left Behind law (2001) in the US to ensure that schools were meeting yearly targets for improvement referred to as "Adequate Yearly Progress or AYP". This policy implied that the availability of data would inform and initiate changes in teaching practice. There are also case studies that serve as proof that data has supported educational decisions (Feldman & Tung 2001; Lachat 2002; Pardini 2000; Protheroe, 2001; Symonds, 2003). However, the requirements of NCLB created pressure to carefully monitor learner performance on the high-stakes assessments that determined success or failure (Mandinach, Rivas, Light, Honey, & Heinze, 2006).

Assessment data have been used for accountability and high standards in order to measure school effectiveness through learner performance and is the heart of reform efforts in education (Earl, 2005). Other research studies show that equity and accountability have made it imperative for educators to base decisions on accurate and meaningful data about learner achievement (Johnson, 2002; Lachat, 2002). However, Ingram et al., (2004) question the assumption that accountability data will lead to positive change in the daily interaction between teachers and learners.

A research report from the Pathways to College Networks (n.d) study on using data to improve educational outcomes emphasises the use of data as a powerful tool to strengthen academic outcomes for all learners, in particular the underserved. The argument presented is that data informs whether certain groups of learners have been disproportionately tracked into lower level classes of special education, and whether or not they are proportionately represented. To improve educational outcomes, data provide schools, districts and national departments with opportunities to share best practices based on hard evidence. According to the Annual National Assessment report (2013) efforts by the Minister of Basic Education in South Africa is to use data to identify and support schools that are underperforming in learner achievement, based on the annual national assessment data in schools. These efforts are diminished by a lack of knowledge and skills necessary to use data to improve school effectiveness and/or learner achievement in some of the schools. These schools depend on the districts to aggregate collected data, and learn of their performance in relation to others when a list of all schools in each district is compiled according to levels of performance. This is demoralising and discourages teachers' efforts. It also makes some schools give up on attempts to improve school effectiveness. On the other hand, it becomes a challenge to schools that take responsibility for the use of data inquiry to understand learner needs. In this way they find ways to improve teaching, in order to engage learners in different learning experiences.

Researchers argue that the thoughtful use of learner data can be positively correlated with learner achievement (Edmonds, 1979; Springfield, 1994; Teddlie & Reynolds, 2000; Weber, 1971). This notion is supported by consensus among researchers who claim that data use is central to school improvement and school effectiveness (Chrispeels, 1992; Earl & Katz, 2002; Protheroe, 2001; Wayman & Stringfield, 2003). Data use is effective when teacher

decisions about instructional effectiveness are based on assessments of learners' actual proficiencies in various skill areas (Pardini, 2000). According to the Pathways to College Networks study, greater reliance on data has led some teachers to be more accountable to one another through collaborative school improvement work, and reflective practice. Data is used to challenge untested assumptions and beliefs about some learner abilities.

As teachers struggle with the challenges of changing current school structures into effective learning environments, an increasing number of researchers argue that data is considered to be a powerful ally in stimulating positive change in teacher practice and improved learner performance (Lachat & Smith, 2005). The use of data to support learner success and school improvement is considered one of the foundations of using data to improve learner performance (Bernhardt, 2000a; Codding & Rothman, 1999). Mason (2002) notes that the types of data collected for school improvement determine the types of decisions that are made for learner improvement. As a result, teachers are able to modify their instructional strategies when they have current information about the skill levels and proficiencies of their learners. However, Ingram et al., (2004) argue that the implementation of central assessments influenced changes in the topics taught, but that there is little change in teachers' instructional approaches. Instead, teachers are found to teach new topics using conventional strategies (Firestone, Fitz, & Broadfoot, 2000).

Rallis and McMullen (2000) argue that inquiry-based schools promote a culture of high standards, and the use of appropriate assessments to improve learning. Therefore, schools using data-driven decision making are expected to monitor effective progress, to use data to understand where learners are academically, and to establish improvement plans that are

targeted, responsive and flexible (Mitchell, Lee & Herman, 2000). The data-driven inquiry process acts as a tool to enable school leaders and teachers to implement change in schools, but it is often considered furthest from current standards of excellence (Holcomb, 1999, 2001). The development and implementation of data-driven decision-making tools is also considered a necessary step towards the effective use of data (Mandinach et al., 2006).

Recent research by the panel of the Institute of Education Sciences for the National Center for Education Evaluation and Regional Assistance indicates that changes in accountability and testing policies still advocate that educators with access to an abundance of learner data, from various tasks and tests, can strengthen the role of data for guiding instruction and improving learner performance (Hamilton, Halverson, Mandinach, Supovitz & Waynman, 2009). In the United States, the Department of Education is also calling upon schools to use assessment data to respond to students' academic strengths and needs (American Recovery and Reinvestment Act, 2009; Department of Education, 2009; Obama, 2009). The significance of data is that it provides ways to assess what learners are learning, and to what extent they are making progress.

According to Knapp, Swinnerton, Copland and Monpas-Huber (2006), the use of data requires knowledge of concepts, theories and interpretative frames of reference. To use data effectively, educators should be able to ask questions and obtain insight about learner progress, monitor continuous improvement, and tailor teaching practice to meet the needs of learners. Timperley's study (2009:1) identifies seven conditions required for the use of data to have the impact hoped for to improve teaching and learning. First, the data need to provide teachers with curriculum-relevant information. Second, teachers have to see the information

as something that informs teaching and learning, rather than as the reflection of the capability of individual learners; something to be used to sort, label and provide credentials. Third, teachers need to find sufficient meaning in assessment data in order to make appropriate adjustments to their practice. Fourth, school leaders need to have conversations with teachers to unpack meaning. Fifth, teachers have to improve their knowledge of pedagogical content, in order to make relevant adjustments to classroom practice in response to the assessment information. Sixth, that school leaders need to know how to lead the kinds of change in thinking and practice that are required for teachers to use the data. Finally, all those within the school need to be able to engage in systematic, evidence-informed cycle of inquiry to build the relevant knowledge and skills already identified.

In addition, the Institute of Education Sciences panel of researchers Hamilton, Halverson, Jackson, Mandinach, Supovitz, and Wayman (2009) offers five recommendations for the use of data in instructional decision-making aimed at improving learner performance.

- Teachers should use data from multiple sources (*such as oral and written classroom tasks, tests and examinations)* to set goals, make curricular and instructional choices, and allocate instructional time. Use of data should be part of a cycle of instructional inquiry aimed at ongoing instructional improvement intended to encourage and motivate high learner performance.

- The panel provides guidance about how teachers can instruct learners in the use of their assessment data to develop personal achievement goals and guide their learning. It suggests that teachers use learners' goals to understand factors that may motivate learner performance, and adjust teaching practices accordingly.

- It suggests that school leaders establish a comprehensive plan for data use that takes into account multiple perspectives. It also emphasises the need for school leadership to establish structures and practices support teachers as they implement data use and interpretation.

- The third recommendation relates to how schools and districts can encourage educators to collaborate through data use. Collaboration is seen to create or strengthen the whole school in sharing expectations and common practices around data use.

- At district level, suitable data use requires a secure and reliable data management system for collaboration, development and maintenance of high quality achievement through data use.

For the purpose of this study, the recommendations from bullets one, three and four are relevant in so far as they shape and inform the research questions and findings of this study. Recommendation two relates to classroom practices. These were not included, since classroom observation was not part of the process of this study. The fifth recommendation is directed at the district level and this research study is limited to findings at school level.

Additional recommendations from other researchers identify five key strategies for the use of data-driven decision making in performance driven school systems (Datnow et al., 2007). These include the building of a foundation for data-driven decision making as integral to establishing measurable goals. Leaders within the school should create explicit norms and expectations to establish a culture of data use and continuous improvement. There is a need to

invest in an information management system, and the school must dedicate an individual or team to be responsible for supporting data analysis. They will serve as experts with whom the teachers can work. The school will have to select data with multiple purposes to inform and guide improvement efforts. To build school capacity for data-driven decision making, schools would have to invest in professional development, provide support for teachers in modelling data use, and data discussions, and provide time for collaboration so that teachers and school leadership can learn; sharing their understanding of learner needs. Lastly, in analysing and acting on data to improve performance, the schools would be creating structures to foster data-driven decision making.

For successful implementation of the strategies listed above, advice is that schools invest time and resources in building a solid foundation for system-wide improvement efforts. The process also requires measureable goals at the school system, school classroom, and individual learner level.

2.3 Models of data use to improve teaching and learning

While there is common agreement that capacity building is key to the effective use of data for school improvement (Bernhardt, 2004; Johnson, 2002; Wellman & Lipton, 2004), scholars have developed approaches or models to capacity building. All of these focus on use of data, although terminology varies.

Research indicates various views on capacity building. Nichols and Singer (2000) have argued for the notion of "data mentors". In their work, they suggest that the key role of such

mentors, drawn from each school and trained in data techniques, would be to assist teachers in their use of data. Another view, by Symonds (2003), has a similar conception of a specific set of training and specialised personnel at school level; individuals he refers to as "class coaches". However, in his view, educators would be involved in the larger processes of professional development. Nichols and Singer (2002); Symonds (2003), and Zhao and Frank (2003) argue for a collective or group approach, focusing capacity on key individuals, but also on larger groups of teachers. The reason for this is to encourage teachers to be part of a group that would meet regularly to help each other learn from data. Wade (2001) argues that as many teachers as possible are needed to support effective data use in schools.

Possibly the most insightful analysis of models of capacity building can be found in the works of Jeffrey Wayman. He argues for the notion of a "data facilitator". This would be located somewhere between the "data mentors" and "class coaches" perspectives. Wayman (2005) notes that a single person in the school environment can become a *de facto* "go-to" person, serving as an unofficial "data facilitator" for both interpretation of data, and the use of technology to deliver data. He further recommends ongoing professional development, and the widespread involvement of teachers as part of the school community, for the successful use of these tools to support and promote effective use of data in schools. Love's (2004) report on Using Data Project research, funded by the National Science Foundation (NSF), indicates the ability for teachers to examine multiple measures and multiple levels of data, if they were facilitators. Evidence based on data from this research shows that leading school data teams were able to dig deep into several data sources, and engage in dialogue that enabled them to learn to improve mathematics, science teaching and learning. No single set of assessment data was able to tell teachers all they need to know to make well informed instructional decisions; as a result, researchers encourage the use of multiple data. It is not the

quality of data that improves instruction and learning, but rather the information derived from the data used (Hamilton, et al., 2009).

Brodie (2013) argues that the use of data provides a means whereby teachers can identify real leaner needs, rather than working with their own intuition as to what learners need. The professional development project for the Data Informed Practice Improvement Project (DIPIP) engaged mathematics teachers with data from a range of sources. This enabled them to work together and understand the nature of learner errors, and how they might respond to them. It illustrates another effective way of using data. The findings of the study show that discussion and facilitator intervention proved a success in making teachers use data to gain an understanding of learner errors.

The development and implementation of data-driven decision making tools is also considered a necessary step toward the effective use of data (Mandinach et al., 2006). As a result, leadership has to provide opportunities for and encourage the participation of all teachers.

2.4 School leadership influence on using data for school effectiveness

Effective school leaders exercise an indirect but powerful influence on the effectiveness of the school and on learner achievement (Blasé & Blasé, 1999). They are expected to attend to structure, culture, continuity, and change within their school. To promote change that improves school effectiveness and learner achievement, the school leader has to focus on activities maximising learning outcomes and learner performance (Hopkins, Ainscow, & West, 1994; Clarke, 1995; Hallinger & Heck 1998). Leaders have to implement their

instructional practices to shape the enthusiasm of teachers, and the quality of their teaching (Fullan, 2001). Strong leadership qualities, together with knowledge of the use of data to improve teaching practices and learner achievement, are needed to improve school culture (Armstrong & Anthes, 2001; Massel, 2001).

Some studies indicate that school leaders who are able to use data effectively for inquiry and decision making, are knowledgeable about committed to data use, and to building a strong vision for how data can benefit school practices (Choppin, 2002; Feldman & Tung, 2001; Herman & Gribbons, 2001; Lachat & Smith, 2005; Mason, 2002; Mieles & Foley 2005). In support of this, Earl and Katz (2002) note that school leaders involved in data use consider themselves in charge of their destiny, being able to find and use information to inform and support their teachers and school improvement.

School leaders have to identify factors for which data will result in positive outcomes. Lachat and Smith (2005) identified key factors that are significant in influencing effective data use, including: the quality and accuracy of available data, staff access to timely data, the capacity for data disaggregation, and the collaborative use of data organised around a set of questions, and a leadership structure that supports school-wide use of data.

Schools that were found to be proficient at closing the achievement gap between different ethnic groups were those with school leaders who encouraged or led data-driven inquiry into the nature of the differences (Symonds, 2003). Further research reports indicate that leadership using data inquiry is likely to involve a change in school culture, and will involve

teachers (Wayman, 2005). According to van Barneveld (2008:4), school leadership must have the requisite knowledge and skills to work with data, as well as understand which type of professional development would be effective for teachers. The function of leadership, in this context, is to encompass an articulation of the rationale for a teacher's use of particular types of data, modelling data use, planning and providing a framework for teachers to learn about using data, and scheduling time to do so collaboratively. Wayman (2005) suggests that it is important for school leaders to include teacher's professional judgement as a component of the information process – a data point, alongside other quantified data, such as standardized tests. This was found to enable teachers to consider their judgement to be an important piece of knowledge, and they were unlikely to resist professional development initiatives. To give teachers a role provides them with opportunities to have access to their learner's performance in a variety of contexts, and over extended periods of time (Black & Williams, 1998). Through engagement with data and participating in the decision making process, teachers' attitudes towards educational practice and learner performance improve (Armstrong & Anthes, 2001).

However, where school leadership has to analyse data and make decisions, Wayman, Midgley, and Stringfield (2005) note that it is faced with the difficult task of working with an abundance of learner data in the form of classroom assessments, and is challenged to turn the data into information to be used in improving educational practice. The school leader's vision of using data and sharing information is an indication of the agency of the systematic, timely and directive intervention programme. Spillane (2002) highlights the significance of interactions between the school management team and teachers as part of the school routine, which can effectively enable the exchange and discussion of data within grades.

Ingram et al., (2004) highlight the importance of leadership for engagement of the whole school in conversations to establish outcomes and definitions concerning meaningful data. In addition, Love (2004) emphasised that a school leader should foster collaboration through data analysis, build data teams, and facilitate powerful conversations about data that will lead to improved teaching and learning. Through collaboration, schools can promote a collective purpose of building respect and trust among collaborative teams, facilitating communication with norms, listening carefully, sharing relevant information, developing shared meaning, making assumptions explicit, and deciding by consensus (Wald & Castleberry, 2000).

School leadership must set the tone for improvement by modelling active learning, investing time in the process, showing respect for the ideas of others, and empowering teachers as leaders (Zepeda, 1999; Lambert, 1998). To use data effectively for the improvement of teaching and learning, the school leader and teachers have to create opportunities that encourage participation, and that expand opportunities for distributed leadership. Leithwood, Harris and Hopkins (2008:34) describe distributed leadership as strong relationships between leaders and staff, attributes of a collaborative working culture that extends teacher motivation and commitment. It si perceived that a collaborative work environment is makes it possible for teachers and school leaders to engage with each other around issues to enable them to improve teaching practice.

2.4.1 *Collaboration and use of data*

In some schools, collaboration does not occur because the school leadership may not know how to engage and encourage teachers to work together to find solutions to problems related

to their teaching practice, and to critically understand their learners' needs (Morrissey, 2000). In schools with a culture of collaboration, there is recognition of the need to work together to achieve their collective purpose of teaching and learning for all (Dufour, 2004). Working together to improve learner achievement becomes the routine for every teacher in the school. Collective interaction enables educators to make commitments, because they want to do good work and be recognised as individuals (Senge, Roberts, Ross, Smith, & Kleiner, 1994: 200). Collaboration is also considered necessary in order to communicate high expectations that encourage teachers and school leaders to make significant contributions, and provide and promote an effective learning environment. Schmoker (2004) argues teacher improvement cannot be attained through the isolationism that marks most schools, but by frequent discussion and activities centred on teaching practice. Furthermore, Gunn and King (2003) suggest that in order to avoid pitfalls when discussing problems of teaching and learning, it is best to establish a collective understanding of goals, and engage in professional development enquiry. The opportunity for teachers to share their interpretations of learner data provides occasions to address fundamental beliefs about learning and teaching (Mintz, Fiarman, & Buffet, 2008)

Collaboration provides opportunities to create professional learning communities (PLCs) that share and learn together. They make decisions to improve teaching practice in ways that maintain a high standard of teaching and learning. The development of PLCs is also recommended as a way to focus on the review and interpretation of data to improve learner achievement. According to Reichstetter (n.d.), a "professional learning community is made up of team members who regularly collaborate towards continued improvement in meeting learner needs through a shared curricular-focused vision". The literature shows that effective professional learning communities promote a collaborative culture among educators

(Shellard, 2002), with shared responsibility (Haar, 2003), and with a focus on learning through phase and/or subject team meetings, to analyse and impact teaching practices in order to improve individual and collective results for learners (Peel, 2006). They should be part of overlapping, interconnected communities of practice, (Resnick & Hall, 2001; Mitchell, Wood & Young, 2001) that can include schools and districts, to sustain change. Overlapping PLCs are unified by common goals that focus their work on affecting change from a variety of vantage points within the system.

The distribution of roles for data-related functions of the group may include dealing with data reporting, data interpretation, and teaching teachers about data, furnishing instructional resources linked to issues arising from data analysis, facilitating meetings so that teachers identify next steps, and following up with teachers on their responses to data analysis. Through professional learning communities, teachers are allowed to share responsibilities, develop individual special expertise, and foster feelings of interdependence in the collaborative group (van Barneveld, 2008:3).

2.4.2 *Creating professional learning communities using data*

Unlike the research on analyzing data to foster collaboration practices among teachers in many studies from other countries (Chrispeels, Brown and Castillo, 2000; Feldman and Tung, 2001; Nichols and Singer 2000; Symonds, 2003), some school leaders with whom I engaged confirmed that they do not encourage educators to share educational practices and to work together to create better school cultures. Where teachers work in their classrooms in isolation, and may lack content knowledge and quality skills to teach every learner successfully, they

may not know how best to challenge learners with high-level learning tasks. The isolation of these teachers means that they remain vulnerable and susceptible to failure to meet the requirements of effective teaching. In some countries, this isolation has been mitigated by the creation of professional learner communities that challenge teachers to work collaboratively with others to improve their own practice, and improve learner achievement (DuFour, 2004). The focus of professional learning communities is on collective professional learning within the context of a cohesive group, which works with an ethic of interpersonal care, which permeates the life of teachers, learners and school leaders (Brodie, 2013).

To create a culture of professional learning communities, teachers have to understand how to share ideas about their teaching strategies, reflect, and make inquiries into best practices. Stoll, Bolam, McMahon, Wallace, & Robert (2006) identify five characteristics needed to create a culture of professional learning communities. First, teachers and school leadership need to hold a common, collective vision for learner achievement, and collaborate on strategies and interventions to reach academic goals. Second, teachers and school leadership must collectively share the responsibility for the success of all learners. This is a commitment with a strong sense of accountability, and encourages staff members to work collaboratively. Third, teachers and school leadership should aim to work together to look at strategies that promote academic success. Fourth, the work must involve an exchange of ideas, teaching practices, and analysis of assessment data. Fifth, data should be shared among team members for analysis and interpretation in order to plan intervention strategies. In order for a professional learning community to work, Jalongo (1991) adds a sixth characteristic; there must be mutual respect and trust between all members.

The distribution of responsibilities works to promote interaction between school leaders and teachers, as part of a collaborative practice to support educational improvement. The interactions through the use of data can create collegial relations, with innovative and successful practices to improve teaching and learning. School leadership with the vision to promote effective teaching practices and learner achievement can, in turn, create professional learning communities to encourage collective interactions and collaboration that will increase a climate of accountability. Professional learning communities provide one opportunity for adults across the school system to learn and think together about improving their practice in ways that lead to learner achievement. This shift would require teachers and school leaders to believe in the use of data, and understand the requirements of PLCs as a means to meet the educational needs of learners through collaborative, day-to-day practices (Vescio, Ross, & Adams, 2008).

According to Reichstetter (n.d) a professional learning community is made up of team members who regularly collaborate towards continued improvement in meeting learner needs through a shared curricular-focused vision. For professional learning communities to work effectively, Eaker and Gonzales (2006) argue that school leadership has to be supportive and provide the structural conditions to allow both leadership and teachers to collaborate in decision-making towards the improvement of teacher practice and positive learner achievement. Research studies reports have shown that the use of data provides opportunities for effective PLCs to interact and make decisions together. Professional learning communities work collectively (Dufour, 2004) on school challenges, and make collective decisions regarding essential learning outcomes Hord (1997 and Langston (2006) question, and reflect upon, the lessons and instructional practices designed by the PLC team (DuFour & Eaker, 1998; Hall, 2007). Teacher learning involves participation in a community of

practice, and that participation refers to a more encompassing process of being active participants in the practices of social communities and constructing identities in relation to these communities (Wenger 1998). All of this literature promotes the idea of having good quality leadership, with a vision of using data, which is shared with members of the staff, and encourages participation in decision making towards promoting effective learning outcomes.

Research into interventions in a number of schools in America that participated in a learning community, using data, has indicated that this led to positive change in teaching practice and improvement of learner achievement. Numerous researchers reflect on the changes teachers made in their classrooms after they engaged in collective PLC processes (Englert and Tarrant, 1995; Louis and Marks, 1998; Dunne, Nave and Lewis, 2000; Strahan, 2003; Hollins, McIntyre, Debose, Hollins, and Towner, 2004. In support of this, the study conducted by Dunne, Nave, & Lewis (2000) presents the differences in performance between teachers who participated in professional learning communities and those who did not. The practice of participants using PLC is reported to become more learner-centred over time, adding flexibility to classroom arrangements and changes in the pace of instruction to accommodate varying levels of learner content mastery, which is not the case with other teachers.

Although professional learning communities have been found to be a success and a powerful way to foster learning among teachers, it takes a lot of thought and commitment from teachers and facilitators to make it successful. It requires lots of time for planning, and immense skill, expertise, and commitment from leadership and teachers.

2.5 Levels at which data is used to improve learner achievement

In contrast to practices adopted in the use of data in schools in the US and UK, learner assessment data in South Africa is mostly forwarded to the districts where it is aggregated and categorised according to school performance. Teachers and school leaders are excluded from the process of district decision making around how underperforming schools should be supported to improve teaching, learning and school effectiveness. This denies teachers the opportunity to understand and use data to decide what they know about learning challenges. This also deprives school leaders of an opportunity to engage teachers around learner performance and how it can be improved. School leaders are denied opportunities to learn how to provide support teachers with and understanding of how to work with data, and use it to make decisions to improve learner performance as well as their classroom practice.

International research indicates three levels at which data can be used to change teacher practice and to effect positive learner achievement. At the district level, where data is used to monitor and support schools to improve performance (Shen and Cooley, 2008); at the school level, where the whole school uses data for school effective improvement, and finally, among teachers, who have to understand the use of data in order to reflect and find alternative ways of teaching that will encourage positive learner achievement (Nichols and Singer, 2000; Symonds, 2003; Zhao and Frank 2003). These three levels are elaborated upon below.

2.5.1 District use of data

Wayman et al. (2007) suggest that in promoting data use, it is necessary for schools and districts to br clear aligned, and to support the vision to teaching and learning. The

relationship build between districts and schools is to employ various forms of development opportunities to support all schools and educators, in the hope that it would build capacity for using data to improve school performance. Shen and Cooley (2008) consider that effective use of data for decision making will happen when data is linked with other district systems; in other words, data should become a tool that connects achievement with curriculum, instruction, remediation, acceleration, teacher's professional development, and the allocation of human and fiscal resources for school improvement. Educators use the curriculum to achieve outcomes, to inform or guide teachers in what to teach. The outcomes inform the teaching practice and assessment to be undertaken. This makes it necessary for educators to use learner performance to measure success in achieving intended outcomes. The triangulation of learning outcomes, teaching practice, and assessment enables educators to check, and make decisions, on remedial ways to improve performance.

2.5.2 Use of data to improve school effectiveness

To promote whole-school effectiveness in the use of data, the principal and the school management team play a key role. Researchers findings show that in some schools, principals invest in the vision of data usage to inform all decisions taken in their schools, and that they communicate expectations in every aspect of their business (Wayman & Stringfield, 2005). The success of data initiatives became evident where extraordinary time and effort was spent by one or more individuals (Stringfield, Reynolds, & Schaffer, 2001). However, a data initiative is likely to die when these individuals leave, if it is not institutionalized and embraced by the greater school community.

In schools where these researchers found that data used for school improvement succeeded, the principals had scheduled time, fostered collaboration, and invested preparation in the initiative. The principals recognised that it would not succeed without time set aside to focus on and explore the data, and opportunities to meet with other educators within and across grade levels and subjects, had to be organised. Also, the principals recognised that technology was crucial for the successful use of data by teachers (Marzano, 2003; Stingfield, Reynolds, & Schaffer, 2001).

The work of Love (2004) suggests that a school team must be formed, be able to lead the collaborative inquiry process, and strengthen the collaborative culture of the school. She further says that to influence school culture and improve teaching and learning, educators should use data continuously, collaboratively and. She continues by stating that this usage must be subject based, as in, for example, mathematics and science. Many researchers strongly support the use of data to help foster collaboration (Chrispeels, Brown, and Castillo, 2000; Feldman and Tung, 2001; Nichols and Singer, 2000; Symonds, 2003; and Zhao and Frank, 2003).

In addition, the Pathways to College Networks study (n.d) report also identify five actions school leaders can take to use data-driven analysis for school improvement. Schools are to develop an evidence-based school culture reflecting a commitment to using data for school improvement, decision-making and resource allocation; to provide training for teachers and other school leaders on how to interpret individual, group and year-to-year test results and other effective data use; to establish and support a broad-based school improvement data team to collect and manage data in accessible ways and to teach data literacy skills to others;

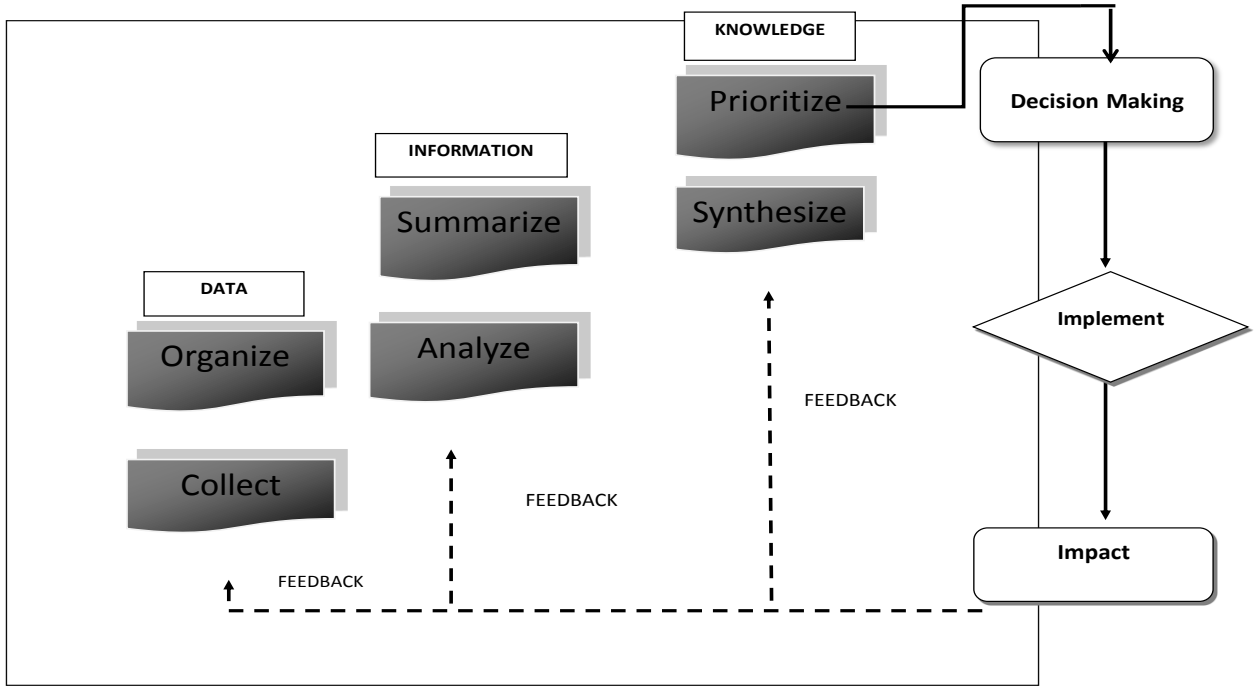
to create a comprehensive data inventory that summarises all types of data currently available; and to develop data-based evaluative measures for assessing progress toward improvement.

Furthermore, the support of a principal with a vision for improvement and change in the school culture is regarded as the cornerstone of a school's successful data initiative implementation. In Copland's study of leadership inquiry, the principals in schools who use data led, involved and expected their staff to participate in the data initiative as full partners rather than be "heroic models". The principals were found to exhibit many of the skills advanced by distributed leadership for inquiry (Copland, 2003). According to Wayman and Stringfield, (2005:6) "the principals took care to describe methods that help teachers *use* data rather than *be used* by data". All pieces of information on the learner, whether it was assessment data, demographic data or teacher judgement, were treated as data points to describe the state of learner learning. In their style of leadership, the principals were seen to be rapidly changing the culture of their schools to one where data use was prevalent practice (Wayman and Stringfield, 2005). Mandinach, Rivas, Light, Heinze and Honey's (2006) use of data-driven cycle as indicated below they regard decision making "as a continuum from data to information, to building knowledge" to enable a school leader and teachers to make decisions that will be implemented to improve teaching and learning.

Mandinach et al.'s (2006) use of data for decision making enabled school leaders and teachers to engage in data collection, organisation, analysis, summaries, synthesis and prioritisation of information to enable them to interpret knowledge. For the purposes of this study (Figure 1), I am interested in how different leadership styles in schools influence the

use of a data-driven cycle to make decisions towards the improvement of a healthy school culture, made evident through learner achievement.

Figure1 : Framework for Data-Driven Decision Making by Mandinach, et al. (2006:10)



2.5.3 Using data to improve learner performance

The literature shows that teachers will embrace a properly supported data initiative when it is seen as an efficient way to improve education. Teachers have to model an openness and willingness to use data to enhance teaching and learning. All available classroom data are valuable resources that enable teachers to improve instruction and to better understand learner thinking and learning. Research indicates that in schools were teachers and school leaders work collaboratively, there is evidence of improved learner performance and that they use data to identify areas needing improvement (Vescio, Ross, and Adams, 2008).

However, school-based collaborative use of data for inquiry and decision making is considered to be time consuming. Mather's (2011:1) findings highlight the fact that meaningful data analysis, pinpointing learning problems by triangulating multiple data sources, deconstructing learner work samples, finding to causes for emerging problems, and launching a plan to tackle these problems, takes time. In order to overcome these obstacles and ensure that the solution pursued produces the hoped for results, teachers have to identify the root cause of the problem by asking relevant questions. "The why-why-why, a question asking technique used to explore cause and effect relationship" (Mather, 2011:3).

Teachers become enthusiastic when such data provides useful information for their classroom practice (Symonds, 2003). Researchers such as Black and William (1998) argue for classroom-focused policies because of the access teachers have to learners and their performance. To change a school's culture using data, schools must be able to connect the data they have with the results they must produce. Van Barneveld shows that teachers need to

develop and understand the process of data investigation. They have to build the capacity to use data, to access and analyse data, as well as use their skills of inquiry such as formulating questions and interpreting results. The successful use of data for decision making should be focused on strategic issues. To effectively use data, teachers must determine what they want to know, collect or access data, analyse results, set priorities and goals, and develop strategies to improve learner performance (2008:2). She further mentions that teachers are informed by data to change classroom teaching practices and to meet accountability demands.

Changes observed in schools included that they became more efficient and professional in the way students' learning needs were diagnosed, in providing teachers with a better understanding of learning problems, and enabling them to gain precise knowledge about their learners. According to Mintz, Fiarman and Buffett (2008:88), when teachers examine learners' work, it helps to bring to the surface, and challenge, many assumptions about what learners are or are not able to do. As a result, teachers are able to improve the learner situation, through efficient questioning, emerging problems enables teachers to re-think and re-invent teaching techniques that improved their teaching practices. Through these methods teachers are able to establish a better connection between assessment and instruction (Wayman & Stringfield, 2005). The opportunity for teachers to share their interpretations of learner data provides occasions to address fundamental beliefs about learning and teaching (Mintz et al., 2008)

2.6 Challenges to use of data

In the past few years there has been a growing body of research on the challenges of implementing data-driven approaches in schools. Inasmuch as the notion of involving teachers in the use of data is highly recommended, it is also recognised as a difficult practice to operationalise. There are several themes that emerge in this literature to indicate challenges in data use. It has been found that there can be problems with the format of the data, and schools have difficulty analysing and interpreting the data. Teachers do not use relevant educational questions to enable them to analyse data, and that they do not use data to understand how learners think. At a school level, they have difficulty making linkages between data and improvement strategies (Wayman & Stringfield, 2005).

The Pathways to College Networks study (n.d) also mentions factors that hinder the effective use of data to improve teacher practice and learner performance. These include: data is used as mechanism for criticism and blame, rather than constructive strategies for school improvement; there is a lack of professional development or technical assistance for school leaders and educators to translate multiple data into a realistic action plan for improvement; there is insufficient capacity to develop evaluation strategies that appropriately connect and measure the effectiveness of action plans; there is limited common planning time for teachers to work collaboratively in data teams; resistance to change; school cultures are less open to embrace collaborative efforts to use data to improve practice; and competing and conflicting demands that impede improvement initiatives from gaining traction and reaching sustainability.

Some researchers indicate that data is at times not available when educators need it (Lachat, 2002; National Educational Association Foundation for the Improvement of Education [NFIE], 2003). Further, they point to the fact that striking a balance between the healthy, supportive pressure infused by mandates, and the contextual growth formatted by free inquiry, can pose problems for educators. Ingram et al.'s (2004) research also points out that there are too few schools with evidence of teachers who use data, to provide information about the effectiveness of using data to improve teaching and learning.

Based on his study, Schmoker (2003) argues that where there was too much data, and not the right type or format to facilitate its use, the complex and confusing formats for data reports make it difficult for teachers to extract what is most useful for them. In addition, many schools find it difficult to analyse these data, regarding this process as being very time consuming, because data are often stored in ways that frustrate flexible analysis (Stringfield, Reynolds & Schaffer, 2001).

The literature also shows that schools that want to use data to drive their decisions often do not know where to begin, or what type of data to use (American Association of School Administrators [AASA], 2002). In attempting to use data, schools have often employed the wrong type of data, using indirect measures of learning for which they have no explanatory model to interpret the data (Marzano, 2003). Some teachers are not able to examine data systematically, nor are they able to make sense of data in terms of long-trajectory. They fail to understand the concepts of distribution, sampling variation and statistical difference (Confrey & Makar, 2005).

Some research findings show that it is rare for teachers in schools to engage in thinking critically about the relationship between instructional practices and learner performance (Hammerman & Rubin, 2002; Kearns & Harvey 2000; Confrey & Makar, 2005). Wayman, Midgley, & Stringfield (2005) argue that data initiatives built entirely around mandates are hard to sustain and are unlikely to yield widespread change in instructional practice. On the contrary, educators embrace the notion of becoming more reflective practitioners, but few of them have the preparatory background to engage in analysis and reflection on the use of data (Wayman et al., 2006).

Teachers are said to be suspicious of data initiatives (Ingram et al., 2004). Historically, data was used mostly to punish and embarrass educators. This means that teachers lack trust in others and it has also been found that teacher's accountability and use of data indicate negative feelings because of external factors (Mason, 2003). In addition, teachers who have a weak sense of efficacy and do not believe that they can influence their learners' achievements are unlikely to buy into the use of data for decision making (Kerr et al., 2006).

The political context of using data also has an influence on teachers' attitudes. For example, related literature indicates that teachers in a high-performing school found using data empowering, while teachers in a more diverse, poverty-stricken, and low-performing school felt devalued and disenfranchised by the use of data (Herman & Gibbons, 2001). Low human capacity to support data-driven inquiry has been noted as a barrier to effective use of data in schools (Kerr et al., 2001). In order to "create schools that are responsive to diversity, connected to the realities of today's world, and driven by a focus on success for all learners, more systemic reform strategies are needed, and new capacities must be developed" (Lachat

& Smith, 2005:334). Research indicates that technical capacity is found to be limited even though it is considered innovative for data users (Supovitz & Klein, 2003).

Although research does not provide sufficient evidence with regard to best practice for involving teachers in examining data to improve classroom practice, using newly available technology (Wayman, 2005), these are necessary to create sustainable school data initiative, but not sufficient to meet school needs. The computer technologies that have been developed do not provide efficient access in user-friendly interfaces that facilitate use by all types of users (Wayman, Stringfield & Yakimowski, 2004). It is argued that types of functions available in computer systems are nearly mutually exclusive because it is uncommon to find one type of system that incorporates the functionalities of another type system. However, there are optimistic beliefs that technology will advance to the point where one system can perform all functions. Until then, schools need to choose the type of system that best fits their needs. As a result, Wayman (2005) advocates that involving every teacher in the use data systems. Although the use of technology would present challenges to some teachers, Wayman states that they should not become a burden to use, but should make a teacher's day better, and help teachers to become more efficient practitioners.

2.7 Critique of the literature review

The literature identifies the benefits and challenges of using data to improve school effectiveness and learner achievement. A school's culture and history can also influence how it engages in initiatives such as use of data for decision making. Since data is a new

innovation for school improvement and learner performance, it may take some time before it is commonly adopted and used in schools everywhere in the world.

On the positive side, various research findings have shown that through the use of data, schools have realised a positive range of measures of learner achievement (Edmonds, 1979; Stringfield, 1994; Teddlie & Reynolds, 2000; Weber, 1971). The improvements identified in learner performance also support data use as a tool for change, because it modifies instructional strategies. As a result, Holcomb's (1999) suggestions for a data-driven inquiry process, which acts as a tool for change and improvement in schools with a history of low performance, and to contribute to intentions that promote a culture of high standards in learning. However, according to Schollar's (2004) findings, the same cannot be said of evaluations of school improvement projects. These show little success in using data to improve reading and mathematics.

Research also indicates that there are challenges that may be regarded as barriers to the effective use of data in schools. Schmoker's (2003) findings show that there is too much data, and that the data is not always of the right type or a format to facilitate its use. This is likely to pose serious problems when teachers try to engage with it. If teachers are unable to select the relevant data, they will be unable to help learners perform at their best. In schools where there is no capacity to engage with data, findings from several researchers (Confrey & Makar, 2005; Hammerman & Rubin, 2002; Kearns & Harvey, 2000) show that teachers cannot think critically about the relationship between instructional practices and learner performance. Without the knowledge and understanding of how to use data, teachers will find it difficult to

identify the cause of poor learner performance, thus they may not be able to make decisions or be in a position to develop initiatives that will improve learning.

Promotion of collaboration between school leader and teacher is likely to enhance relations, as well as enabling the school staff to take responsibility for determining the types of decisions that are made in the context of their school's situation (Dufour, 2004; Wayman and Stringfield, 2005). The challenges to the use of data highlight difficulties that need attention before teachers can be expected to engage with data-driven processes for decision making. Researchers still need to understand how schools that work well with data for decision making succeed in improving teaching and learning so as to encourage other schools, as well as, create possible collaboration forums among neighbouring schools, and to encourage creation of professional learning communities that will engage school leaders and teachers to share, learn and support each other develop knowledge and skills required in using data to improve school effectiveness and learner performance (Stringfield, Reynolds and Schaffer, 2001; Wayman and Stringfield, 2005).

Since every school culture is different, this research was to investigate how school leadership and teachers in each of the four schools work with assessment data to improve teaching practice and learner performance, how the use of data influences collaboration between teachers and school leaders for reflection, and which factors promote or act as barriers to the use of data in these schools. Responses to the research questions are to highlight the significance of using data to make it possible for schools to improve teaching and learning (Bernhardt, 2004; Johnson, 2002; Wellman and Lipton, 2004..

2.8 Developing theory from the case study model

For school culture to change, many factors influence the successful change of school culture. The introduction of data as evidence-based inquiry to inform changes necessary to improve teaching practice and learner performance is a major cultural shift for schools. Education data is also used by governments and districts to maintain higher standards and accountability mandates to foster school improvement (Wayman & Cho, 2009). Researchers discuss the school as an organizational learning institution where different stakeholders can exert influence over instructional practice and how it impacts upon school culture. Ingram et al., (2004) define organisational learning "as the social processing of knowledge or the sharing of individually held knowledge or information in ways that construct a clear, commonly held set of ideas". In this study there are expectations that a school leader would take a lead in sharing and involving teachers to work within the context of data use, and encourage a process that improves school effectiveness and learner achievement. Elmore (2007) points to three related processes that occur during school improvement. First, is the level of knowledge and the skills that educators bring to their instructional practice. Second, is how the implementation of teaching moves from an individual to a collective activity, providing for internal accountability. Third, is the alignment of schools' organisational resources to support instructional improvement. These processes can be observed in Petrides and Guiney's (2002) description of organisational learning in education: a powerful process for accomplishing school improvement objectives, and a strategy particularly useful for leaders in education who wish to work towards long-term renewal, rather than quick-fix changes.

To promote whole-school effectiveness, the principal plays a key role. Working together with other school management team members (SMTs), that include the deputy principal, the head of departments for specific subjects, and the senior teachers, the principal has to identify the factors and the means to bring about change that will result in positive outcomes. As mentioned in section 2.4, to promote change that improves school effectiveness and learner achievement, the school leadership has to focus on activities maximising learning outcomes and learner performance. Research studies also indicate that in schools where there is a successful improvement in instructional practice growing from an analysis of learner achievement, the principal scheduled time for teachers to collaborate and initiate changes (Phillips, 2003).

Teachers are agents for change, enabling them to impact on the school culture and have a positive influence on learner achievement. As a result, teachers need to have classroom-focused policies to guide ways in which they will improve teaching and learner performance. To improve school culture, teachers must be able to connect good instructional practice to learner achievement (Black & William, 1998). Instructional time, teacher's knowledge, and leadership focus, are identified as important for the improvement of school culture. However, Elmore (2007) highlights that the significant changes necessary to improve low-performing schools do not happen all at once, but that "there are predictable periods of relative static or decline, followed again by periods of improvement" (2007:1).

In this study the core question is how schools use data to improve instructional practices and learner achievement. To access information-rich knowledge of schools using data, a grounded theory study will be used to understand variations in the phenomena and relevant

processes used in each case study. Figure 2 on page 67 in chapter three shows how the analytic presentation of conceptual discussions from collected data made available through individual and focus group interviews, partial observations and document review, will be used to relate grounded theory to a developing theory.

In conclusion, the discussions in the literature on the use of data help build an understanding of, and provide answers to questions of this study. The findings include individual and collective responses that reflect participants' personal perceptions on data use. The use of questionnaires and semi-structured interviews enabled my research to make links to, and draw conclusions from, emerging theme categories and patterns from collected data. The conclusions derived from the findings contributed to a deepening knowledge and understanding of the use of data in primary schools: the role of school leadership in providing a vision for using data; the creation of capacity building to promote high standards of teaching and learning; the encouragement and development of a culture of collaborative teams that share and learn with each other; the use of data to understand learner challenges, reflect on teaching practice, and make decisions to improve learning; and finally, to learn and understand factors that act as barriers to the use of data in schools. All of these factors provide, influence and guide the development of future research study initiatives on the use of data to benefit growth in promoting effective teaching and learning.

Chapter 3

Research Methodology

3.1 Introduction

The objective of this research was to undertake an exploratory study of how assessment data is used to improve teaching practice and promote learning in four primary schools South of Johannesburg in Gauteng Province, South Africa. In this chapter, I elaborate on my research design and the assumptions inherent in the research method used, the approach and the data collection tools, how I ensured objectivity of the data and how I analysed the data to provide an in-depth understanding of data use.

Qualitative methodology was used to make it possible to access information through questionnaires, interviews and observations. The latter did not yield sufficient information to inform this study, which will be explained further in the limitations section of this chapter (3.8 below). The questionnaires helped me to identify possible samples for participation in this research study. Interviews were open-ended and sought to learn about perceptions and practices in the use of data. The interviews provided me with a platform to engage in social interaction, from which I learned about the personal experiences of teachers and school leaders. This enabled me to understand the various ways that data was used in the school in each case study to improve teaching practice and learning, or one of the two. Observation is one of the most common methods of qualitative research. It supports or confirms the information received through interviews on data use. During data collection and immediately following my interviews, I made extensive observation notes. While I made use of this notebook during intitial drafting of my chapters, the notes made from observation got lost after my first drafts.

Consequently I have limited my use of observation data to those items documented in my earlier drafts.

I used qualitative research methodology in order to study things in their natural settings, attempting to make sense of, or to interpret, phenomena in terms of the meanings participants assign to them (Denzil & Lincoln, 2000). Qualitative research is a process of interpretation, with a focus on understanding the meaning that people construct about their world and their experiences. It involves an examination of contextual factors that incorporate an emancipatory agenda, using questions to construct reality using an inductive process that is richly descriptive (Merriam, 2002). The combination of these sources of data collection allows for cross-checking of data from one source, against data from other sources, as well as the consideration of multiple views of realities (Miles & Huberman, 1994).

By participating in social interactions with, and observing interactions between teachers and school leadership, I was able to locate my study within the context of socio-cultural aspects of learning. The findings are derived from interpretations that make meaning of the collected data. I then used grounded theory to develop a theory informed by categorised themes and patterns that emerged in the data collected from the four case studies that informed this study.

3.1.1 The necessity for this research

According to Henning (2004:7), "the researcher is unequivocally the main instrument of research and makes meaning from her engagement with the project". This can also

mean that for any research project to take place, the researcher has an interest in, and investigates with the intention to, highlight or share the findings of her interpretation of the research data.

My interest in conducting research into the use of data to improve teaching and learning in primary schools, is derived from the concerns discussed in chapter one. It was further informed by international research done by the Progress in International Reading Literacy Study (PIRLS) and the Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ), among others, with reports indicating that learner performance in literacy and numeracy in South Africa is low, in comparison with other countries, both on the continent and internationally (Howie, 200; Reddy 2006; Taylor et al., 2007). Among the objectives of the new South African science curriculum are inquiry, problem solving and critical thinking skills development. Many South African teachers are unsure about what changes are required of them (Sanders & Kasalu, 2004) because of the polarised education system under the previous South African regime which left a huge gap between educators from different socio-economic backgrounds and communities. However, despite the democratic dispensation, the education system does not seem to have made much effort to improve standards of teaching and learning in most township and rural schools. These schools lagged behind because of poorly trained teachers, lack of resources, and the volatile political situations within them. There are perceptions that standards of teaching and learning have dropped, and good teachers are leaving the profession.

The existing institutional contexts, norms, and social relations in schools inhibit the emergence of an institutional framework appropriate to effective leadership of the new

education system (Knapp, Copland and Talbert, 2003). This creates key challenge experienced in schools that lack effective leadership, which is necessary to transform and put into practice new roles and responsibilities for school effectiveness, hold teachers accountable, and make efforts to improve learner performance. With the publication of the National Certificate examinations (Grade 12) and recent Annual National Assessment (ANA) benchmark test results, poor performance continues to be a concern. Continuous poor performance in learners from an early schooling age, through to their final year of study, needs to be understood, so that the necessary solutions are prepared for interventions to improve teaching and learning.

This study also intended to find out how the problems of education in South Africa that have been mentioned can be resolved, using data. Research shows that collaboration amongst teachers and school leaders, using data for evidence-based inquiry, can engage them in asking relevant questions that will enable them to know and understand learner needs. This leads to decision making that will improve teaching practices and learning.

3.1.2 Research questions

The principal question of my research is: How is data used to improve teaching and learning in primary schools in South Africa within the four case study schools? The following secondary questions were used to help establish what needs to be understood about the use of data, in order to gain insight and build an evidence-based argument:

- What kinds of student data are schools using to understand the performance of their students?

- How is assessment data in South African primary schools used to improve teacher practice and learner achievement?
- Who is involved in decision making based on data, and why?
- What questions do teachers develop when linking learner data and teaching practice?
- What factors encourage or inhibit educators in using data to inform practice in primary schools?

3.1.3 The role of the researcher

According to Henning's (2004) theoretical research guidelines, as a researcher I have to address possible bias and present a strong description with ample evidence. I have complemented this with a strong theoretical base and a coherent, convincing argument based on both empirical evidence and my own understanding and logic. As a researcher, I have the ability to be self-conscious and reflexive. Since, according to Delamont (1992:9), each researcher is her own best data collection instrument as long as she is constantly self-conscious about her role, her interactions, and her theoretical and empirical material as it accumulates. Qualitative researchers must remain reflexive, making all their processes explicit, and so ensuring that reliability and validity are served.

3.2 Research method and design

To find an appropriate approach with which to answer the questions of this study, I employed an intensive, qualitative, interpretative methodology that included a

constructivist perspective (Guba & Lincoln, 1989; Tobin, 1987) that allows for greater insights into educators use of data for decision making. A qualitative approach allows for an in-depth look at a few cases and enables the researcher to gain an understanding of the educator's own relation to their context. The methods used in qualitative research seek thick and "rich descriptions of people and interactions as they exist and unfold in their natural habitants" (Freebody, 2003:56). The richness of the data is derived from the diversity of subjects in the sample, which included gender, age, new, old, and thick data results from the variation in data collection methods; while depth is determined by the nature of questions asked: probing and not superficial (Denzil & Lincoln, 2011; Opie, 2004). MacMillan and Schumacher (2010) argue that researchers who establish a field residence frequently confirm observations and participants' meaning with individuals through casual conversations in informal situations. My stay at schools was a useful exercise, since I interacted with teachers and observed interactions between staff members and school leaders without any barriers. This made my role as a researcher impossible (or undesirable) to be entirely detached and objective. The interaction with participants is a construction of subjective reality that happens through mutual engagement (Hatch, 2002). Through interaction with participants, it was also possible to ascertain a range of educators' knowledge of educational processes around using assessment as a process of learning. According to MacMillan and Schumacher (2010:331), interactive research makes it possible to obtain the aid of an informant to corroborate what has been observed and recorded, interpretation of participants' meaning, and explanations of the overall process.

For this study I used ground theory studies in order "to gain a variety of perspectives on the phenomena" (MacMillan & Schumacher, 2009:24). The ground theory methodology

provides for the rigorous use of a set of procedures for producing substantive theory, and the data analysis employs techniques of induction, deduction and verification. Analysing responses from qualitative research is, according to Miles and Huberman (1984:24), "an investigative process where the researcher makes sense of social phenomena". The qualitative approach was relevant for collection of data, and for use in the analysis of data, which provided meaningful insight into the use of data to improve learner achievement.

3.3 Case study

I preferred to use case study for this research because it lends itself to a variety of conceptual lenses, and is a more flexible approach in data collection (Conrad & Serlin, 2006). Case study methodology is favoured in education, as it is able to accommodate the uncertainty and complexity of studies of human behaviour; the findings from case studies cannot be generalised, but can provide insights into aspects of the bigger picture (Msimanga, 2013): in this case, the possible use of data to improve teaching and learning.

The advantage of the case study approach for this research required me to elicit extensive data from various groups of people (according to their portfolios) that were questioned or observed, to extract meaning that is not apparent, or has not previously been substantiated, and then to express this in a cogent form to an audience (Bassey, 1999). As mentioned in the literature, I used interview questions to illuminate the

importance of the use of data in primary schools, or to expose factors that act as barriers to the use of data.

The case study method helps me present findings to inform whether assessment data can influence instructional change, and improve learner achievement. Cohen and Manion (1997) consider case study methods best when the interpretative, subjective dimensions of educational phenomenon are explored. Each case study is treated as an isolated entity, and not as representative of other schools in the same area or category

3.4 Data collection

In order to obtain access to educators without infringing on their teaching time, I visited each school as many times as I could, to meet the individual, or group of, teachers with the intention to complete the data collection. This made it possible to interview individuals and conduct focus groups as teachers become available in their free periods.

I began this study with the presumption that the topic of study (data use to improve practice) would be a realtively rare occurance in South African schools. This assumption was ratified by academic colleagues and the readers of my proposal. Because I would be studying what I expected to be a relatively rare preactice, I undertook an intial survey of schools to identify case study schools that claim to use data. I identified schools to participate in this research by distributing questionnaires to a group of principals who had been part of the Wits Executive Leadership Programme, for which I had facilitated small group sessions. This was therefor an opportunitistc

sampling method but when undertaking research on rare phenonena this is a common practice. The questionnaire was divided into two parts. Part A of the questionnaire was designed to collect statistical and other factual information about the school and Principal, such as biographical information, professional position, number of teachers and learner enrolment, as well as find out if the school was willing to participate in this research study. Part B of the questionnaire sought to confirm whether schools were involved in the use of data to improve teaching and learning, and to find out if the principal would give permission to engage in this research study (**Addendum C).** I used the responses to the questionnaires to identify schools who claimed to use data in making decisions to improve teaching and learning. Initially, only two former "Model C" school principals responded positively. After telephonic follow up and a visit to some schools, two township schools gave permission for me to undertake research in their schools. One of the township schools was different from the rest in that the principal mentioned that they were not using data, but would like to learn how to do so. This school was included, since one of the research questions focused on factors that promote or inhibit educators' use of data to inform practice, and it raised interest about this school in particular. Each case study is described, and in chapters four to seven where I explain their experiences and perceptions on data use in detail.

Initially I was granted permission to conduct research in the school by the principal in the questionnaire, but before commencing with interviews, I visited the four schools to acquire confirmation of acceptance that the school consent to participation in this research study (**See Appendix D**), and to schedule dates for school visits. The processes undertaken with each school are explained in the case study chapters. Since I had to interview all members of the school management team, and two focus groups for

teachers of Maths and Languages, it was necessary to introduce myself to each, inform them about the research, and to obtain their signed consent forms **(Addendum E)**, to be granted permission for their participation in this research. This process became challenging and delayed to commence in one of the schools. Although negotiations with the principal had been completed, he failed to inform the staff about the research study. After meeting the deputy principal, HODs and teachers and explaining my purpose, I was granted permission by all participants, and dates and times for meetings were agreed upon. To have access to educators without infringing on their teaching time, I visited each school as many times as necessary, to meet the individuals or groups of teachers with intentions to complete the data collection process. This made it possible to interview individuals and focus groups as they become available in their free periods, and times stayed at school after school hours.

3.4.1 Testing the instruments

According to MacMillan and Schumacher (2010), it is desirable to run a pilot study to enable the researcher to revise the tools or design to be used, in order to achieve the desired results. I send an email to a number of academic colleagues asking if they would be willing to pilot test my research instruments and five responded positively. On the agreed upon day, two colleagues from Curriculum Studies and two from Language Literature and Literacy departments availed themselves for me to ask the prepared questions. This was to determine whether these prepared questions were accurate enough to elicit relevant responses. This made it possible for me to get feedback that enabled me to restructure some of the questions. The revised questions made it possible

to obtain insight into perceptions and experiences of educators around their use of data to improve teaching practices and learner performance.

3.4.2 Semi-structured interviews

Denzil (1998) presents interviews as a favoured methodological tool for qualitative research, and states that qualitative interviews are attempts to understand the world from the participant's point of view, to unfold the meaning of peoples' experiences and reveal their lived world prior to scientific explanations. According to Darlington and Scott (2002), interviews allow both interviewer and interviewee to negotiate understandings of the context and situations of the phenomenon under consideration. For this study, an interview protocol was designed on the basis of the five research questions, using open-ended questions to try to extract data specific to each research question.

I used semi-structured qualitative interviews (**Appendix F**) in a face-to-face interaction which by design try to encourage respondents to talk freely and openly. In this case, it was about the significance of their practice in school improvement, and involvement in decision-making, based on the use of data. Semi-structured interviews utilised open-ended questions that were planned in advance, and designed such that the interviewer could probe and encourage the respondent to explain and expand on their answer. This gave the interview both structure and flexibility. Unlike questionnaires, interviews allow for conversational engagement. Interview responses were captured using a tape recorder so that authentic responses were preserved, and so that the transcriptions of participants' responses were presented accurately during data analysis.

3.4.3 Focus groups

Central to my study is the quesiton of how the school leadership is encouraging the use of school data. Teachers voices were important to hear, but the researcher must make choices about what is feasiable to do in each research project. Indivoidual interviews were conducted with the prinicpal, deputy and the HODs. Learning from individual views of teachers would have been ideal, however access to individual teachers would have demanded longer hours from them and the availability of teachers would have been a challenge. Since my goal was to conduct four case studies of leadership as a result, I opted to use focus groups. I was not involved in selecting the focus groups, I requested that the school select two groups of three teachers each in Maths and in Languages. The arrangement of focus group was done by the school. The teachers represented different phases of the school Foundation and Intermediate.

The focus group approach was employed as teachers were supposed to work collectively in their subject or phase groups. Focus groups still allowed access to views of individual teachers regarding the use of data to improve teaching and learning. The use of dynamic focus group interviews with common traits encourages participants to think deeply about the topic, and ensures that they are in a better position to question each other in order to arrive at a group result (McMillan & Schumacher, 2006). The advantage of using focus group interviews is that they allow for the gathering of multiple perspectives about a research topic in one sitting. It is also economical in that data collection can be done with more than forty interviewees in a few focus group sittings (Conrad & Serlin, 2006).

The questions allowed for conversation between teachers, and gave me the opportunity to obtain information about the existing assessment data they work with, how it informs them about learner needs, how assessment data makes them reflect on their teaching practice, whether they ever work together to make decisions based on data for inquiry, and what would prevent them from using data to make decisions to improve teaching practices and learner performance. Conversations with educators provided a sense of each school's social phenomena, and enabled me to understand educators' perceptions on the use of assessment data, or lack thereof. The information from collected research data was used to present evidence-based inquiry from the interviews; from focus groups in particular. Only one school was willing to share documents that showed how they engaged with data to transform it into information, such as graphs used to engage teachers in decision making. Chapters' four to seven provide descriptions of interviews and some observations for each case study. The eighth chapter presents a cross-case analysis of all four case studies; it examines similarities and differences in the use of data.

3.4.4 Observations and field notes

According to Darlington and Scott (2000), field notes are a less intrusive way to record information during observation. The notes can be made in greater detail, and include descriptions of the environment, whether physical or social. I recorded information like dates and times, and interesting events such as talks related to teaching and learners, and observed interactions between leadership and staff members. Notes were taken from observed actions and behaviours. Due to time spent with each participant, not many notes were taken while still at the site, but later on the same day I was able to make

notes some of the interesting observations later stage. After two year of data analysis and writing, I lost the notebook containing my research notes. As I continue to write, I have added very limited information based on memory of some incidents in order to substantiate or clarify as I complete my analysis, which I do not believe would distort the validity of the findings.

Use of "low-inference" observation contributed to the information that helped to understand cultural practices. The recording of observed behaviour was not intended to make judgements about the participants, but rather to gain further insight about the school. The time I spent at a school provided an opportunity to observe and interact with teachers who were not participants in this research study. Some of the casual talks provided information which may have not been relevant to this study, but accidentally, other information was noted as it became relevant information. Some of the highlights of this information related to the cultural practices in the school, how teachers perceive their profession, and their views about the education system. For example, one teacher made a comparison between his school and the previous schools he had taught in. He mentioned that he found the present school was furthering his knowledge, and promoting a culture of collaboration among teachers.

3.5 Data analysis

The literature identifies a variety of approaches to use to analyse data, depending on the purpose and theoretical base of the study. The kind of qualitative data analysis from which I drew the method used for this study includes specific coding and categorising of

themes and patterns in the data. These are focussed on content, discourse, narrative, or conversation (Henning, 2004). In qualitative research, coding is the technique required to ensure reliability. It can be done per line or in units of meaning. It can be done manually or using computer-aided qualitative data analysis software. This made it possible to understand content, discourse, and conversation forms of analysis as all generate different codes, and needed to be put through the coding process to become categories. This analysis provided a global range of themes in the data and enabled me to sort and order categories, so that I could perform logical analyses across the data (McMillan & Schumaker, 2010).

In reporting the findings of this research data, I kept the names of the schools that participated in the study confidential. For schools I used pseudonyms: Dinaledi, Leratadima, Sunshine and Hope. Each name is a metaphor that expresses my impression of how the school functions, or reflects an ironic characteristic of the school. Names of educators who participated have also been kept anonymous. I have referred to school leadership by their positions and/or roles, and for teachers in Maths and Language focus groups, I name the subject according to the teacher represented, followed by the initial T and a number (1; 2; 3), to refer to each of the three teachers in each focus group.

In this study the core question is how schools use data to improve instructional practices and learner achievement. To access information-rich knowledge of the schools using data, I used grounded theory study to understand variations of the phenomenon and relevant processes used in each case study. Patterns and concepts from the research

questions provide “conceptual structure suitable for designing and interpreting educational research” (Stake, 2006:3).

The diagram below shows the analytic presentation of conceptual discussions from collected data through interviews, and some observations have been used to inductively develop a theory for this research.

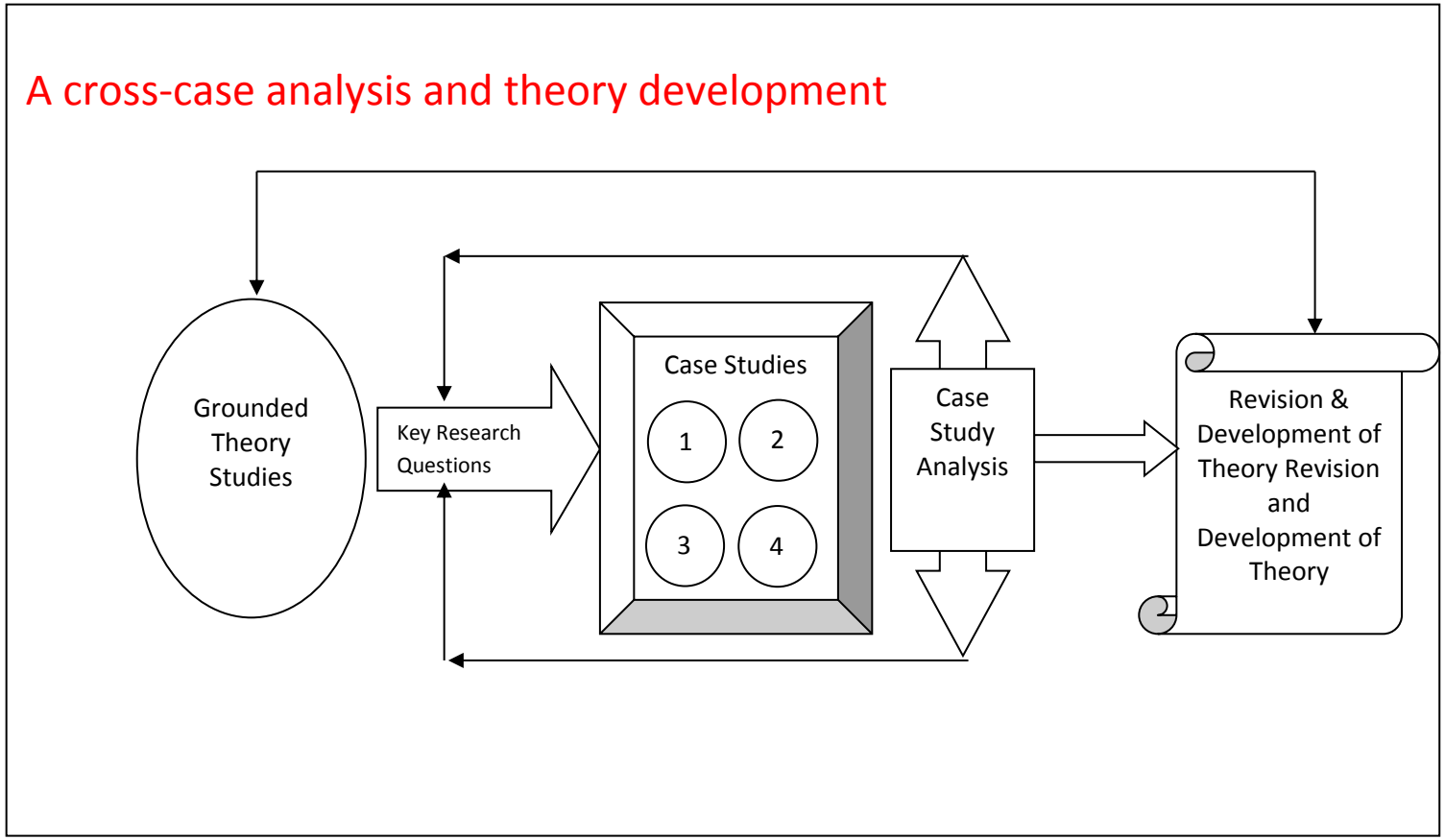


Figure 1. Adapted from "Re-imagining theory in case study research" by Peter Rule, Kenton Conference paper presentation, 2010.

This model was helpful in providing the guidelines that I used to work systematically with data based on the research questions. The analysis begins with a description of each of the cases and is followed by a cross-case analysis in search of patterns. Themes, concepts and possible emerging relationships between variables developed from the analysis. The use of a triangulation approach to data from questionnaires, semi-structured interviews, and observation are useful for validation of the claims or statements, and to realise the developing constructed, conceptual framework presented in chapter eight.

3.6 Validity and reliability

Silverman (2000) explains validity as a synonym for truth, which is the extent to which an account accurately represents the social phenomena to which it refers. Reliability, on the other hand, is the consistency with which instances are assigned to the same category, by different observers, or by the same observer on different occasions. An unreliable method is not valid, as it does not aim for the correct target, although it may produce the same results. In qualitative research design, validity and reliability are replaced by terms such as credibility, transferability, dependability, and conformability (Hatch, 2002).

To validate the degree of congruence between the explanations of the phenomena and the realities of the school contexts participating in this research, the interpretations of the participants, and the researcher, had to present mutual meaning (McMillan & Schumacher, 2010). Data triangulation or respondent validation is suggested to ensure

trustworthiness and credibility (Miles & Huberman, 1994). I made use of different data collection methods, independently of each other, in order to complement each other, and so enhance the reliability of the analysis of my data. This tended to agree with some of the accurately described processes of using data to improve teaching and learning, but also showed a lack of, or barriers to, the use of data from some of the participants. Although I had lost the field notes, this happened after I had been working on the second draft of the discussion of the case studies. While I believe that no observations are misstated, the loss of the notebook disallows verificaiton, therefor the reader is cautioned that this may raise questions as to the relaiabiluty of any observation data point.

3.7 Ethics

Several measures were put into place to manage the implications of this interface, including application for permission and ethics clearance from both the Gauteng Department of Education (GDE) and the University of the Witwatersrand Ethics Committee. In terms of legal and ethical considerations stipulated for research involving human subjects, I applied for and obtained ethics clearance from these bodies:

- Human Ethics Research Committee of the University of the Witwatersrand. (Appendix B)

Along various stages of the PhD process I have presented the development of my studies in PhD weekends, regularly organised for university students to present their work in progress for discussions and peer review. I have also presented some of my findings at local and international conferences on developments in education, and have

published a literature review to argue for the creation of professional learning communities, using data to improve teaching and learning in schools, in a peer reviewed journal (Botha, 2012) (see publication title listed). A book chapter based on the findings of case study four is nearing completion. It is titled "Using data to transform teaching practice through professional learning communities in a primary school".

3.8 Limitations

There were challenges during data collection for this research. Because the interviews used open-ended types of questions, the responses or conversations with regard to educators' experiences of the use of data to improve teaching and learning, sometimes drew on other classroom experiences on teaching and learning issues. These were not directly relevant, or linked to the core questions of this study. At times, this derailed the progression of sequenced interview questions. Teachers would speak about other issues, such as barriers for schools to effectively manage their affairs or explore new ideas in education.

Not having an opportunity to sit in meetings and observe school leaders and teachers engage with data does not provide the study with strong evidence to support what I learned from interview responses. In some cases, I drew conclusions through cross-checking between the responses of teachers and school leaders at the same school. This was to check whether that what was said reflected the truth about the use of data, or whether responses were given to make the researcher believe that data is used, even when that may not be the case. I also think that if I had had an opportunity to study

learner performance for Maths and the Language results for activities tasks and assessment done in a particular period of time, for example a quarter of a year, I would have been able to recognise progress made during that period of time.

This research study relied mostly on a literature review of research conducted in other parts of the world, which does not accommodate the unique education challenges of the South African context. Example of these are the disparities between teachers' and leadership's knowledge and skills, which may make it impossible for all schools to be exposed to the use and understanding of using data in order to improve teaching and learning. Using data is a relatively new educational idea, which has not yet been used as a tool to assist teachers to reflect and improve own teaching practice, to promote higher standards of teaching, and to address learners' needs, and engage learners in new learning experiences.

3.9 Conclusion

In this chapter, I provided a detailed description of my research design and the methodology I employed, using various authorities in the field. I linked the data collection methods I used with my research questions. The definition of the research question, the research design, the selection of the research approach, and data analysis, played a significant role in enabling this research process to be carried out, and develop at this level. I also identified the selection of participating schools, and a cohort of participants, which was involved in this study. Revision and adjustment were at times necessary; however, the process highlighted concepts of interest for this study. The

analysis and dissemination, validity and reliability, ethical considerations, and limitations of this study are discussed in detail. Due to the nature of this research, the discussion of my data analysis continues in chapter eight, where I link existing literature to an analysis of emerging themes and patterns from collected data.

Chapter 4

Case study 1-Dinaledi

4.1 Introduction

> *Data-based decision making is not enough to enable educators to identify alternative solutions related to assessment data problems. The "real questions should not be whether to ingrate the use of data in decision making, but how"* (Protheroe, 2009:1)

At Dinaledi School, data is used by the school management team (SMT) to bring about changes necessary to improve school effectiveness. Teachers use data to reflect on their teaching in order to identify alternative ways to improve learner performance. Existing school structures such as timetables, meeting times, distributed leadership, and other factors, make it possible for the SMT and teachers to collaborate and find solutions for challenges related to teaching and learning. Data is used to make decisions to improve teaching practice as well as motivate good learner performance.

4.2 Dinaledi School - background

Dinaledi is a school that historically served the White community in an affluent area south of Johannesburg. The language of teaching and learning was English, and Afrikaans was the first additional language. Before the new democratic dispensation, schools like Dinaledi never had a problem selecting which languages to teach. Because they only served the White community, either English or Afrikaans was the home language of learners and teachers. The political climate before 1994 was tense and uneasy, and education in townships and in rural areas had been badly affected. After celebrating the inception of democracy in South Africa, some schools that had served White communities opened their doors to other racial groups. These schools are now referred to as former Model C schools.

Most African families, who could financially afford, considered this opening of former White schools to be an opportunity for their children to obtain a better education than that offered in poorly administered township and rural schools. The new education policy encouraged schools to include teaching one of the official African languages as school governing body (SGB) and parents would prefer. However, some schools choose not to offer any of the African languages, as there was perceptions that there were few African teachers prepared to teach in former Model C schools, as well as the fact that there were not many teaching materials available in these languages. As a result, English became language of learning and teaching (LOLT) for most schools even in townships and rural areas, except in Afrikaans schools that continued to promote their language and culture. Most African parents regard proficiency in English as important; they see it as a means to provide their children with opportunities to cope with their higher education studies, as well as provide better chances for employment and economic advantages. Presently, Dinaledi's learner population is 98% Black, which includes African, Indian and 'coloured' learners. There are only six White learners in the school.

Teachers at Dinaledi are a diverse representation of racial groups in South Africa. The number of White teachers still dominates, followed by Indian and a few 'coloured' and African teachers. There are 47 qualified teachers with varied teaching experience. Some are specialists in their discipline, or possess skills such as psychology, remedial education, music and sports. A few of these teachers are not appointed on a permanent basis, but continuously serve the school's learning needs. These skilled teachers enable the school to cater for and provide support to learners with learning difficulties, as well as broadening the inclusive curriculum.

Learners at Dinaledi come from different cultural groups and socio-economic backgrounds. Some learners stay far from the school and travel by public transport, while others are taken to and from school by parents. Strictly controlled, good behavioural practices were observed from the way the learners responded to teachers in and outside the classroom. The principal considers clearly established rules a way to maintain control and shape the tender lives of the growing community in her school. From observation, as I visited the school on several occasions, learners interacted mostly in English. A few were heard to speak in their home language on the playground and when waiting for their transport.

At Dinaledi, the school management team includes the principal, two deputy principals (one for the Foundation Phase and the other for the Senior Primary Phase), as well as heads of department in each phase and/or subject. The school management team works together with teachers, as a team to bring about educational changes in the school. As a result of this shared vision, there are initiatives that the school implements to improve learner performance.

Both the SMT and teachers seem to understand their individual and collective roles, and the need to encourage and promote higher standards of learning. Based on their interview responses, people in this school understand and illustrate some of the good practices that represent an effective culture of teaching and learning. The school culture, aims, and "instructional routines" to support high standards of teaching and learning and provides an environment conducive to learning. Both the structures and resources are made available and accessible to support teachers to carry out classroom tasks of teaching and encourage productive learning. Various emerging themes and patterns from the responses of the school

management team and the teachers reflect an understanding of the successes and challenges of teaching and learning in their school.

4.3 Data collection

Following permission granted by the principal after completing the questionnaire, two visits were undertaken to the Dinaledi School to arrange for possible days and time for interviews. The principal had informed the management team and teachers and made arrangements with them prior to my visits. This provided for easy access to the school, and helped to get teachers to participate. I then spent time at the school to order to interview the school management team and conduct focus groups with teacher groups, whenever they were available, to avoid interrupting teaching time. I am not unknown in this school as I have a longstanding relationship with it, based on my visits with the Wits School of Education B Ed students for their teaching practices. This may have made it easier for me to get the support I was given by the staff members, some of whom are ex-students of mine. Hopefully, these relationships did not influence their responses.

On the first day of interviews, the language focus group sacrificed their time in order to stay after the end of the school day. On other days, teachers would be involved in sports activities. An office was provided for interviews with the SMT members, and the focus groups were conducted in the staffroom. I observed interactions between the SMT and teachers in the staffroom at break intervals. Both the SMT members and the teachers would make their announcements about a particular activity, either sport or forthcoming events, etc. I observed that teachers talked about their classroom experiences amongst each other. The atmosphere of

the school, and of these interactions, was very relaxed among all members of staff. In the staffroom, some groups of teachers from the same phases sat together, and I learned that in addition to their social conversations, the atmosphere made it possible for them to engage in discussion about their classroom experiences and to share ideas regarding teaching practices.

Interview questions were semi-structured so as to guide participants in their feedback about how assessment data enables them to improve teaching and learning. The school management members, language focus group, and mathematics focus group, had different questions designed for them. The intention was to establish their role in supporting, or participating in, the use of assessment data, and how it enables them to improve teaching practices and learner performance. Responses from participants were used to construct themes or concepts that were used in describing this case study. The themes were then used to conceptualise emerging patterns from this school's understanding and use of data to improve teaching and learning.

4.4 Using data to implement change

To measure effective teaching, assessments are used to determine what learning took. In education, assessments are a tool used to hold schools and teachers accountable. Schools are expected to continuously assess knowledge and skills to match the outcomes between teaching and learning. Poor learner performance can be associated with a lack of effective teaching and/or poor learning. Most schools recognise gaps in the process of teaching and learning through assessment data. This is a collection of assessment results based on various assessment tasks, to show how each learner understood or what they know about sections of a

subject taught. Schools like Dinaledi, however, are taking this a step further and helping teachers find ways to improve their teaching practise, to support improved learner performance.

The publication of the research done by the Progress in International Reading Literacy Study (PIRLS) and the Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ), among others, showed the poor performance by South African learners in the area of literacy and numeracy as compared to their peers in other parts of Africa and across the globe. Since then, the Department of Education (DoE) in South Africa is using the benchmark tests known as the Annual National Assessment (ANA) to track performance of learners in Grade 3, 6 and 9. These assessments also measure learner proficiency in literacy and numeracy. The intension of ANA is to use the assessment data for the DoE officials to monitor and provide the necessary support in schools. Responses from these research participants will provide an understanding as to how this assessment is being used within the schools.

The initial reports published on ANA results continue to present the negative assessments that emerge from the International bench mark tests. The results present disheartening performance as most schools in the country are under-performing despite the fact that the acceptable mark for the test is below 50%.

At Dinaledi School there is an indication that assessment data is used to monitor and make teachers accountable for effective teaching. The school management team (SMT), in

particular the principal and two deputy principals, focus on all exam and ANA results, whereas the HODs and teachers collect classroom data to analyse and identify problems in learning. Through assessment data, the SMT is able to allocate resources and make changes intended to address emerging problems in teaching and learning. For example, overcrowded classrooms are identified as one of the challenges related to poor performance. The principal and SMT members used data to restructure and streamline classrooms based on leaner performance.

Thomas Tomberlin, in Boudett and Steele (2007:74), describes how teachers at West Hillsborough Elementary School in the USA demonstrated effective use of assessment data to create education plans and help the school to move past the surface, and understand the education needs of each learners. As at this school in the US, the Dinaledi principal explains how they use data to compare current performance assessment to previous performance assessment, in order to plan to change teaching practices that will motivate and improve learner performance in the new classes.

> *We compare our ANA results, we didn't compare just one year, but we've now tracked [them over a period of time]. And last year when we never wrote ANAs and we heard we were writing in February, we took a 2009 ANA and wrote it in 2010, so we have four sets of results, and so we can see where we need to go up. Also [we conducted] individual question analysis, to try and find the strengths and weaknesses [in our teaching].* (Principal)

As a result, teachers at Dinaledi School are encouraged to use a variety of questioning techniques for assessing and engaging learners at different levels of cognitive thinking, in preparation for further assessments, and to raise standards of performance.

> *We have a whole process, where everything from the assessment itself must go through moderation, and then all aspects of that is looked at, whether the teachers have actually implemented all levels of Blooms taxonomy, for example. We have to*

> *make sure and we ask teachers: Are you allowing that child to give you regurgitate information? Are you allowing that child to have a fair chance of responding to questions? This is to make them that if your paper is entirely set at that level, then our top learners are not really truly top learners, because they're all able to just regurgitate information. They are [advised that] setting a certain percentage of questions should separate those learners from the learners who are just managing. This is to sift out learners who are able to apply the knowledge by giving them totally different kinds of questions. So we talk about that to our teachers in meetings regarding assessment. And I would question them on [how to balance questions in terms of setting] their assessment papers. Other questions would include: Have you given everybody a fair opportunity to pass? Have you given everybody a fair opportunity to be more successful? etc.* (Senior Primary Deputy Principal)

The school management team (SMT) at Dinaledi makes teachers aware of gaps in learning, and together, in their teams, they find ways to improve the situation. In addition, the SMT provides teachers with opportunities to attend workshops to enable them to develop their knowledge and skills and so improve their teaching techniques.

As part of the institutional assessment routine, data is central to teaching and is used to make sure learners are assessed using different cognitive levels. This provides learners with a fair chance of success. Because of collaboration between the SMT and teachers at Dinaledi, data is continuously used to identify challenges with learner performance. However, when teachers were asked about the significance of assessment data in improving learning, there were various responses that indicated frustrations and concerns.

> *To support teachers, we take few children out who have got no confidence already [to work with the support teachers]. They usually don't want to commit anything to writing because they are so afraid they're going to be wrong. But once they are helped to find that self-boost, [their] self-esteem will grow. If that can be maintained, all the way through to our grades, helping those very weak children, it will bring them to a level of understanding where they would grasp concepts without extra help. They'll then gain confidence. The little ones think they're special when they go out with the extra teacher. They really…they come back, they love it. So we're getting them the knowledge, plus boosting their esteem, [concentration and] attention [to details], and build their self-confidence in a long run. (*Maths FG, T1)

This response indicates that not all phase teachers grasp the ways in which data can inform them of strengths and weakness of their own, to enable them focus on areas that need more attention. The school management team is seen to support, create opportunities and provide resources, which are appreciated and seen to positively affect how learners are prepared to perform to the best of their ability. Structures are in place for teachers in phases to work together and support each other, although there is still a concern with the difficulties some learners face.

As mentioned earlier in this chapter, teachers do not always use data to reflect on their teaching practices and how best to improve learner performance. Through subject team meetings they find solutions to improve teaching in areas that learners did not do well. In their responses, it is evident that teachers and school management teams understand that changing teaching techniques can positively effect on learner performance. The school also has a school management team that is aware of educational challenges and demands that require teachers to change the way things have been done in the past. The principal mentioned that when they realised the challenges of teaching large classes with learners of diverse ability, they had to look at other ways they can make a difference to learner performance.

> *One of the things we've done because of large class sizes [which] has proved to be a problem. Looking at our term stats as well as the ANA results - in 2010 we were very concerned about our 2009 mathematic results. So what we tried in 2010 after analysing our results is, we realised that children need to work at the level [suitable], to where they're [intellectually], so that we can accelerate, build on strengths, close the gaps. So what we did because of the large class sizes, we scheduled two classes, like to go to maths at once, but we put three teachers on duty. And amongst the teachers then, they then started to [distribute learners] one teacher would take the group that was fine with the concepts and we could accelerate them* (Principal).

One of the innovations used to improve learner performance was to use teachers resourcefully. To support the need for a change in thinking about how to engage learners effectively, the senior primary deputy principal mentioned that changes in education should consider the kind of learner taught in the twenty-first century. He emphasised that the way teaching and assessment is done should accommodate this contemporary learners.

> *The twenty-first century child is a very different child. The technology has changed, the way they view the world has changed, so all of that. So the teaching, the teaching methods, the teaching itself has to change. We can't use the same style, the same method, even the assessment techniques, that we used maybe ten years ago, cannot be used again today. So as a deputy principal, my role would be to ensure that that type of change is being implemented across the board among all the teachers training of the teachers, ensuring that follow up is done, monitoring learners in such a way that I'm able to assess, is the type of teaching that we're doing, working for them? Is the type of assessment that we're doing fulfilling what we want it to fulfil?* (Senior Primary Deputy Principal)

A common trend in Dinaledi School is the understanding of how to transform data into information, which enables the school management team and teachers to find ways to improve and encourage high learner achievement. The school compares each year's data to gauge their progress. The understanding and need to engage in questions related to data emerged as evidence from the school leadership interview responses. The information from all school management team (SMT) interviews and document reviews show how the schools use assessment data to improve teaching practice, in order to promote high learner achievement, and find solution to challenges of struggling learners. The school promotes collaboration in phase or subject areas between school leaders and teachers, and as a result, the school is creating communities of learning as well as encouraging teachers to get involved in professional teacher development. This seems to indicate dedication and emphasis by the SMT to work with and encourage teachers' perceptions about the need for change to improve teaching practice.

4.5 The use of data to inform teaching practice and learning

The responses of both school leadership and teachers at Dinaledi School present a promising and productive environment for teaching to promote effective learning. They recognise and acknowledge the challenges they encounter in their profession, but they work together to find ways to overcome some of them, because the school provides them with opportunities to engage effectively with activities to promote teaching and learning. Collaboration is part of the working conditions thought to make it possible for teachers and school leaders to engage on issues that enable them to improve school effectiveness.

4.5.1 Collaboration

Innovation for change at Dinaledi is made possible in various ways to improve teaching and learning. Spillane (2012:121) highlights the importance of looking at the interactions between the school management team and teachers as part of the school routines, in order to understand how the school enables exchange and discussion of data within grades. These interactions promote collaboration, enabling the sharing of various teaching techniques, as well as studying and interpreting what assessment data can tell them about learner performance. During these collaborations, teachers and school leaders identify problems and seek solutions to meet the needs of learners with learning challenges. Collaboration was discussed by both SMT members and teachers as the field upon which they create opportunities to work and support one another in their phases and subject teaching. It also enables them to come up with solutions to increase high standards of teaching and learning. The school management team and teachers in this school seem to be constantly meeting in

their subject groups and networking with other colleagues, encouraging professional learning communities in their school and other schools to share and learn effective ways to improve school effectiveness.

Professional learning communities provide opportunities for teachers to learn and think together about how to improve their practice in ways that lead to best learner achievement. Teachers at Dinaledi are part of learning communities created with the intention to improve teaching practice and effective learning. The principal mentioned that other ways they extend professional learning communities is through networking with four neighbouring schools to support each other and to support teachers' work. The principal at Dinaledi does not want to be complacent about the way things have been done in the past.

> *And we've also started meeting now as groupings within the schools. And we're going to set up more forums for our teachers. We've had one or two little initial forums, where we're getting [common things] because we all face similar problems. So how do we rectify those? Where do we teach better? What should we be doing? So we're looking to do that kind of thing as well. So it's not only assessment within our school. We talk to our neighbouring schools now.* (Principal)

Success is associated with hard work at this school, and this practise seems to have been adopted and reinforced by staff members in order to set high standards of teaching and encourage learners to perform to the best of their abilities. Collaborating in planning, designing assessment tasks, and other related education matters necessitate that staff work as a team to find solutions to challenges they may encounter. In addition, the Senior Primary deputy principal supports the principal in using data to encourage collaboration.

> *We use every assessment available to us. The results of every assessment available to us talks to the next practice, talks to the next step of the teaching. It has to talk to the next step of the teaching. When I say we use every assessment information available, we just take first term results to collate, analyse, and then discussed at an SMT level before being disseminated to the teachers, to show where the weaknesses are, what*

> *aspects of them are weak, and what aspects of them we feel strong about, what needs less attention maybe as opposed to areas of weakness. So that's the type of information we use in terms of assessment.*

Responses from both school management and teachers indicate that collaboration, which occurs through scheduled weekly subject teams and phase teams, makes it possible for them to plan for teaching and assessment, identify problems, and find solutions. To a large extent this is informed by data. Staff meetings are also considered purposeful gatherings to inform teachers about new information that affects their teaching, as well as identify necessary teacher development to support teachers. The SMT works as a team in the same way teachers are expected to. A culture of sharing and supporting one another is entrenched as part of the policy of the schools' routines. This culture is accepted and considered effective in the school. The following are a few responses that illustrate how staff feels about collaboration in their work.

> *When I talk about 'we' I'm talking about my school management team. I work very closely with them. And as a school we've also restructured how our teachers meet.* (Principal)

This school principal is aware of what can enable them to work effectively as a team. Teamwork provides staff with opportunities to make collective decisions and implement solutions to emerging problems. The teachers echo the importance of the collaboration that emerged from the SMT.

> *Confident, and also I'm working a bit harder. Because if I'm working on my own in learning area, sometimes you tend to slack a bit, because now you say, I'll do this later whatever. But it keeps me on my toes all the time. And then because of that your teaching is more effective, your learning is more effective. So I find the sharing of a learning area makes a big difference for me.* (Language FG, T3)

In support of effective collaboration with other schools, teachers also share knowledge on teaching various aspects in their subjects.

> *We encourage our teachers to attend sessions like, a lady, Ms M, who's the HOD at one of the networking primary school. We encourage them to attend her sessions because she does know innovative ways of introducing integers and innovative ways of teaching quadratic and expressions and things like that.* (Senior Primary Deputy Principal)

Teachers also appreciate being part of the team in this school. This teacher compares her previous experiences to those at this school.

> *This is my fifth school, and I've never ever worked in an environment where people are so willing to share.* (Maths FG T3)

Not only are teachers learning new ideas in teaching through collaboration; they also attend workshops for teacher development. Here, they are exposed to and gain from innovations in education, interpretation of curriculum and policies (because of the principal's role in some of the provincial education structures), and they learn new pedagogical content knowledge. They say places them a step ahead of other schools with regard to new developments. Teachers mentioned that they feel confident because of the support among themselves, and from the school management team. The school's effectiveness is based on fruitful educational choices made, the implementation of good teaching strategies, and using assessment data to measure success. It is also due to finding other ways to improve teaching practises and encourage high learner achievement.

Meetings are sometimes used to appreciate and support teachers, as well as give them the courage to do the best in their work. This is what one of the school management team members said about other purposes for such meetings.

> *So we have the meeting, sometimes it's just something to cheer them up and to let them know that what they're doing is on the right track and that there is hope and light at the end of the tunnel. They sometimes feel overwhelmed by all the assessment that needs to be done.* (FP HOD3)

This kind of discussion is sure to motivate teachers and ensure that they feel appreciated; and that they form part of a bigger picture in their role in promoting effective learning. On the other hand, not everything is working as teachers wish. This is usually identified when teachers assess prior learning. Teacher 3 in the maths focus group mentioned her frustration, based on learner lack of progress and continuity in learning.

> *The progression becomes very difficult because when I teach the grade fours in first term, it's more like an adjustment. The entire first term is more an adjustment to all the learning areas they have to do; parents are frustrated with all the homework they get; children, their wheels just fall off* (Maths FG, T3).

Teacher 1 in the Maths group answered the question about what teachers need to improve teaching and learning, and her response reflects a feeling of desperation, if not despondency.

> *We wish we knew the answer to that. We discuss every time and [we] see each other we [talk about] what frustrate us, [to find out] what must we do. I have the very weak grade fives. I only do the basics with them. I am not even thinking about doing word sums with them, problem sums. And that's just addition and subtraction. Because today, they'll be able to tell me that five plus seven crosses over into the tens column, tomorrow it won't mean anything to them, they'll guess. And if I do minimum, they'll just if it's five minus seven, they'll swop it around and say it's seven minus five and write the answer. So, because I have the very weak class, it's about 25 learners from two classes, I only stick with the basics* (Maths FG, T1).

The Maths teachers also raised concerns and frustrations regarding lack of development and progress in their classrooms, and avoided the direct discussion of how they use assessment data to improve learner performance. Instead, they identified what they try to do to prepare learners to perform better.

> *We feel personal frustration because we no longer feel as though we are achieving our goals* (Maths FG, T3).

It took several turns to get the Maths focus group to move their attention away from focusing on the challenges of teaching and learning, and focus on data that is used to improve learner performance. It was only when interviewing the language teachers that one of them explained how assessment data enables them to support learner performance through changing teaching strategies.

> *At the end of every term we look at their mark, and we see whoever's has improved, they can move to the next class. Whoever is doing bad they can come into my class. And then the teacher that works with the weaker ones, they try all different strategies to try and help them come up so they can all move to the higher class* (Language FG, T3).

Problems mentioned by these teachers indicate that learners not only experience challenges in Maths, but also in Language. In addition, lack of learners' commitment to hard work is perceived to be another challenge that affects learner poor performance.

4.5.2 Capacity building

Assessment data is used to reflect on effective learning, depending on how well learners perform. When learner performance is poor, both the school management team and teachers should be concerned and engage to find solutions to problems they have identified. Because the school has established collaborative working structures, they work together to share, learn and work out solutions to emerging problems.

The analysis of data at Dinaledi begins with senior members of the school management team as the school's data specialist team. While this does not distribute the expertise in data analysis, it would not be possible, in terms of time, for all staff members to engage in all

steps of analysis, interpretation and transforming data into information for decision making. The SMT undertakes the initial stages of analysing and summarising data as knowledge is transformed into graphs and shared with teachers. The information is then shared with teachers and stimulates discussions for the decisions that are made. This is another way collaboration is seen to unite the staff in sharing visions towards school improvement.

The school engages with assessment data at different stages, and collectively, to synthesise and make decisions to enable teachers to reflect on their teaching strategies and understand learners' performance. The Senior Primary HOD mentioned how they use assessment to encourage learners to perform to the best of their abilities, using different assessment strategies.

> *So when we do our prep, even when we draw up activities, we make sure that we make provision for learners for example, if it's a comprehension activity, we know there are some learners that can't answer higher order questions. So we make provisions, we'll have workbooks like for reading for example, where we put together a little booklet, where there's short activities. After they've read a question then they can refer back to the chapter, one word answers, true or false, whatever, so that we can accommodate that child, so that child feels he/she has achieved something, I'm also getting something right. They [don't feel that they are failures] because an opportunity is created for them to do the best they can, as this may encourage them to work even harder.* (Senior Primary HOD)

She further indicated that to support and prepare learners before assessment is carried out enables learner performance to improve.

> *And we do a lot of revision, like now, we're busy with revision for the exams. We're just doing revision to prepare them for the exam. So studying happens at school. If a child underperforms, we give them another opportunity to improve their mark. So that's basically how we try to work with children that are not coping. If I think of children that's coming to our system that don't have the language background, there's a lot of subtle things that we do, we'll put them next to a child that speaks the language, that can interpret [the lesson for them].*

In this case, assessment is used as an integral part of teaching and learning, rather than an end process. It is through consistent assessment and engaging with data that the school teams also engage problems based on challenges of poor learner performance, with which they have to deal.

4.6 Engaging with data for decision making

Just as is the case in other schools in the country, Dinaledi School faces challenges related to teaching, learning and assessment. As a result, assessment data is part of the constant conversation and questions among staff members at this school that enables them to work together to find solutions, and improve teaching and assessment practices. According to Ingram, Louis, and Schroeder (2004:1259) questions can help schools engage with data to improve teaching and learning. Questions such as: "What type of decisions do teachers make and what type of data are meaningful to them?" and "What factors promote or impede use of data for decision making?" can be helpful to stimulate conversation and enable educators to reflect.

The use of questions to stimulate discussions is an existing school culture to encourage collaboration among educators and the SMT, enables them to identify problems presented by assessment data, and other teaching and learning issues that may require them work together to find solutions to such problems. For example, ANA results were used to regroup learners and reallocate teaching resources. This is said to have been the result of discussions with members of the SMT and teachers within their phase or subject teams.

> *Analysing our ANA results is, we realised that children need to work in the level that they are suited to, to where they're at, so that we can accelerate, build on strengths,*

> *close the gaps. And amongst the teachers then, they then started to talk [to determine what to do]. One teacher would take the group that was fine with the concepts and we could accelerate them. The other group was consolidating concepts and the other teacher was supporting the children to get to the concepts. At the end they all wrote the same tests, because obviously our assessment within the school has to be standard.* (Dinaledi Principal)

The constant conversations that goes on between teachers and the SMT also encourages sharing of ideas about what may be a challenge for other teachers. In the Foundation Phase:

> *We talk about that all the time, and I encourage them to [talk] amongst the teams they should be aware who's having problems, as in learners that are really battling. And then we are fortunate to have extra members of senior staff who are not having classes, because having classes it's another admin on its own. So we have senior classes and senior teachers available in every grade to take out individual children. I might be dealing, let's say common nouns, proper nouns, or adjectives, or something in maths, where if I'm having children that are battling, because your children that are labelled weak, there are children that may be weak in all the learning areas, but you might find that there is a group of children who don't even go to those support teachers, who battle with a [particular] concept. And I would have to write those things down and give them to the support teacher of my grade, when she comes to help. Ok, you are busy with what at the moment, trying to ok, let's say natural disasters, and there are children who just are battling to get the concept, division, breaking down, she's ready to come in and take that particular group.* (Foundation Phase HOD)

The teaching members of staff not only ask questions, but engage in deliberations based on learner performance so that the staff at Dinaledi is aware of necessary changes in teaching, to improve learner performance. The maths focus group teachers mentioned that their meetings are not always about learner assessment; they are also about sharing ideas to improve teaching a particular aspect of the subject. They rely on knowledge they have about learner performance in order to introduce a topic.

> *Some of our discussions are informal discussion and when the opportunity arises. It's not always about formal, assessment, but may be informed by how we know our learners. If I do content assessment worksheets, and I distribute amongst the other teachers of maths in the grade, I would [alert a teacher that] I know has very weak ones go through it carefully with them one step at a time. Whereas the group I've got, I will give them the whole worksheet and say to them, "this is based on our times and dividers opposite, go for it and do it". [For the other class it can't just happen], she*

> *has to go through it step by step with the children. So in that way, we are prepared to allow the children to get to the point that we want them to be at. But then again, you've got 22 and I've got 27. And in the top third of those two classes, you won't have to give them additional instructions, you can give it to them with the written instruction and they'll be able to cope. And often we then find that we have not set our assessment at a high enough level for the top group, because we've been concentrating on making it possible for your middle group and your weaker group to enable them be able to do the assessment. We are so concerned that children don't become de-motivated that we're not actually allowing enough scope for those, and as was saying, for your top children. I do feel as though we're neglecting them.* (Maths FG T3).

Most of responses, from both members of the SMT and teachers, indicate that at Dinaledi there is a shared vision to create and develop a culture that promotes a high standard of teaching to enable effective learning.

4.7 Challenges of using data to improve teaching

The staff members at Dinaledi School also indicated various challenges they face, which sometimes affect teaching. Upon reflecting on the use of data, some of the challenges discussed included: the use of English as language of learning and teaching (LOLT), managing large classes, the lack of parental involvement, and lack of good learner work ethics.

4.7.1 Language of teaching and learning

One of the main challenges raised as concern in most of the responses, relates to the language of teaching and learning. English is the language of teaching and learning in most schools in South Africa after Grade 3, despite the diversity of home languages of both teachers and students. As mentioned earlier, most of the teachers in this school are first language English

speakers. However, most learners in the school are second or third language speakers of English. Teachers see this as a challenge to learning when learners do not perform to the best of their ability due to a lack of comprehension. This creates a barrier for learners when they engage with concepts and understanding of knowledge at high levels of competence. This may also mean that the teacher does not understand the learner's thought process, or misunderstand their interpretation as a result of different cultural experiences.

> *I've seen the curriculum change a couple of times, so yes, I have seen a lot of changes and again the home language has definitely been an issue. Because when I started teaching the home language of the children was English, whereas now English is maybe their second or third language. So definitely our expectations have changed.* (Language FG, T1)

In support of this, another Maths teacher also mentioned that,

> *And it's not only class sizes, it's the level of understanding of the learners. And that stems from language. We teach in English. Learners, it's not their first language, it's a second or third language, so they struggle to understand us and what we're asking from them.* (Maths FG, T3)

In as much as the school has set high standards for teaching and learning, the problem of language remains a challenge as they cater for learners from diverse cultural backgrounds. The school management is aware of this challenge; however, choice of language of learning is politically controversial and is also perceived to be strongly related to preparation for employment and economic benefits in the South African context. From interview responses, there was no discussion of how data is or could be used in addressing these problems. For example, no one indicated that any analysis of the data indicated better performance between first and second language speakers. It may be that learners with different linguistic backgrounds perform differently, but this seems to be an unexplored set of questions for the school.

4.7.2 Large classes

When the principal was asked to share initiatives she use toward making changes in the school, she gave an example of how she tried to solve the problem of large classes so as to maximise effective teaching and learning. This response has already been used with response to a research question related to question one, above.

> *One of the things we've done, [maybe] two things because the school is a large school and the large class sizes has proved to be a problem. Looking at our term stats as well as the ANA results in 2010, we were very concerned about our 2009 mathematic results. So what we tried in 2010 after, you know, analysing our results is, we realised that children need to work in the level that they are suited to, to where they're at, so that we can accelerate, build on strengths, close the gaps*. (Principal)

As part of the school improvement process and to overcome some of the challenges to teaching and learning, Dinaledi's use of data relates to what Spillane (2012:119) outlines in his conceptualisation of data use: "the ostensive aspects of organisational routines affordances from which schools can bring about transformation with benefits for school effectiveness". The schools' successes do not happen in the absence of other stakeholders. Lack of parents' involvement in their children's education was raised as another concern.

4.8.3 Parental involvement

Teachers believe that unless parents are supporting their children, particularly with homework, and encouraging reading, the process of learning becomes slow and time-confusing. The principal mentioned that they do not expect parents to figure it all out, but that their partnership is crucial to the learner's performance.

> *You're sitting with a community of children and parents that just expect hand-outs and things to happen, without really getting there. So that's why we fight…we are strict on basic issues: homework, diaries, testing, but it's [about getting the parents] to take ownership of that. And I understand the parent community today, they travel, they work…so much so that at the end of the day the child is suffering. We've even discussed, let's not give homework at a lower level.* (Principal)

Another language teacher explained the significance of homework performance to determine if learners get help from home, and that these marks are part of recorded data.

> *We try to give in the language a homework exercise after the class exercise. So from the homework exercises we can also tell, and we keep a record of homework done and they actually get like a homework mark, which reflects on their report. And that also helps us, because we can see from the homework if there was support at home. First of all, if they understood the work that was taught in class before we go further. So like, you know, with the homework exercises I feel there we do check before they do, and maybe like an assessment on it.* (Language FG, T2)

As much as lack of parental support is of concern for teachers, this does not mean that the school does not acknowledge, and sympathise with, various things that may be barriers to parents taking responsibility for their children. They continue to try and emphasise creating a partnership between teachers and parents.

Teachers have awareness and acknowledge their role in forming solutions to emerging problems, and develop a hard-working culture for both teachers and learners. They also indicate preparedness to do their best to make teaching practices and learning effective.

> *What I like about it [Primary School] is that you've got the children with you all the time. It's such an advantage because you nurture them, they look up to you, they rely on you. If a child is absent they come back to you if they have missed work. Right now I've been sitting with two children who were absent yesterday, and unfortunately these are children who are sort of battling, who can't just afford to miss school. But because they are with me, I was late for break because I could sit with them and help them. They know that they don't have to be nervous about [me]. We tell them all the time that, you can't be absent from school for no reason because you'll miss out on so*

> *much work. But right now, they feel so good that they have done part of the work that they missed yesterday.* (FP HOD 2)

Additionally, the school provides remedial support to learners with learning problems, using support teachers to work with these learners individually, and separately from the bigger groups. Some teachers take extra time to enable learners to complete work they may have missed or not completed. As much as the vision and culture of high standards of teaching are promoted at Dinaledi, there are a number of learners who do not fit into the image of a learner envisaged as having attended this school. These are learners who do not commit to learning and are sometimes regarded lazy.

4.7.4 Poor learning and work ethic

As much as teachers claim to be doing their best to engage learners in learning, they are also concerned about learners' lack of commitment. A teacher in the language focus group gave an example of what is frustrating about this issue.

> *But it's the same in the grade four and the grade five in the Senior Primary phase, it's exactly the same. We're finding a big problem with the spelling and the dictation. We can't say for sure it's lack of parent interaction or support from home whatever, because some of the words we try to use it in every context, the same words that we use in a spelling test, we'll allow them to use those words when writing a paragraph. So we try to use the same I even try to use the same passage. That is, the same activity for three classes. So that it's not something new all the time.* (Language FG, T3)

Teachers perceive that to be a challenge, since despite the various strategies they try to create an effective school culture, learners do not always respond positively to learning as expected. When learners do not learn, assessment results reflect negatively on what is taught and how the teaching is done, but teachers see that as lack of a good work ethic on the learner's side.

4.7.5 Lack of technological skills to analyse data

In South Africa, the Department of Education (DoE) mostly takes responsibility for analysing and aggregating assessment data from schools, without providing knowledge, and the necessary technological skills, that will enable schools to engage with data in order to improve teaching practice and effective for themselves. This practice is an ineffective way to help schools learn of and understand learning problems in teaching, and create the solutions to these problems. However, distributed leadership and recognition of individuals with technological and analysis skills may be a way schools can engage data for the change required in teaching and learning, as is the practice at Dinaledi. This school does not leave it to the district officials to analyse their data; they use their own knowledge and skills to analyse data, and to promote and stimulate discussions with teachers on ideas to improve teaching and learning. Evidence of information such as graph documentation of assessment data is an indication that schools like Dinaledi, with members of staff with technological skills, are able to work with data to make and to implement necessary changes.

Lack of knowledge of technology is a common challenge in most schools in South Africa. Technology enables teachers to explore and access knowledge, store data, and minimise paperwork. Although research is not definitive on the best practice for involving teachers in the examination of data to improve practice (Wayman, 2005), there is hope that technology will advance to the point where classroom teachers will be able to explore complex data without advanced technical expertise. Wayman further argues that the systems should not become a burden to use, but should make a teacher's day better, and help teachers to become more efficient practitioners.

Dinaledi School can be said to be proactive in the use of data, and it has developed school routines that challenge staff to create an effective culture, focused on improving teaching practice. The school management team take a lead in analysing data to provide teachers with concrete evidence on learner performance for the grades and subjects, and in creating possible means to promote an effective teaching and learning environment. This relieves teachers from working with the technical issues of assessment analysis and allows them to focus on their teaching. However, over time, this could also provoke a criticism: teachers are not equipped with necessary skills to engage with data, since only the management staff seems to be exposed to knowledge about data analysis.

At its best, the analysed data provides teachers with a bigger picture, and a framework for learner performance. Although the SMT is responsible for data analysis, teachers remain part of the team that collectively makes decisions to solve and implement solutions to emerging problems. The creation of collaborative learning communities at Dinaledi School seems valuable, and strengthens the way all members of staff work towards improving teaching and learning.

On the other hand, good learner performance is regarded as a successful way to measure and celebrate what makes the school proud – its dedication to improving teaching and learning. The FP deputy principal proudly told me that the high performance of her learners results in some of them receiving financial aid to proceed with their studies in high school, which is also an incentive for learners work harder.

> *And a number of our children actually managed to get bursaries for high school, because they are [pushed] beyond where they need to be. So that's one of the strategies, by looking at our results, we've said, right, how do we fix it?*

The school measures their success and efforts through learner achievement. These successes have led to a demand from large number of parents to have their children placed in the school.

> *Yes. We had 400 applications for grade one last year, people want to come here. That's an indication to us that we must be doing something right, if we've got parents who still want to come to our school. If we were battling and our numbers were low, and we were looking at joining with another school, I would say, we'd have to relook at things.* (FP Deputy Principal)

Both teachers and the SMT claim a sense of fulfilment in achieving successful outcomes in teaching and producing good learner performance generally. And this success is described through available structures, routines and resources that enable teachers to carry out their teaching tasks.

It is not surprising that since former Model C schools opened their doors and accepted learners from other racial backgrounds, many parents' choice of schools is motivated by the school's culture of high standards and learner achievement. There is a flood of learners from lower performing schools, which overcrowds some schools such as Dinaledi, as parents seek opportunities for the best education to give their children a better future.

Although teaching and learning progress is not always consistent across all grades, and some teachers shared their frustration at the lack of commitment from learners, there is a sense of collective commitment to the use data as one of the significant pointers to an understanding of challenges related to teaching and learning. The principal and her team are enthusiastic and explore different avenues to see good work being done by both teachers and learners. From observation, the movement in the school allows for interaction between teachers and the school management team at all times. The spatial arrangement is appropriately situated to facilitate these interactions. For example, the staffroom is adjacent to the senior school management team offices. Teachers and school leaders share space in the staffroom at break

times and there are discussions among teams of teachers in their phase or subject, and announcements related to achievements, sports and others. Hierarchical structure or dominance does not seem to be as prominent at this school as I have observed in some of the schools that participated in this research. During my visit I heard and learned as teachers, as well as members of the school management teams, shared information related to new teaching or policies, and when announcements, or invitations to meetings on particular subject topics were made. At some point I heard teachers make decisions in the staffroom as to who should attend a workshop. This was an indication that they are not forced into participating, but that they know they have a responsibility to be exposed to what is offered in education matters.

The positive relations seem to make the working environment relaxed, and perhaps make the expectations of high performance more acceptable to all teachers.

> *Oh, I think it's successful. As we are, where we are, the type of environment that we're in, the numbers that we've got, I think we achieve a lot of success. We have wonderful support structures with our management, and that sounds as if I'm blowing my own trumpet, I'm not. But it gives a lot of thought and we've used our people cleverly.* (FP Deputy Principal).

The principal mentioned that she finds it everybody's responsibility to make teaching and learning effective, and still considers the fact that she carries the biggest responsibility if things do not work well.

> *I'm very involved. A head of school has to be involved with assessment. It's your school's reputation on the line and it is your accountability. So when a principal signs a report, you need to be happy [with what it tells about learner performance].* (Principal)

Success is not only about learner performance, but also about how the school is perceived to function. In many schools in the country, there are many instances where teachers are

reflected negatively. However, Dinaledi's teachers present positive outcomes from teacher expectation. The school takes pride in the kind of teachers they have. The Foundation deputy principal said the following:

> *The best thing about the staff I have at the moment in this school is that they always are willing and enthusiastic and eager to want to know more. So despite the fact that they may know enough, there would still be any opportunity given to them to expand their knowledge in terms of assessment, they would jump at the opportunity.*

The tangible effect of the learning communities created in this school represents a role model for other schools. Like other schools they have problems, but the principal and her management team pride themselves of the committed team of teachers who are ready to share and learn. Teachers also take pride in opportunities the school provides for them to use necessary resources to carry out the core business of teaching, and encouraging learners to achieve. Because of this; teachers' attitudes and feelings towards their work is positive.

> *We meet as a grade, we meet with our HOD, we meet with our deputy, and then we discuss. And often somebody else will just give you an idea and say why don't you try this? And then you just hear it, it doesn't matter how many years you've been teaching, you're always learning. I mean, I've never had two days that have ever been the same in teaching. I'm learning stuff, the kids teach me, you learn from each other all the time. So support is good* (Language FG, T1).

The support that teachers receive from the school management team, and from one another, builds their confidence and gives them joy at work. Teachers 2 and 3 responded almost simultaneously with the same sentiments to a question about how would they describe the performance in their school.

> *Confident, and also I'm working a bit harder. Because if I'm working on my own in learning area, sometimes you tend to slack a bit, because now you say, I'll do this later whatever. But it keeps me on my toes all the time. And then because of that your teaching is more effective, learning is also effective. So I find the sharing of a learning area makes a big difference for me and for my class* (Language FG, T2)

> *So the support just is, it really is this is a very special school. We are blessed. We're blessed to be here and we really are. The staff members are amazing* (Language FG, T3).

4.8 Conclusion

The responses of the staff at Dinaledi School indicate that they are aware of the significance of using data to effectively improve teaching and learning. Learner performance is considered a mirror with which teachers reflect on their teaching practice and enable them to come up with decisions that support and motivate higher standards of learning in this school. The school leadership's vision and goals are shared, creating a culture of positive school effectiveness. School structures and routines afford and motivate the SMT and teachers to commit to and be accountable for creating effective teaching. With collaboration in planning, and exploring innovative teaching practices, teachers are in good position to eliminate some of the challenges faced by many primary schools in South Africa. Understanding that assessment data can make a significant contribution to decision making makes it possible for the principal and her team to implement initiatives that influence good teaching practices, which in turn encourage learners to work towards higher levels of achievement. Dinaledi may be among the few model primary schools in South Africa with leadership which, possibly to a large extent, uses data effectively to improve teaching practice and learning.

The shared vision creates a positive school and drives effective practices and ideas. Dinaledi makes teacher collaboration possible, sharing ways to improve teaching practices, to use data to understand learner performance, and to find alternative ways to encourage learners to perform better. It is a model that other primary school leaders may seek to adopt. The school leaders are aware of new ideas and innovations that can be used to make necessary education changes, and place emphasis and focus on activities maximising learning outcomes, as well as inspire and involve teachers to do their best in promoting effective teaching.

Some of the ways the school keeps abreast of new educational ideas that inform the culture of school effectiveness are attributed to the organisation or structuring of various activities, and working with creative initiatives such as professional teacher development to improve teaching practices. The teacher development programmes organised by the Department of Education can perhaps assimilate practices such as those used at Dinaledi to motivate teachers to understand the importance of using data to improve teaching practice and promote effective learning; and to encourage collaboration in sharing with and learning from each other. What is also of essence for school leaders and teachers, particularly in primary schools, is taking responsibility and being held accountable for higher standards of teaching and learning, in preparation for demands on learner when they learners prepare for high school learning.

Training "data mentors" for each school, to build their capacity to use data for inquiry for decision making, will help educators learn and understand information from data. It will allow them to reflect on and make necessary changes in teaching practices, to improve the dire situation in teaching and learning in most primary schools in the country. Once all schools have "mentors" or "facilitators" with knowledge and skills in data analysis, and can use this capacity to inform and engage others in the school, it will empower the Department of Education to put measures in place that will hold educators accountable and instil a high culture of teaching, and promote learning at an early age in all primary schools.

The disaggregation of data by the department as is the case presently does not provide schools with solutions to learner performance relevant to their school situation, and teachers knowledge and skills about use of data is disregarded. The general comments given to

schools do not give necessary support needed to improve teaching and learning. At its worst, it is when the relevant department of education officials would use collected data from schools to blame and shame underperforming schools. School leadership with knowledge of using data such as Dinaledi could be engaged to collaborate and demonstrate their success to other schools, especially with regards to ANA benchmark results.

Another important practice displayed at Dinaledi was the use of collaboration. This is important for schools to promote effective teaching as it encourages school leaders and teachers to share and learn from each other and with each other. For example, subject or phase teachers plan lessons and assessment tasks together and use data to reflect on their teaching practice. When learner performance is of concern, they are able to raise relevant questions to help themselves understand how to improve the situation. Just as collaboration seems to be effectively used at Dinaledi School, research also demonstrates that it is a powerful way for teachers to share and learn with each other. At Dinaledi, continuous collaboration also created professional learning communities to enhance the knowledge and skills necessary to promote higher standards of teaching and learning. The effectiveness of teamwork also required that meetings be scheduled on the timetable as it would be binding, and grant purpose to all educators.

Chapter 5

Case study 2 - Leratadima

5.1 Introduction

Leadership must have the requisite knowledge and skills to work with data, as well as understand which types of professional development are effective for teachers. The leadership function is to encompass articulation of the rationale for teachers' use for particular types of data, modelling its use, planning and providing a framework for teachers to learn about using data, and structuring time to do so collaboratively (van Barneveld, 2008:4).

Data can be used for accountability as well as to improve teaching and learning. At Leratadima the principal takes accountability for using data for school effectiveness, as well as reviewing data for making decisions to improve teaching and learning and making changes. This is supported by Deike's research, which states that the principal who shares his/her vision of using data promotes collaboration among the school management team (SMT) and teachers, to improve teaching and learning (2009:2). Despite a culture of hierarchical school leadership observed at Leratadima, interview responses seem to indicate that data is used effectively to improve teaching and learning. The responsibilities related to improving teaching and learning are mostly managed by head of departments (HODs) to support teachers, whereas the deputy principal is responsible for instructional development and monitoring the work done by the HODs; the principal is an overseer and accountable for effective management and school efficacy. The HODs ensure that data based on class room activities, assessment tasks, and exams is collected and moderated. The collated data is then

used to engage teachers and some members of the school management team (SMT), in discussions around learner performance, as well as the use of data to make decision to improve teaching strategies and learner performance. The principal does not directly engage with data, but is responsible for checking and questioning any inconsistencies relating to learner performance.

> *I delegate quite a lot of responsibility to my head of departments because I look upon them as the learning area and grade experts in my school. I think as the principal of the school or even the deputy, you can't possibly keep tabs on all that sort of thing. Although I do expect them to report to me and I remain accountable.* (Principal)

Van Barneveld (2008:3) states that effective use of data is enhanced if the school leadership distributes roles for data-related functions to include dealing with data reporting, data interpretation, teaching teachers about data, furnishing instructional resources linked to issues arising from data analysis, facilitating meetings so that teachers identify next steps, and following up with teachers on their responses to data analysis. This indicates a distribution of roles at Leratadima. However, data does not seem to be continuously used, to develop active collaboration among the school leadership and staff members, to generate conversations around data. The staff members at Leratadima discuss data in their quarterly meetings. Responses indicate that the quarterly meeting is when data from test or exams are discussed to find out where interventions are necessary to improve teaching and learning. Apart from quarterly meetings, HODs engage with teachers to formulate interventions and help them find solutions to learning challenges, based on classroom activities or tests, to support teachers to improve learner performance. There is however a difference in the way the foundation and senior primary HODs engage with teachers. At foundation phase, the HOD mentioned that they meet twice a week; whereas the senior primary HODs did not seem to have scheduled meeting times to meet and engage teachers with data in order to learn about and understand

learning problems. Meetings with teachers are spontaneous and held to address issues as they arise.

This chapter continues with the history and background of Leratadima school; a description of how data was collected; how data is used to improve learner performance; creating collaboration through the use of data; factors that promote or inhibit the use of data; challenges in teaching and the use of assessment data; and a conclusion.

5.2 Leratadima School - background

The school is one of the former model C schools that opened its doors to learners from historically disadvantaged racial communities after the inception of democracy in South Africa. The school provides an environment conducive to learning. It starts from Grade R and goes through to Grade 7. The existence of modern structures with well-resourced classrooms provides for effective teaching and encourages productive learning. The SMT and teachers know and understand that their collective role is to fulfil a shared vision and mission for the school, which is to encourage and promote higher standards of learning. From interview responses, educators claim to demonstrate good practices that present an effective in teaching and learning culture.

Leratadima is a primary school in an affluent suburb. Initially, it served the white community, which was predominantly English or Afrikaans speaking. Both staff and learners represent a diverse racial population although the majority are still from the white community for both teachers and learners. Despite that Afrikaans and English share equal status at this school, the medium of instruction has always been English to the present, as it is still the chosen

language of learning and teaching (LOLT) and Afrikaans is taught as the first additional language. Outside the classroom learners were observed using their home languages.

5.3 Data collection

After being granted permission to conduct my research at Leratadima, I spend some time observing and interviewing all members of the school management team and two focus group of teachers. During my stay at the school, I was able to interact informally to teachers or SMT members, and gained insight about the school culture. Being at the school daily during that period of time, I became relaxed and engaged with all teachers I encountered in the staffroom freely. I did not feel that as a researcher I was a stranger to the school community. In their free time in the staffroom other teachers took interest in my being at the school and wanted to know about my research interest. I did not have chance to observe any formal interaction between the school leadership and teachers in the staffroom during my visit. However, I learned from interview responses that the SMT and teachers engage with data to learn and understand learner performance, and to be able to plan for teaching to improve learning for the next term. Not all teachers spent time in the staffroom, because I realised that there were more teachers than those I always met daily in the staffroom, before my departure.

In this narrative analysis of Leratadima, the discussion will be based on responses from interviews and observations noted during data collection. I will highlight and discuss emerging themes and patterns from the responses of the principal, deputy principal, four HODs, and two focus groups of six teachers.

5.4 Using data to improve teaching and learner

Assessment data is one of the tools used by the schools to measure success in teaching and learning. In each of the responses relating to assessment and improving teaching and learning, the Annual National Assessment (ANA) is either perceived as a positive, or by others, a negative, direction towards creating possible means to improve teaching and promote learning. At the Leratadima School the SMT and teachers acknowledge the use of data by the Department of Education and the community to monitor and make educators accountable. As a result, they consider data effective and informative in enabling them to understand what needs attention for improvement in teaching and learning. However, there is concern from other teachers that their opinion and suggested changes are not always accommodated, yet they are the ones working with learners.

Since 2010 the Department of Basic Education (BDE) has used the Annual National Assessment (ANA) benchmark tests to hold primary schools accountable so that teachers cover the required curriculum components and are able to prepare learners for these assessments. On the other hand, the ANA tests are used to diagnose learner performance and to enable the Department of Education (DoE) officials to monitor and provide the necessary support in schools. As a result, the school leadership is under pressure to monitor and evaluate teaching and learning in their schools. The analysis and aggregation of data is mostly the district responsibility. This does not provide schools with an opportunity to develop skills to manage data. In schools where there are personnel resources with knowledge of data analysis, they engage with data and transform it into information that is used to understand challenges with learner performance. At Leratadima School the HODs are

supposed to take responsibility for working with assessment data, in order to support teachers in improving learner performance. The principal mentioned that,

> *Head of departments have a responsibility to make sure that they're checking at intervals, so we have work reports that are done at least quarterly, per teacher. That is a head of department responsibility. And part of that is that they will look at assessments and see if there are any worrying trends that are emerging and so on. At the end of the term, those assessments go to what we call grade assessment teams, and our grades sit down prior to issuing reports and drafting schedules and so on, and they go through every child, with all the teachers involved in that particular grade and learning area, and we go through the marks to make sure that there is nothing untoward, and that we're comfortable with that.*

In this case, some members of the school leadership and teaching staff keep track of learner performance, and can identify ways to improve learning. The HOD of the foundation phase explains how data is used to enable them to intervene.

> *Ok, look at the moment we're not very happy with the Grade 3 maths in the annual results test. So what we've done is, I've sat with the teachers and we've gone back we analysed every single question that was in the test, and how did the children do? So we've basically looked at how the children did in each question, to see whether it was an overall, the general paper was hard, or whether it was just certain questions that caught the children. And we're doing the same with every single assessment that they're doing in Grade 3. We're assessing every single question, to see how many learners are not improving, whether it's the question or whether it's the whole paper. And it's working quite nicely. And what they're doing now, the teachers are also doing extra lessons on a day one, period one, we have hymn singing classes, and what the teachers are doing is they're having a turn to do extra maths. So it's not remedial maths, it's actually just extra maths.* (FP HOD 2)

This illustrates that data is not only important for understanding learner performance. Questions are used to identify which problems could have made learners give answers that were contrary to those expected. It is not only learners who are to blame for poor performance; teachers find out how they could have failed learners. The maths teacher also supports the idea that data assessment is not only used for reflecting on learner performance, but is also used to prepare learner to achieve better results.

> *To add on that, we have common exams which are compulsory. So we're also looking at the results, you know, because you want the outcome. So even if we can say we adapt it to our own school level, but still we need to prepare them for that common exam, because we want to get results. And if the results are bad it comes back to us.* (Maths FG, T1)

Poor learner results are also used to identify problems in the teaching of specific subjects. The principal mentioned that inasmuch as they have had some successes, there are areas that are still problematic.

Research shows getting schools involved in the use data requires strong leadership and a supportive culture (Armstrong & Anthes, 2001; Massel, 2001). At Leratadima, distributed leadership is related and confined to the roles or duties that each leader holds. For example, the deputy principal's role is to support and work with the HODs to make sure that the curriculum is covered and aligned with assessment. She has to monitor grades or learners with learning problems and make suggestion for any necessary change; and to negotiate with the principal where there is need for additional support for teachers. In her response to the question about her role in implementing change in the school, she said,

> *I've got to understand the policies that are in place. And whatever changes or transformations, or the decisions that are made at the government level or that it gets cascaded down, I need to read up about it, and I need to be able to explain it to my teachers, and (cascade) it down and help them to implement whatever policies. Whether it's policies concerning the day to day running of the school or assessment or changes in the curriculum.* (Deputy Principal)

The focus on policies, and informing teachers of legal documents, may be a way of promoting the hierarchical structure and its associated culture of practice. She mentions that information from the government is cascaded down; meaning teachers are informed rather than being involved in reading and interpreting information that affects what they have to do.

In her response, there is no mention of how data is used to enable the school leadership and teachers to make decisions for educational changes. This is despite trying to discover her role in the use of data. Her focus seems to be on guiding, rather than creating an environment for collaboration with teachers around the interpretation and implementation of the policies. As the deputy principal, her role is to focus on instructional leadership. However, in order to support and work with HODs towards improving school effectiveness, using data to analyse learner performance is necessary. It can provide possible ways to improve teaching practice and promote effective learning. This is another aspect of hierarchical leadership.

The principal's perception about change was presented differently. In response to attempts to find out what initiatives were in place to bring about change in the school, the principal mentioned that,

> *If one goes and has a look at our policy as far as assessment is concerned, it conforms to what the department requires from us, as far as that's concerned. But I think on a school level, what I think is important, is that first of all there's that link that we always look for from curriculum, to teaching, to assessment, and the children's results. So that's a focus area for us as a school, we're always looking for that link, that we don't have either curriculum or content being taught in isolation from assessment, or assessment in isolation from curriculum and so on. So that's a very strong, I think in principle, as far as our teaching is concerned that we will always look for those links. Then, there is also an emphasis placed on relevant assessment. So we want that assessment to be connected to what children are expected to learn [and] what they are expected to be able to do.* (Principal)

Although the principal also focused on requirements of the Department, he is aware of the role played by data to improve teaching and learning. He does not appear to make it his priority to take the lead in projecting his vision of using data to direct and influence educators to reflect and improve teaching practice. Instead, the HODs seem to take this lead in working

with data and supporting teachers to improve teaching and learning. He mostly gets involved in making decisions that lead to effective running of the school.

As the head of school, he fosters and creates opportunities for teachers to engage and work together, and provides resources that make it possible for teachers to effectively implement their teaching duties, in for learners to achieve.

> *We've tried to introduce technology to our classrooms, so we have whiteboards, smart board technology, we've issued laptops to all our teachers to try and make their teaching more interesting and hopefully more effective through that in the classroom.* (Principal)

The interventions made by the principal are part of what is considered necessary to improve teaching and learning. However, using data is considered an effective method in creating continuous collaboration whereby the SMT and teachers engage in analysing, interpreting, learning, and understanding learning challenges, to make decision that improve teaching.

The use of technology is considered useful in helping teachers make their practice interesting and effective. To make this a reality in his school, the principal said that he bought laptops for all teachers to provide them with access to new ideas and other educational information that will reinforce what they teach. These also enable teachers to access information related to education, which will encourage them to explore various teaching techniques in the classroom. Teachers acknowledge and seem to appreciate the use of technology for the purpose of teaching and learning; however it seems that teachers lack the required knowledge to use the sophisticated technological facilities available.

> *We must know the technology that is being used today because, you must be ahead of technology the whole time. So we need help with technology and the smart boards, the white boards, we need help with that [to know how to use them effectively].* (Maths, FG T3)

The ownership of laptops by teachers at Leratadima School provides them with opportunities for ideas and activities in their classroom teaching, as well as for their own use, especially since some of them are involved in upgrading their qualifications. However, none of the teachers mentioned how data is kept and analysed using this technology. The schools' initiatives are an indication that there is a vision of creating an effective teaching culture to promote learner performance.

To some extent there is recognition that assessment data is influential and informative for teaching and improving learner performance. Most interview responses explained how assessment is useful as it makes teachers reflect, and change teaching practices so as to improve learning. As part of his initiative, the principal mentioned that he encourages teachers and the school management team (SMT) to collaborate in discussing and making decisions regarding learner performance. He said that,

> *We implemented at our school what we call the collaborative teaching strategy, where we require teachers of a particular grade and a particular learning area, to work together, with the sole purpose of improving the quality of teaching. And I think that's really the gist of the conversation that I've been having with my management team, and my staff, for several years now. And hence the collaborative teaching strategy, our attempts to make some sense of our assessment data and so on.* (Principal)

However, the response from one of the foundation phase (FP) HODs indicates that the SMT is mainly involved in talking about assessment, and how it may have affected learner

performance in either direction, which enables them to make decisions on how to improve teaching and encourage learners to work to their full potential.

> *We have in our executive meetings, we talk a lot about assessment and the outcomes of the ANA and the outcomes of the comment papers that we write. So we, in our executive meetings, we are talking about assessment the whole time and how it affects us and how it affects the learners and what we can do to improve on that.* (FP HOD2)

Learner performance affects some teachers and the SMT concerning school effectiveness. However, internal assessments done at school do not seem to have the same impact that the ANA results have in measuring school effectiveness. On the one hand there are teachers who consider quarterly test data in order to reflect on teaching practice to improve learning. These are mostly used by teachers and the HODs to identify learning challenges and to find ways to improve teaching and promote effective learning. ANA results may be taken more seriously than normal tasks and tests data, because schools consider these National results as a yardstick, which the DoE uses to hold schools accountable. Other data is collected, collated, and sent quarterly to the district office. This seems to be done for compliance and regarded as having less impact than that of ANA tests. This could be because ANA results publicly expose school performance, and make it possible for schools to compete.

One of the maths focus group teacher's responses contradicts that of the member of the SMT's, when answering the question about how they talk about ways to find solutions to poor learner performance. The teacher's response does not indicate that there is collaboration in regard to analysing data and finding solutions, as a commonly practiced culture in the school.

> *Amongst ourselves, yes, but there's no way of actually solving it [with the SMT], because if the fact remains, you've got to cover that work. Whether they [have*

> *achieved or not], as long as you've covered [what needs to be taught].* (Maths FG, T2)

In addition, another teacher's response mentioned that data is handled by the head of school. This could mean that only members of the SMT analyse and interpret data, without involving teachers. This can only mean that at Leratadima, capacity building is neither encouraged nor practiced. This reinforces the opinion stated in the introduction, that the school still succeeds in what it does despite an entrenched culture of hierarchical practice. To support the exclusion of teachers in data use, one maths focus group teacher mentioned that,

> *And our headmaster does keep statistics and he prints it in the circulars of results of ANA tests and cycle tests and whatever. Term marks are used to reflect on teaching and learning.* (Maths FG, T2)

The teachers acknowledge that term marks are significant as they enable teachers to reflect and find areas that need to be attended to in order to improve teaching and learning. With regard to working collaboratively, it does not seem that teachers are enabled to analyse data and reflect, unless this is done on an individual basis. As mentioned earlier in the chapter, the HODs engage with teachers in quarterly assessments, to evaluate and discuss learner performance. In some cases, individual teachers have to consult with the HOD to explain his/her reasons or insights around poor learner performance, and to indicate what support he/she may need to improve teaching. There is also a sense that enforcement of collaboration is practised differently by foundation phase and senior phase departments. This is what one of the foundation phase HODs said in response to the question about how they engage teachers in meetings regarding assessment.

> *Well, we discuss the children that have barriers to learning. In the collaborative meetings first of all we look at the planning. We go through the planning and see exactly what need to be taught and what each teacher will assess. They all assess the exactly the same thing. Then we go on to the children that are experiencing problems.*

> *And then they sort of discuss anything that's at the collaborative meeting, but that's every week. So they're quite on top of that.* (FP HOD1)

From this response, it can be concluded that the foundation phase HODs and teachers work together as a team to plan lessons and assessment, which ensures that they do the same things in the same classes. However, this does not indicate that teaching is done the same way and that learning outcomes will be the same. On the other hand, the senior phase HODs emphasis is on monitoring the actual teaching and knowing how teachers use questions to evaluate learning in the classroom.

> *We concentrate big time on our teachers that we [know improvements made] from last year that had problem areas. And [we also focus in orientation of] our new teachers, because new teachers have to be brought in to our system of working. And during our class visits we check files, we check assessment books, we check the teaching techniques, their children's books, everything. From there we've got a very strong idea of what's happening in each class. And then after that, we'll pop in every now and then, if we know there's a teacher that's having a problem, we'll pop in during one of our free periods.* (SP HOD 2)

Successful influence for effective teaching can also be considered relevant for improving learner performance, although there was no mention or confirmation of use of data for this purpose. An interesting observation is that both HODs in the senior phase are the oldest members of staff and the most experienced teachers in the school. They work like twins, even for this interview they preferred to be interviewed together as they believe they always do things together. This could be that they depend on each other's strength and/or support each other's views, to create a strong leadership force. Their concern is to increase teacher ability to teach well, with the intention to improve learner results.

Upon investigating what teachers think about their learners' results; what questions they ask to enable them to understand the problems in regard to learner performance; one of the teachers from the language focus group responded,

> *Well after I've finished ranting and raving and pulling my hair out, because I know that I've gone over it and over it and over it, then it makes you realise that what perhaps [with learning, either] you're going too fast for some of them, and some of them do need more practice and more help.* (Language FG, T1)

Although the response shows that the teacher becomes concerned with poor learner performance, there is no indication that the teacher reflects on how the lesson was taught; what could have made learner do less well in that aspect of assessment. From someone in the maths focus group, a different perspective on the process of reflection was raised.

> *I'm sort of like shifting away from my demands as a teacher. And I believe that as teachers we're too demanding. We're expecting too much from them, and I'm guilty because I always said, you must come up to my level, I'm not going to go down to your level. So I've shifted from that, from my demands, and I'm looking where they come from, what are their experiences, and what are their interests? And my teaching starts from there, to move them to what they don't know.* (Maths FG, T3)

The two teachers' responses seem to indicate that they think and reflect on learner performance for different reasons. Both teachers' thoughts indicate that they are concerned about learner performance, and they want to do what is best to improve learner achievement. Their approaches would be different since they would be focusing on separate issues; one upon the pacing of the lesson, and the other upon what the teacher knows about the interest of the learner.

Responses from both the school management team and teachers indicate that to make learners perform to the best of their abilities, it is their responsibility to explore different ways to

improve teaching practices. This would have to include understanding learner thinking and their background to learning. To support this view, this is what one teacher said:

> *We do collaborative teaching. And we discuss what we're going to teach, how we're going to teach. And we also do discuss our tests that we set. Like the ANA test that they wrote, we analyse them to see which specific areas are lacking. And we're actually trying to remediate those areas.* (Language FG, T2)

Collaboration among teachers strengthens collegiality and enables them to learn with and from each other, and share in order to improve pedagogical content knowledge and which data can be used to inform them about individual learning abilities. There is a strong sense that data is used to improve both teaching and learning, even if there is no clarity on how data is engaged, or what questions are asked in discussions. Some teachers and HODs also seem to appreciate external collaboration where district officials invite educators to engage in cluster meetings that provide opportunities for them to learn new teaching strategies and /or new information about their subject knowledge. In addition to discussing how to improve teaching of the content subject, there is also knowledge sharing about assessment, to prepare learners for benchmark tests and encourage them to prepare learners well to ensure that they perform well.

> *We have common exams that are compulsory. So we're also looking [forward for the] results, because you want the outcomes. So even if we can say we adapt it to our own school level, we still need to prepare them for that common exam. It is because we want to get [better] results. And if the results are bad [is a reflection on our own teaching]*. (Maths FG, T3)

A concern resulting from the response above is that data encourages teachers to teach for assessment rather than for learning. This may be what leads to concerns that negatively impact lives of learners in a long run. For example, in South Africa today, the high rate of unemployment is associated with lack of knowledge and skills for most young people who

have completed their studies. In some cases, those proceeding to further their studies also found to be poorly prepared to cope with demands of learning at a tertiary level.

The responses from both teachers and the SMT indicate that at Leratadima, educators are concerned about learner performance, and to some extent data informs them of learning challenges; this enables them to question and reflect, and they find solutions to address learning problems. The responses from teachers indicate that they are open to learning, and this means that they can do with support and encouragement from others. One of the maths focus group mentioned the importance of orientation of new teachers and the role of school leadership in making sure these teachers get support.

> *When new teachers come to our school, I think they do get just orientation of some sort where they are being [acclimatised] to the culture of the school, but as I said earlier about the support. I don't think the support is continuous. It's only the induction and that's it, and then they're left on their own. You know what I mean? I think that's where the support must be more concentrated on. And I think that is effective teaching. That one I'm hundred percent sure. There are resources, we have laptops, wow! And smart boards, we have a media centre, and then the library is very active as well.* (Maths FG, T3)

This teacher is appreciating the amount of support the school gives to teachers by providing all the resources necessary to enable them to enhance teaching and learning. However, it seems use of data is not yet part of the means with which teachers are engaged as decision makers; using data to implement changes for school effectiveness. There is a need for Leratadima school leadership to establish capacity building and continuous collaboration in analysing data to learn, understand and stimulate conversations leading to decision making, in order to improve teaching and learning.

5.6 Creating collaboration using data

To implement change in schools, the school leadership has to share their vision and goals to guide them in the direction that they think they want to take the school. Encouraging collaboration is part of the process educators can use, to collectively find solutions to educational challenges, and to make decisions. At Leratadima School there are structures put in place to improve teaching and learning. These ideas for change emerge from the school management team meetings, through phase teams or subject teachers. As the principal mentioned above in his response to the question about innovation to implement change, collaboration is regarded as important for the school management team and teachers to work together.

Teamwork is viewed by most educators as a way for them to share with and support one another. In the foundation phase, HODs and teachers seem to effectively maintain work and collaborate through their meetings, to plan their yearly programmes, do weekly lesson planning and activities, discuss progress they make in classroom teaching, designing their assessment tasks, as well as talk about learner performance.

> *We have collaborative meetings twice a week in the afternoons after school. And we talk about the content that we're teaching, we talk about how we're going to assess the content, and the weighting, how much of that content is important, how important is that content, how important is the next one, or is it just something that we'd like to assess the children, are we just assessing because we've taught it, or are we assessing because it's important to the child?* (FP HOD1)

The emphasis upon collaboration is realised through collective decision making on what needs to be taught and assessed. Together, teachers explore and understand the concepts and facts that need to be taught, and how to engage learners in lessons. When planning, they may think of pedagogical content knowledge that can enhance ways to improve teaching and

learner participation. Collaboration also enables teachers to help each other in designing appropriate activities and assessment tasks for the level of the learners. In assessing, using well thought out questioning techniques enables them to prepare and develop learners cognitively, for better performance. In this process, data is likely to inform and diagnose learning needs. The process may also provide teachers with what Timperley (2009:22) refers to as "teacher inquiry and knowledge building cycles", where teachers begin to "identify the knowledge and skills learners need to close the gaps between what they need to know and do to satisfy the requirements of the curriculum". This is unlikely to happen where teachers work in isolation.

To answer the question about whether learner performance makes them think about their own teaching practice, one of the language focus group teachers in foundation phase reiterated the HOD's comment that,

> *We also do collaborative preparation in the foundation phase and we go through each lesson, each learning area as well, and then we also discuss the children who haven't been faring well, which ones need remediation in maths or in English.* (FP HOD 2)

In some cases, teachers and the HODs focus more on improving learner performance without reflecting on their teaching practise. Improvement in learner performance is unlikely if there is no change in teaching techniques – engaging learners in different activities that expose them to new experiences and assessment tasks, to challenge their thinking. To improve teaching, teachers need to think they can be helped to improve teaching.

> *Well at the moment, like we collaborate, for instance. We share Grade 7s and then we've got another teacher that we also share with. She has an excellent way of explaining things, and then she explains it to me, and then we do it that way. So we collaborate and get ideas from one another on how we're going to teach. So we're*

> *supporting each other in that sense. So we've got at least someone that's there. And I think in our case, [between the four us we work well together].* (Maths FG, T3)

As is the case with the response above, teamwork among teachers can enable them to support each other and understand and try out new ideas. The purpose of collaboration is to enable teachers to share their expertise and knowledge of their subject, and enhance opportunities to improve teaching practice.

> *We've got four in a grade, so we do collaborative meetings with every area [we have to teach]. We go through every day's preparation, we go through exactly what we're going to do, and how we're going to do it. And it's nice that I've got a lot of younger teachers with me, and they give me new ideas as well.* (Maths FG, T2)

In this response the teacher shows appreciation for the support she gets from her colleagues. It is also interesting that the teacher acknowledges that new teachers can also contribute new ideas, instead of believing that only teachers with long experience know better.

Collaborating in planning lessons and designing assessment tasks, as mentioned by other teachers and HODs, encourages staff members to explore various ways to improve learner achievement. For collaboration to succeed, the principal should share his/her vision of encouraging teachers to do their best and to motivate each other. When learners realise that there is unity among teachers, they will know that they need to work hard for each subject.

> *We require teachers [with special skills]in a particular grade and particularly in their learning areas, to work together, with the sole purpose of improving the quality of teaching. And through that, obviously we were hoping that there would be a positive outcome as far as the children's performance is concerned.* (Principal)

There is a good sense that collaboration is used in this school by both the school management team and teachers, to improve teaching and learning. Teachers in the language and maths

focus group gave different opinions to this effect as to whether meetings to reinforce collaboration were scheduled.

> *With seniors we usually come together once a term, everybody that teaches that class, and I feel it's not enough for the seniors, because it's usually just before report time.* (Language FG, T3)
>
> *I think there's no structure in our collaboration. We collaborate informally, if you know what I mean. And maybe it comes from the principal, I think that he believes that collaboration it's natural. So there's no structure, we just meet and then we share and that's it. But it's not formalised.* (Maths FG, T3)

From the language teacher, the concern is that although collaboration is appreciated, it may not succeed if they were to meet only once in a term, whereas the maths teacher highlighted the fact that there is no effort from the SMT to encourage continuous collaboration among teachers and the school leadership. It can be assumed that collaboration is not practised collectively by all teams in the school; meaning it is not a culture that is encouraged. One of the excuses made regarding meetings not being scheduled is that other events may have to disrupt meetings.

Research shows that scheduled times for meetings to analyse and discuss data are found useful, and educators commit to participating. At Leratadima all grades only meet on set dates to discuss quarterly learner performance. There is no guarantee that such meetings effectively use data to improve teaching and learning, as well as facilitate collaboration.

> *Where we've tried to organise teachers planning, if you like, and there through collaboration we've tried to provide an environment that is conducive to quality education. And there are lots of peripheral things that go along with that: learner discipline, establishing and getting a solid work ethic going amongst our children. So I can't really say there's one thing.* (Principal)

In the case where a learner is not performing well, teachers are able to locate the cause of the problem. Some of challenges identified cannot be based on analysing data, but would require good pedagogical reasoning and action (Schulman, 1986) to eliminate problems related to teaching and learning. To answer the question about how teachers support and encourage effective learning, one of the maths teachers said,

> *That's a difficult one. The problem is at the moment, there are so many children in your class that you don't have the time, because you teach most of the time, so that child that basically needs the support is actually, is basically invisible. So you do struggle to work with all learners satisfactorily. At the moment we don't always have time, to basically give support to those children that need support. We are expected to also do extra murals and we get tired. For learners lacking behind we need to do remedial class for them to catch up, or invite people who can give extra maths classes at school. Although we can do it now, because we're finished with our extra murals, [how] can we support that child? It's difficult.* (Maths FG, T2)

Scheduling of meeting times must to be seriously considered if the school is to balance teaching, learning and extra mural activities, which are necessary to stimulate the mind as well as keep the learner physically fit. Teachers seem to be overstretched, and when they cannot juggle matters related to the curriculum and other demands, they become overwhelmed. In such cases, data is sometimes used to blame teachers for not doing their work, even though there can be other contributing factors such as those mentioned above. The deputy principal's answer to the question of how learners' results are significant in supporting teacher's improvement of their classroom practice was:

> *If the learners aren't performing well, then it's obviously the teacher's not able to carry across the information properly. We use marks or percentages, which usually reflect [measure?] whether the lesson was successful or not. That's how I see it. I see it, if children's marks are down, it's obviously they didn't understand the concept or the new content that was taught, so then you must go back and see how we can improve on that. Because, you know what, otherwise that outcome has not been reached and there will always be that gap in the child's learning. And because of that gap it affects the teacher's marks and it affects the school in the end.*

This response shows that as much as there is acknowledgment and concern about learner performance, teacher reflection is helpful towards improving teaching and trying out different ways to engage them in various learning experiences. At Leratadima the HODs are entrusted with more responsibility to support teachers improve teaching.

The concern is that at Leratadima there seem to be no personnel who take responsibility for actively processing data, doing analysis, interpreting, and transforming data, to inform other educators to learn and understand learning challenges. This however does not mean that HODs do not know when there is need for intervention to improve teaching, they engage teachers whenever they realise gaps in learning and encourage them do their best. There is however a need for Leratadima to establish a working team that will make effective use of data towards improving teaching and learning.

5.7 Challenges in teaching and the use of assessment data

To answer the question, how do teachers support their learners to achieve or to perform better, what support they think they need, teachers raised concerns related to challenges that impede their ability to do their best. Some of the challenges in teaching and the use of assessment data to improve teaching and learning in schools include leadership style, large classes, lack of parental support, and lack of learner effort to participate effectively in learning.

5.7.1 Leadership style

Teamwork enables school communities to share the same vision and goals in creating an effective culture for their school, unlike when the school management team and educators make decisions about learner problems in isolation. However, from observation, and some of what was mentioned in interviews, there is a sense that in some cases communication at this school is top-down and does not accommodate teachers' views to work out solutions to challenges experienced in the school. In response to the question: "In order to support your learners to achieve or to perform better, what support do you think you need?", the teacher in a maths focus group brought to my attention the fact that teachers need to be engaged in decisions made by the school leadership team. This is what she said:

> *I would say we need support from the SMT. And in a way that they do not impose on us, on, you need to teach this, and you need to cover this, and we have deadlines and then we need to submit assessment standards. So my support would be a shared leadership of some sort because I believe we're all leaders, where our ideas are welcomed by the SMT. Not only their ideas are the right way. Because we are the ones who are teaching in class and if you go back to them and tell them that this is what we have encountered, and this is how we think we can do things differently. They can take those ideas, and obviously I understand that the principal has control over those ideas, but at least somebody to listen to us, to say, what are we doing, and I'll refer to I don't want to say old teachers more experienced teachers. I don't think they don't want to change their teaching, I think they need support on how to from the old to the new. But again how do you support them? Do you give them time to change? Are they willing to change? And I think it's a process for us to get results.* (Maths FG, T3)

From observing the reaction of two senior teachers in this group, there was discomfort that a younger member of staff openly criticised or challenged authority. The question is whether this is because they never ask questions about the SMT or whether the hierarchical practise mentioned earlier, is the cause of such a reaction.

Based on the principal's and deputy principal's responses, the school leadership team at Leratadima does not directly engage with teachers; rather they cascade information through HODs. This top-down approach has its weakness in creating relationships in schools. As mentioned by one of the maths teachers, they feel undermined as their opinions are not recognised and they are not acknowledged for what they do, whereas the school leadership enjoy and receive recognition when everything is well and good. There is also a sense of authoritative approach practices that emerge between some members of the HODs and teachers. For example, if a teacher does something wrong it is appropriate to work with the teacher to correct the error rather than to fix the problem without the teacher. This is an interpretation following the statement below.

> *To give you a silly example, I had an EMS test I had to check last week or the week before. I actually sat down and rewrote the test. Because and then I spoke to the teacher afterwards. She had questions like, what is the man doing in the picture? And you know, it was one of the tribal stories legends, and he was sitting there with his hands I said, now if a child writes down, he's warming his hands at the fire, its right.* (Senior primary HOD 1)

As much as this sounds as though the HOD intended to support the teacher to improve the assessment task, at the same time there is a tone of authority that undermines the teacher's ability. The question also is to find out, since it was mentioned that assessment tasks are moderated, whether were questions asked during teaching resulted in any improvement. The teacher needs support but also needs to feel respected for the efforts made in teaching. When teacher 3 (as quoted above) asks for the school management team to recognise their views, it is one way of saying they should be part of the entire process, and not merely implement knowledge.

5.7.2 Large classes

The second challenge that teachers presented as a problem relates to poor learner performance, is managing large classes.

> *That's a difficult one you see, the problem is at the moment, there are so many children in your class, that you don't have the time, because you teach most of the time, so that child that basically needs the support is actually put…it's in between, is basically invisible. So you do struggle. At the moment we don't always have time, with our extra murals and so on, to basically give support to those children that need support. So we need a remedial class maybe, for them to go to, or people that can give extra maths classes at school. Although we can do it now, because we're finished with our extra murals, we can support that child. But in class it's difficult. Most of the time we teach, give them some written work to do, which they can complete to do at home. However, there's no-one to support them at home. So that's a problem at the moment. We try to…if they do work in class, they come to you, there's support there in class if we can, but it's difficult. We need support from outside, I suppose.* (Maths FG, T1)

The concerns expressed in these statements from teachers and school leaders may seem minor; however, they may affect teacher attitude and impact negatively on learner performance. Many of the responses allude to the fact that large classes are a challenge that makes it impossible for teachers to work with each learner in the classroom.

The teachers' concern is that in large classes, they lose other learners in the process of teaching, and this is only noticed when assessment data is presented. However, the principal deals with the challenges teachers are facing; the principal creates opportunities that give teachers time to focus on the learners who need more stimulated, while the HODs help with learners who need remedial support.

> *The foundation phase, and I don't know whether they mentioned it to you, the two head of departments, I've actually done something which I think is fairly different, as far as schools are concerned. I've taken them out of class teaching, and I've given them remedial classes to do, so all the children that seem to have problems in terms of their learning are coming to their little departments for remedial lessons. And I would say that my expectation of the workload, is about half of their workload is that, and*

> *about the other half of their workload is specifically working with the teachers in their department. So I expect of them frequent visits to all teachers in the grade that they're responsible for, and that's about practice. That's about sitting in a classroom, watching what's going on, having a look at stuff, seeing how teachers interact, and then trying to sort any difficulties out immediately. And I'm waiting with bated breath to see how successful that's going to be. If it is, then I have to twist my governing body's arm for the money, because I want to do those with the senior teachers and the senior head of departments as well.*

Availability of teaching support, like remedial classes for slow learners, is an indication that there are efforts being made to improve learning. This support is also about creating collaboration. The support and relief given to teachers enhance their chance for uninterrupted focus on teaching. Learning gaps that the HODs find may be share with teachers, who will learn how to deal with them in future. The principal provides opportunities to support and enable teachers, to improve learning.

At this school, teachers and the school management team make all efforts to engage learners and to demand higher standards of learning for better achievement. Lack of commitment and hard work on the part of learners is a challenge. During interviews the principal and other teachers indicated that their school maintain strong beliefs in higher standards of learning, even though they face challenges both from learner resilience to engage in learning, or poor learning ethics, as well as lack of parents support.

5.6.3 Poor learner work ethics

The following are some of the concerns raised by the subject or phase head of departments with regard to learners' lack of interest in learning, and poor work ethics:

> *There is agency in wanting to be educated. They're coming to school because they have to. They don't see the bigger picture that their education is starting from Grade 1.* (SP HOD 2)

The principal says that the strategy that works for him is learner support and motivation, rather than dwelling on the negatives. He says that instead of telling a learner about the wrongs they are doing, he would rather praise another learner who is doing something positive, and he finds this is working.

To inspire learners to overcome improve a poor work ethic, assessment data may be used as part of feedback, to make them aware that others perform well more often, in the hope that they will be motivated and want to perform like their peers. Giving awards for those who do well may also motivate learners to do better in their studies.

5.6.4 Lack of parental support

Lack of parental support is another concern the school leadership and teachers raised. Teachers cannot do without parents' support to help learners perform to the best of their ability. Teachers feel that there are things learners must be taught before coming to school. One teacher raises concerns about the lack of parental involvement in their children's lives.

> *A lot of it boils down to bad parenting. The parents of today don't know how to be parents. And they're leaving more and more to the teachers to do. And the teachers can't teach everything, as there are things that should be taught when the kids are little. And they're not getting it.* (Language FG, T3)

The senior phase HOD pointed that a poor of work ethic is due to the lack of parental support.

> *Because these children are coming to school with half the things they need, they're coming to school with this no care attitude. It's all coming from home. Homework is given or whatever, and if parents do not sign a homework diary to say that the child has done the homework, but you open the book and the child hasn't done the work. It's things like that. We send out circulars, we send [these] out at the beginning of the year term, these are the dates your children are writing tests on.* (SP HOD 2)

It is unfortunate that when learners are not performing well, teachers take the blame. Parental support is significant for the elimination of some learning problems. If parents work hand in hand with teachers, learners cannot have a way to downplay the seriousness of focusing in their studies. Collaboration between teachers and parents is likely to intensify the support learners need to improve their performance. At Leratadima, in order to encourage parents, the principal and the deputy principal are said to help reach parents of learners who are not doing as well as expected.

5.6.5 Lack of teacher commitment

Another sensitive issue contradicts the fact that teachers and the school management team collaborate to make teaching and learning effective. This is based on a comment made by one of the foundation HODs, which that I consider a challenge:

> *It's very difficult because some teachers are here for the pay cheque at the end of the month, and that's it, they will not take advice, they will not, so you've got to get down to that level and try and change their attitude there, before you try anything else.* (FP HOD2)

The findings from Taylor and Vinjevold's study (1999), recently acknowledged by the Department of Education, is that some teachers do not have a strong conceptual grasp of their subject. This lack of competence in the subject they teach affects learner performance.

However, there seem to be strong feelings about this issue, and efforts, made with good intentions by the school leadership as well as by teachers, to improve teaching and learning.

For each effort teachers make to teach, there are also rewards that they want to see. Through assessment data, teachers are able to gauge positive or negative outcomes of what was taught and what was learned. The outcomes can be seen as a mirror in which teachers can reflect the throughput. Educators are not always happy with how learners perform; as a result, they try to explore ways to do better, so to improve leaner achievement. Outcomes are also what learners, parents, and communities appreciate about teachers and the school. In reply to the question of how educators can assess achievement in their school, most of the responses are positive, and teachers are also aware of gaps that they still have to work on. These do not make teachers complacent about learner performance as they think more can still be done to improve learning.

> *I think satisfactory in some cases, problematic in others. If one wants to just look at data for example, the ANA papers that we just recently wrote at the beginning of this year indicated that our language, for example, is fairly strong. Our language teaching throughout the grades, from Grade one up to Grade 7. There's a little area of weakness in Grade 5, that we need to deal with, and then if one looks at the mathematics, there's an area, or a problematic area that is really Grade 3, Grade 4, and a little bit in Grade 5. I'm still not certain how much weight one should put on our schools as far as that's concerned because there's been a trend throughout the results as far as maths especially is concerned, that there's been this dip in performance in Grade 3, 4, and starts rising again in 5 and 6.* (Principal)

In support of the principal, the deputy principal indicates that constant change is necessary to align teaching and assessment with educational demands. She emphasises collaboration as a way in which teachers need to work, in order to support one another in teaching, and improving learning.

> *You know what? I think we're very hands on school. We're very aware of changes, and I think we're very supportive of one another. And, you know what, more than*

> *often collaboration does take place. During collaboration teachers help one another. So I think we're all aware of that and we all assist.* (Deputy Principal)

Most responses indicate that teachers can improve learner performance through hard work. As has been mentioned above, the school aims to achieve higher standards. This is what one of the foundation phase HOD says:

> *We're very lucky in my phase, I have wonderful teachers that work very, very hard. The performance of the learners is of a very high standard and it's because of the hard work their teachers give during the day. If you walk into a Grade one class, you'll never find them sitting at their tables; they'll be in amongst the children, helping the weaker ones, working with them. Our ANA results were twenty-five percent higher than the district one. So, you know, it already says that we are working at quite a level higher than what is expected of us.* (FP HOD 1)

Classroom teaching is not seen to be the only measure of success in the school; there is a perception that other procedures can lead to effective teaching, such as planning and assessment. A response from another FP HOD is that,

> *I think at the moment we're actually doing very well. I really do. We've just had a district visit, where they came and checked our entire teacher's planning files, all of my files, and we really did very, very well. I really, I think we are doing very well here, I think we're on the right track here at. You know, there's always room for improvement and maybe more. But I think we're doing very well. I think there's a lot much work according to the Foundations for Learning that they sent us. So I think there is very much synergy between everything we're teaching.* (FP HOD2)

Teachers also indicated how they view success. To quote but a few responses:

From the language focus group, one teacher said:

> *I would rate the school very highly because we have got a good name in the community and the children that go from our school to the high schools, fare pretty well.* (Language FG, T1)

Another teacher from the same group, just like the deputy principal, sees outcomes as when there is collaboration among teachers, as this strengthens their ability to share and learn ways they can improve learner achievement.

> *I think if there's a problem or if you need advice, you know you can go to people and they will help you. If I don't know how to teach this lesson or there's a difficult child, or a child is struggling, then there's always help, from SMT and from teachers themselves that will assist.* (Language FG, T3)

In this next response, there is partiality in how the teacher presents her views about how she measures success in teaching practices and learner performance, in her school. One of the maths focus group said that,

> *It's difficult to say. Everybody here is different. I do think our school is academic-wise, we are good. Our teaching because our principal makes sure that we do our job well. Here and there, there are little bit of flaws somewhere, that [need] little of improvement, and I think they need that support, and there's not always that support. I won't mention examples, but yes, we've had the experience [where] there's no support. [We are expected to] fall in and get into things. That is how I feel like when there are new teachers coming in, they need to sit with them and say exactly what they want from them. They're just put in the classroom and they have to carry on, especially in the senior [primary] side. I think junior side you at least have got someone to help you, but on the senior side there's not always someone to help you. You're on your own basically.* (Maths FG, T2)

Again the emphasis is on working together, and giving support to those who need it to be effective in class. These responses indicate that in teaching, collaboration and support are considered essential in order to strengthen the teamwork, in order to succeed. The school's positive outcomes cannot be measured with isolation classroom or subject incidence performance, but the school as an organisation represents the whole. This also can mean that responsibility for problems regarding poor learner performance cannot be taken by an individual, as this represents and affects the entire school image. As a whole, a large number of teachers at Leratadima School seem to see the brighter side of things. This can be

evaluated by the way data present the standards in teaching and effective learning, and how data is effectively used to reflect upon and improve teaching practices.

5.7 Conclusion

Primary schools in South Africa have previously not been held accountable for learner achievement, as high schools have been. Assessment in primary schools was a private matter. Recently, all major assessment data is monitored by the districts as a means to hold schools accountable. In most schools where there are no personnel resources with knowledge and understanding of data analysis, it is only analysed at the district for aggregation, with very little or nothing done to enable schools to understand what the data tells them in regard to teaching. The data aggregation conducted at the districts is returned only to indicate how the school is performing in comparison to other schools. In most cases data is used to blame and shame schools. Support in dealing with the challenges faced by each school does not seem to get as much attention it could if educators at the school understood what they needed to do to improve learner performance.

When learners' performance is not satisfactory, it is an indication that teaching is not effective. When we consider responses with regard to all that was said about teaching, learning and assessment, Leratadima School is aware of how it can continue to seek ways to work towards making teaching effective, in order to improve learner achievement. No teacher is an island, therefore collaboration among educators, between educators and parents, and parents and children, can make a difference in improving learner achievement. With the challenges that teachers face from the department, parents, and learners, they have to find

alternative ways to overcome these challenges. As long as the school's vision and goals are made clear, there is hope that improvement will be consistent with every challenge faced.

School leadership must create opportunities for open discussion and an environment where ideas can be shared and practiced to improve teaching and learning. Observation and responses during interviews show that there is some effort made at Leratadima to collaborate and to have conversations around assessment data, in order to improve teaching practice and learner performance. Knowledge and skills in using data to improve teaching practice are not as obvious as the way teachers and school leaders engage with decisions that are made to improve learning. The school leadership needs to be pro-active in order to learn about and introduce new ways for teachers to use data to reflect and find alternative ways to engage learners; in order to better teaching practice and improve learner achievement.

Chapter 6

Case study 3 – Sunshine

6.1 Introduction

> *Effective school leaders are expected to attend to structure and culture, continuity and change within their school. To promote change that improves school effectiveness and learner achievement, the school leader has to focus on activities maximising learning outcomes and learner performance (Hallinger & Heck, 1998).*

Research has suggested that the use of data is part of a cycle of instructional inquiry aimed at ongoing instructional improvement, with the intention to encourage and motivate high learner performance. Supovitz and Klein (2003) argue that school leaders and teachers must use learner performance results to provide guidance that informs teachers about which issues or areas need more work, in order to improve learner achievement. Data is also thought to provide teachers with curriculum-relevant information (Timperley, 2009). Research studies indicate that assessment data has been used for accountability and high standards to measure school effectiveness through learner performance. It is the heart of reform efforts in education (Earl, 2005). Research also shows that the use of data is effective when teacher decisions about instructional effectiveness are based on assessments of learners' actual proficiencies, in various skill areas (Pardini, 2000). As a result, teachers are able to modify their instructional strategies when they have current information about the skills levels and proficiencies of their learners.

Since the introduction of the Annual National Assessment (ANA) benchmark tests in primary schools, the school management team (SMT) is held accountable for teaching, and improving learner performance. School leadership is under pressure to monitor and evaluate teaching in

their schools; however, not all schools have the knowledge and skills to analyse data. As a result, they rely only on the district, and forward the collated lists of data to them for aggregation. The aggregated data is then compiled to indicate highly performing and underperforming schools within each district. According to the district, the ANA results are used to diagnose and identify challenges in underperforming schools, and the offer them support to improve learner performance. However, teachers' perception of ANA tests is different; they are seen to promote competition among schools without considering their different contexts.

6.2 Sunshine School - Background

Sunshine is a primary school in a historically 'coloured' township in Soweto, south of Johannesburg. The racial division is as a result of the apartheid era, when the demarcation of society and the distribution of privileges were different. For example, 'coloured' people had better privileges than that of the Black community. Although most 'coloured' people speak Afrikaans, English is chosen as a language of learning and teaching (LOLT) at Sunshine. This formerly 'coloured' school, like the former Model C schools and the former Indian schools, now open their doors to admit learners from Black areas, where these schools are considered able to offer better education than schools in their own environment.

The school starts from Grade R up to Grade 7 and serves mostly children from the 'coloured' community, but also accommodates Black learners from two neighbouring informal settlements. It caters to a complex variety of learners from different linguistic and socio-economic backgrounds. For most, English is a second, third or fourth language; this is also

the case for the teachers. Christie (1998) research shows that many Black parents would rather have their children taught in English, as they think it will afford them better opportunities when they have completed their education. One of the head of departments (HODs) mentioned that parents choose to bring their children to Sunshine because it is considered better schools in their immediate environment, with regard to good attendance and discipline.

The principal had held his position for only two years when data for this research was collected, but other school management team members and teachers had been at the school longer. The school management team includes the deputy principal, and three phase or subject head of departments (HOD). One is HOD of the Foundation Phase (FP), and two of the Intermediate phase (for language and maths/science). There are also five support staff involved in various administration and maintenance duties.

6.3 Data collection

After failing to get the other two schools that would make the sample of this research study a balanced demographic representative of the population in South Africa, I looked for and visited a few schools in the previously demarcated 'coloured', Indian and Black areas to invite them to participate. Although I live in Eldorado Park, I did not know about Sunshine. My daughter was doing teaching practice at the neighbouring high school to Sunshine; that is when I learned about it. I visited the school, introduced myself to the principal, and explained the purpose of my research. After the principal asked me a few questions, he completed the questionnaire used for the pre-selection of schools for this current research and gave me

permission to conduct research at his school. I visited the school a few times before I could interview teachers at Sunshine. The delay came because after granting me permission, he never conveyed the information to the school management team or the teachers. Because he was not always at school, it was difficult to engage with teachers without his presence.

It was after a third week of visiting the school to start with interviews that the principal assigned one of the heads of department (HOD) to made arrangements for me to begin collecting data. This arrangement made it possible for me to successfully interview the two focus groups, the HODs, the deputy principal, and the principal, who was last to be interviewed. Unlike everyone else I interviewed as this school, I found that during my interview the principal was at times not very professional. For example, during the interview we were disrupted by long telephone calls. One of these calls was clearly of a highly personal nature, and I was not sure whether to leave the room or not. I stayed because I could not anticipate how long the call would be, and because he did not indicate that I should step out for him to continue with the conversation. An interview that could have taken forty-five minutes to an hour went on for almost two hours. In his responses it sometimes became obvious that his line of thought was interrupted. This behaviour made me feel that he was not professional and disrespectful, since a time for this interview had been arranged prior to my visit. At the end of the interview he was supposed to give me example data, as evidence of how data is presented before it is sent to the district. For some reason he could not find them, and I was asked to collect them from the secretary when I passed by the school. I went to the school twice; the principal was not in and the secretary did not know anything about what I had to collect. This made it difficult to know whether he was willing to let me see the information requested.

Unlike other schools I engaged with, at this school I never had a chance to interact with teachers informally in the staffroom. Possibly because of the cold weather, they spent time in their classrooms near the stoves. My observations in other schools enabled me to see extent to which teacher and school leadership interact informally. I only observed a formal gathering of school management team (SMT), and another with the entire staff, on one of the mornings I came into the school. I learned that these are brief meetings held every morning to keep teachers informed of new circulars and other relevant information. In explaining the purpose of the meeting, the principal said:

> *And with that, we have the teachers busy on a constantly basis, we're having a briefing session every morning for fifteen minutes. And communication is one of the key factors when it comes to education. So I believe in constant communication with our teachers, because with the changing of curriculum and things like that, you need to inform them on a daily basis. Instead of just having one staff meeting per term, everything gets forgotten at the end of the day.* (Principal)

Other meetings that were mentioned were those between HODs and teachers in their subject areas. These are said to happen quarterly, when they view data collected for a term or semester. In their responses they mentioned that in some of their meetings they plan lessons and activities, as well as discuss and moderate assessment questions.

6.4 Leadership role to improve teaching practice

Responses from the principal at Sunshine were at times evasive or irrelevant to questions, and it was not always easy to probe for further responses in an attempt to direct his attention to the focus of this research study. He did not always act professionally during the interviews; he would be disrupted by the telephone. I did not intend to ignore that the principals'

responses did not, in most cases, provide direct answers to inform what his thinking or understanding on the use of data is, and how this can used to improve teaching and learning. I foreground this information as I need to present it in a comparison of the empirical data in the cross- analysis of the four schools that participated in this research study, and to draw conclusions about the responsibilities of school leadership role/s in the use of data to promote effective teaching and learning.

According to the principal, he shares managerial and instructional responsibilities with the deputy principal, as they focus on the Foundation and Intermediate phases respectively. The principal further said that he is an overseer of the implementation of activities aimed at maximising learning outcomes and promoting whole school improvement. The principal was asked what is being done to improve learner performance at his school. His response includes a number of initiatives he has put in place to address challenges in teaching and learning.

> *Madam, currently I would say with regards to the changes from the Department of Education itself, it's always a stumbling block, and due to, one, the vulnerability of the school as a building itself, it's always a stumbling block. Like we opened up a computer centre for the teachers on top, and it was networked, everything, and three months down the line we suffered a burglary. Then we bought new computers, laptops, and things like that, with the* SA'SAMs *running. On Thursday, they came with a new patch with regards to* SA'SAMs, *for the report cards to be computerised and things like that. That patch wiped out everything. So now we're struggling to load the information once again on to* SA'SAMs, *to get everything up and running. I would say for, I'm here now for a year, now the main purpose of you as a manager of a school, you need to look at the human resources, and you need to look at the physical resources at the school itself. Due to the fact that most of our learners, we're still sitting with 70% of 'coloured' learners. When I arrived here, we had 11 so-called black teachers. And, you know, with the language issue, trying to get the message across to the learners, an African teacher will normally struggle with English, because we must also understand that English is not their first language, neither their second language. It will always come as a third or fourth language. So after consultation with those teachers, I organised for them to go to schools where they could teach and be more relaxed and whatsoever. And in their place, then I got hold*

> *of more qualified teachers, now so-called 'coloured' teachers that can at least be on par with the learners (interruption).* (Principal)

The principal seems to have sense of agency in that he bought computers to make it easy for the school to store information. In his response, the principal attended to the loss of computers and the disruption caused by the crash of the system for producing reports. It seems the use of South African' Schools Administrative Systems (SA'SAMs) system is regarded as a smart way to reduce time spent on preparing report manually, and when the computer crashes, it does not cause a delay.

Despite the fact that the use of English as a LOLT may be a challenge to most second language speakers, the principal found the dismissal of eleven Black teachers justifiable because they struggled to speak English. This response seemed, and it was also surprising that in the short period he has been at the school, he could make such a drastic decision. The question here is whether, as the principal, he gave support to these teachers and if so, what form it took, before they were made to leave. Whether or not they were provided with a chance to grow in this school environment was not made clear. His action may also indicate that the principal was not sensitive to socio-political tensions that still exist among South Africans as a result of our past. The people of South Africa are trying to accommodate one another and promote reconciliation; to recover from the discriminatory laws that divided it along racial lines. This is a topic for another research study.

It is difficult to internalise and understand why the principal indulges in actions that do not relate to improving the school image or promoting effective teaching and learning. For example, the process of dismissing or transferring teachers is a more complex one than he

made it sound. This is usually a matter handled at the district level; as a result, it makes it difficult to accept his version of the story. This analysis also focuses on how his statements were made and my observation of his body language during interviews. There was, to some extent, a sense of arrogance and superiority towards Black people. I did not pursue this matter since it could have distracted from the relevance of the data required for this study.

As I tried to elicit information that I could link to the use of data to improve teaching and learning, the principal instead explained other initiatives he has put in place to improve school effectiveness.

> *When I arrived here, the Grade 4s used to have subject teaching, and we all know that they are still minors. So what I introduced was class teaching, once again, where the learner sits in the class, for the whole day, in one class. Because they're coming from the foundation phase, and know that because they're still too young, most of them are nine and eight years old, now they need to go over that (interruption) now you need to bridge that and it's not working. So currently they're back to the old system where they are au fait with the teacher, most of the time the teacher is teaching them, from mathematics up to life skills. Those are the few things.* (Principal)

It was not always clear how these initiatives were intended to improve learner performance. However, it was necessary to understand his idea of keeping learners in class during the change of periods and how it contributes towards improving teaching and learning. It is acceptable that during change of period's time might be wasted, and that the movements may cause disruptions. On the other hand, this can be a reasonable solution, if teachers would be in class to start lessons on time, since Chisholm et al.'s 2005 study found that very little time is actually devoted to instruction. When asked to elaborate further as to how all the initiatives he mentioned would improve learning, his response was:

> *Look, you're not going to see the improvement from the first. Let's take the play area for the Grade Rs, the child sits in the class the whole day, just receive theoretical information from the teacher and things like that. Now I believe in the holistic*

> *development of the child. So if the child is physically active, the body becomes more active, the body becomes healthier, and I also believe that a healthy body causes a healthy mind at the end of the day. Even introducing, like now at the back, the school only had cricket. And when I walked in here, I said, no, we must have all different kinds of sporting (codes?) at the end of the day, so that children can participate. I believe in mass participation. Instead of just concentrating on one particular sport,{we expose learners to various sports]. If there's only one particular sport at the school, at the end of the day some of the children will not participate in sports. For example, most of them do not get the opportunity to play cricket. Now with the different sporting activities, you open the scope for the children at the end of the day, and you're not restricting then to one specific thing. So once again, a healthy body causes a healthy mind.* (Principal)

The above response does not follow through from the previous responses, but raises a new perspective. In his new response, he considers physical engagement, and the provision of resources that expose learners to various sports activities, necessary to keep learners physically and mentally fit as his approach to educational change, instead of focusing only on academic learning. There is no denying that physical exercise stimulates learners and keeps their minds alert.

With regard to supporting teachers, the principal mentioned that teacher development programmes are necessary to keep teachers informed, as well as encourage them to further their studies. There was no indication of how the school leadership makes arrangements for teacher development programmes, or encourages teachers to attend workshops so that they can engage in discussion that will enable them to find solutions to improving teaching practice and learning. Neither was teacher development linked to promoting teacher collaboration as a way to learn and share among teachers, encouraging and supporting each other in finding alternative teaching methods, and engaging learners in different learning experiences.

However, during my interaction with teachers and HODs, they made claims of working together towards finding common ground to improve learner performance. There was little teacher acknowledgement of how they work together towards the improvement of teaching practice. When asked how the principal supports or encourages staff to improve teaching practice, he said:

> *The educational development you mean? Yes, madam. I always encourage my teachers to enhance their qualifications. Last year I tried to get about three foundation teachers that I want to get onto the ACE program, to just help them to further their education. I've got two teachers who are currently studying their honours in education. Four of them last year completed the advanced certificate in education. So there's always that, also one lady completed honours degree in educational psychology. And I think when you as a leader, when they see that you are constantly busy studying, it boils down to them, they also want to further their careers and things like that. So they know that their principal completed his masters, he also tries to go and do his PhD next year, so they know. And they always want to further their studies.* (Principal)

Answers to questions asked did not elicit explicit responses. If teachers were upgrading their qualifications, there is no proof that their studies were aimed at improving teaching and learning. The principal does not attempt to make a link between teacher development, and improvements in teaching practice and to promote learning. For example, the principal does not make a connection as to how a course like Advanced Certificate in Education (ACE) will enhance the teacher's knowledge and pedagogical content knowledge; neither does he mention how the teacher studying psychology in education practice, can put into practice his/her knowledge and skills to benefit the school by identifying problems in learning and advising on how they can be managed. His responses seemed, to some extent, boastful and an attempt to impress.

When asked how he is involved in assessment practice, he answer remained evasive.

> *Assessment practice, HODs, like the organogram of the school, teachers report to the HODs on a weekly basis, HODs submit the foundation phase submit their planning for the week directly to me. The senior phase submit it to the deputy principal, but at the end of the day HODs report to the deputy principal, deputy principal reports to me, and from there I must make a global decision with regards to the school.*

With regard to the use of assessment data, the principal's responses do not indicate what is done with data as teachers collect it and present it to him. There seems to be little indication that the principal, as a leader, is responsibly involved in influencing improvement and promoting a culture of using data to inform the changes necessary in teaching and learning. This, however, does not mean that there is no effective teaching and learning at the school. The HODs and teachers talk explicitly about ways they use data to improve learning.

6.5 Data use to improve teaching and learning

Research indicates that in the 1990s, scholars like Chrispeels (1992); Codding and Rothman (1999); Bernhardt (2000a); Earl and Katz (2002) and Proteroe (2001); and later in South Africa, Eric Schollar (2004); began to explore how data could become an important part of improving teaching practice and learner academic achievement. The difference between leading international school practices and South African school practices around the use of data has to do with both the scale and understanding of the initiatives, and the continuity of focus on data use. Data has been used for accountability and to promote high standards of teaching and learning to measure school effectiveness. It can be used to improve educational outcomes and provide schools, districts and national departments with opportunities to share best practices based on hard evidence.

When asked whether the school management team engages to discuss learner performance, the principal's reply was:

> *Yes, we do have. Like the one thing, this one of the performance of the learners, especially we discuss this thing where we have the problem of the Grade 6, because with the systemic evaluation, or the ANA, the learners are writing, is a Grade 1, and 3, and Grade 6. Now Grade 1 and 3, the performance is on top. The performance of this school is, the last one was above average. It was above provincial, it was above the district level, it was above national. But when it comes to the Grade 6s, literacy is there, but we had a problem with numeracy. We had a problem with numeracy, we found that the problem was in the Grade 4s, due to the fact that they had this, instead of class teaching, they had subject teaching. Part of that problem was this specific educator, because he teaches those learners mathematics in Grade 6. You understand? So the problem, we actually discussed the problem, and we found out that it was the absenteeism of the teacher that causes the poor results especially mathematics results in Grade 6***.*** (Principal)

Use of the ANA data enables the school management team to recognise poor performance with Grade 6's numeracy. This was associated with irregular attendance of one maths teacher, and the fact that he taught these learners from when they were in Grade 4. The negative effect of the teacher was realised from poor learner performance in the ANA results two years later. What was surprising is that even when data for this study was done, the teacher was not at school as usual, and yet no action had been taken. The principal wanted to justify his idea of doing away with subject teaching as he was in favour of classroom teaching. However, keeping the same teacher maths for three grades, even when learner performance is badly affected, does not seem a decisive action to be implemented by the school leadership. This does not mean data does not inform leadership, but when no decision is made to resolve problems in teaching, blame can be directed at school leadership for failing learners.

On the other hand, interview responses from teachers indicate that they work together and think about what could be a problem when learner performance is poor. When asked what questions come to mind to enable them to understand problems, based on assessment data, the following responses emerged.

> *You are supposed to come up with an intervention strategy for those underperforming learners, to get the on par with the rest of the learners who are performing well, or who are just performing above average. The intervention strategies that you would have to follow would be to first and foremost, evaluate and assess where specifically did the youngster not perform well? Thereafter you would have to come up with a remedy, or you would have to think up a way of rectifying that error, or that learning vacuum, where the vacuum occurred, you'd have to come up with a strategy to fill that vacuum effectively*. (Maths HOD)

The Maths HOD's response indicates that teachers have to try and understand the cause of the learning problem, help learners understand errors, and identify possible ways to help improve learning. In addition, one of the maths focus group responses explains that teachers do question themselves when learner performance is poor.

> *The question that comes up in my mind is, why do we have a ninety and a five? Why is that learner doing so badly? [These are] those learners that are every day in the class, that are getting the same attention [as others]. There are those, a few, who do not want to improve themselves. They are content, and they will merely tell you, mathematics is not my subject. I don't understand mathematics, and then I also don't want to understand mathematics. So you're sitting there and you say, where's the problem? I do some introspection. Maybe I'm [expecting learners to perform at] A grade level.* (Maths FG, T1)

Another teacher from the language focus group mentioned that when they come across learning challenges, they work together and support each other to resolve problems in learning.

> *Because we'll say, hey, O, I've got this problem today, or Mrs W this is what we experienced today in the class. And she will come and we'll say, hey, help us, do you think the children will be better if we give them a crossword puzzle, than just to give them a plain written exercise like this?* (Language FG, T3)

In support of this, another maths teacher indicated how learner performance makes them ask questions and seek for help where possible.

> *Like in Grade 5, the problem in teaching long division, so I was asking myself this question, am I teaching these children properly? I told myself that maybe there's a problem with me. I went to Ms (Y) and ask her to come and teach my class Maths the following day, for three days or four days so that we can see some improvements, but unfortunately there is no change with learners] they are doing changing.* (Maths FG, T3)

From these responses it can be concluded that teachers become concerned when learner performance is poor. They ask questions to help one another think of what the cause of the problem may be and to understand it, in order to find alternative ways to improve learning. However, there were times when teachers shared their frustrations such as when they consider that learners do not take interest in learning. There was a strong sense that teachers prefer to work together, sharing and using this collaboration to find solutions to learning challenges.

6.6 Collaboration to improve teaching and learning

Love (2004) emphasised that a school leader should encourage collaboration through data analysis, build data teams, and facilitate powerful conversations about data that will lead to improved teaching and learning. According to the principal, having conversations with the school management team and with teachers is the way to promote a culture of sharing among teachers and the leadership, so long as it is not done merely to comply with a policy of cascading information from the government to teachers. However, at no point in his response

does he indicate how these conversations articulate support for teachers to improve teaching practice and promote effective learning. His conversations are limited to solving other problems, related to management, rather than to instructional improvement. For example,

> *You would see, for me personally, I believe that if you've learnt something, then you must share it. Education is about sharing at the end of the day. Conversations we [have with the] SMT, like this morning, was in regards to absenteeism of teachers. Now, I believe in working together, so everything is a collective agreement at the end of the day. We've got one specific teacher that stays absent frequently. The other problem we discussed this morning was sexual harassment in the workplace. The other problem was corporal punishment. So for me just to make a decision here on my own, is not going to help me at the end of the day.* (Principal)

As much as the problems he raises may affect school effectiveness, the principal does not focus mainly on activities maximising learning outcomes and learner performance. Rather, he thinks that, hopefully, starting by providing appropriate infrastructure, and being concerned with the behaviour of irresponsible teacher/s, teaching and learning will improve. On the other hand, both the HODs consider collaboration important to encourage them to work together in their subject teams, to share and learn with and from each other. When asked about the effectiveness of the meetings they have from time to time, the Language HOD said:

> *We draw on each other's knowledge, and support. I also make available suggestions. Like I'll suggest on worksheets, and how we [can use] intervention strategies. We have to work together. So to make it easier, when you have worksheets, what you have, let me see what you have so I can use it for my learners, because they're all at different levels. These are some of the suggestions* [*we share*]**.** (Language HOD)

She later mentioned that through collaboration, teachers they can learn about learner progress referring to his/her previous class performance.

> *It is important. You know, they say, no man is an island. So it is important because you gain a better understanding of the children, because I liaise with the Grade 4 teacher, and the child is in Grade 5, how was this child? So it's important that we work together, also for uniformity, and to have a standard. We work according to standards. So it's important that we work together, and team work. We can call on*

> *anyone of the teachers to do anything at any time, and they're willing to do that, because there's team work and we work together.* (Language HOD)

The Language HOD also eludes to the fact that working as a team and collaborating makes it possible for teachers to work towards maintaining the same standards. These standards are based on the HOD's response regarding possible results if they based their discussion on sharing the same teaching practice, standardising the types of tasks done in class, and giving similar assessment tasks, to encourage same standards in learning.

> *We basically talk about the same things, as to what your methodology of teaching is? Explore different avenues of teaching in order to get the learners to grasp the concepts, scientific terms or mathematical terms or mathematical formulas. They talk about different methods of various methods of assessment to set same levels of learning.* (Language HOD)

In contrast, one of the maths teachers mentioned that despite teacher collaboration to understand and find alternative ways to engage learners, there is not always a benefit when teachers improve their practice, since learners do not seem to take interest, in learning maths in particular.

> *I think at the moment there's a great sense of frustration. Because it doesn't matter what approach we take, it almost comes across as though our children are not willing to learn. They're not interested in learning. And I think that's a common feeling amongst the teachers. That we have past the stage where we're questioning ourselves and our abilities, but that we've come to the conclusion that we are in competition with so many other things that take the children's attention away from school work. So even if we try and we interact with each other and we ask, how are you going to teach this particular aspect of mathematics, for example what would you do? It's almost as though we are like the children, just not interested. The children are not keen on learning new things, because I think I hope I'm wrong, but educational things seem not to hold any kind of value for children any longer*. (Maths FG, T1)

The follow up question asked was, "Why do learners not have interest to learn?" The maths focus group seem to have the same perception about learners not wanting to learn maths, but

there was never a reference to whether their knowledge and the way they teach does not stimulate learners' interest in the subject.

To further demonstrate the support teachers need, one teacher's response was that there is little support from the school, and they do not seem to benefit from collaborating with others internally and externally.

> *We have meetings with our HODs, we have our subject meetings. We get very little [support]. I think, no, a person must be so careful what you say. But we get very little support from the department, from our Department of Education. Because if they have learner area meetings, they come with a set of demands that are sometimes so unrealistic, that it's not classroom friendly. It's the ideal. But the reality is, is that some of those activities and things that they recommend that you should do, are so far removed from where the children are now. That I find going to those meetings to be extremely frustrating.* (Maths FG, T1)

There is a conflict between the HOD and the maths teacher about collaboration in the department. It is difficult to confirm this disagreement, as the study did not observe the engagement of teachers and school leadership in any meeting where they discussed matters related to teaching and learning. In her response, the teacher shifts attention from the school leadership's support, to the Department of Education (DoE), and blames it for lack of support and demonstrations of how teachers can collaborate, learn improve teaching practice, and promote effective learning. Teacher development is another way in which teachers are supposed to interact with and learn from each other. It is common practice for districts to occasionally organise subject cluster meetings for teachers to gather together and be informed of new ideas in education, related to the knowledge and skills they need to improve teaching and learning. There are different views of how teachers feel about the productivity and outcomes of these gatherings.

6.6.1 Teacher developments to improve teaching

Teacher development can happen at school level as well as at through the department structures. In schools, the leadership has a responsibility to expose teachers to new ideas and developments in education, as they are necessary to improve school effectiveness. They can focus on knowledge or skills required to improve teaching and learning. The department can also offer teachers support to improve knowledge and skills; to support teachers and strengthen their subject knowledge content and pedagogical content knowledge. Usually, these teacher developments address general needs, such as knowledge and implementation of new curricula. In some cases, teachers in various subjects are invited to learn new ways in which they can introduce new knowledge and ideas in teaching their subject; for example, collaboration can be introduced as a way to prevent teachers from working in isolation. There was no mention by any of the teachers or school leadership about engaging in internal teacher development workshops. The only way teachers collaborate, is when they discuss what they teach and how to improve learner outcomes. According to Leithwood, Harris and Hopkins (2008:34), collaboration attributes to working culture that extent teacher motivation and commitment. This is made possible if the principal and his team are committed and encourage teamwork by having scheduled meetings on the timetable. The use of data use would have been another way the school leadership could encourage collaboration, to make it possible for teachers and school leaders to improve teaching practice. However, teachers' responses do not seem to provide a positive reflection of teacher development gatherings.

Another important purpose of teacher development workshops is that those who attend are expected to share new ideas that they learn, with their colleagues. This is an extension of collaboration to be practiced in schools. However, not all teachers at Sunshine seem to share

the same views with regard to helping them improve teaching and learning. Each of the responses below presents a different view regarding the perception of the effectiveness of teacher development workshops.

> *Cluster meetings. I actually don't enjoy going there because they just give you hand-outs and packs of notes and they don't explain to you how you should approach your learning area at the level where you are at.* (Maths FG, T1)

This teacher's response clearly indicates that he does not find the workshops worthwhile, as he did not learn anything new or useful to improve his knowledge of the subject and alternative skills to teach it.

> *We do, we have regular [meetings], when we come back from the workshops, we come together, we say, I received this and this, look [at it together]*. (Maths FG, T2)

The second teacher's view is that the workshops provide them with hand-outs that may be used in schools. However, these can either be presenting a positive view if the notes collected are to be used, or negative if the notes become irrelevant to the school's need for change. From the language focus group, the responses about teacher support teachers is bleak, as government officials are blamed for what is not happening at school. District officials are not considered good at what they are supposed to do in terms of providing support for improving teaching practice. The other concern raised in this group, is that cluster meetings are a waste of time for teachers since the organisation is poor, and these meetings happen during teaching time, and do not attend to individual classroom challenges.

> *Yes. And let me just sketch a scenario. When we go to these cluster meetings, it happens during school time, they have it at a small venue, [use classrooms as venues] for the different learning areas. [When] you come into the classroom setup, it's a lot of people from different schools coming, the classroom is overcrowded, just like the children in our classes and the content is not always relevant to our school problems.* (Language FG, T1)

Based on the responses above, there seem be claims that at Sunshine there is minimal collaboration among teachers at subject level. However, besides morning meetings, there is no collaboration between the school leadership and teachers. Teachers seem to work toward searching for ways to improve learner performance, but not much is done to use data to reflect on teaching practices. Lack of use of data to learn and understand learner needs can deter chances for teachers to alternative teaching techniques and involve learners in different learning experiences. The challenge at this school is that none of the school leadership seems to have any vision of the use of data; as a result, attempts to improve teaching and learning are not based on hard evidence.

Successful use of data has been used for accountability and to maintain high standards that measure school effectiveness, and that it is the heart of reform efforts in education. Data has also been used to encourage collaboration for information-sharing, for the purpose of improving teaching and learning. However, based on teacher and school leadership responses at Sunshine, it cannot be confirmed that data informs teaching and learning practices.

6.7 Conclusion

Based on responses from the principal and the deputy principal, there was no clear indication that school leadership are committed to using data, building capacity, and sharing a vision of how data can benefit practice in their school. To some extent, the HODs and teachers seem to collaborate to find solutions to improve learner performance.

Findings based on interviews seem to indicate that at Sunshine, there is a strong focus on improving learner performance rather than on improving teaching practice. When asked how learner performance enables teachers to make decisions around it, it was not clear if teachers understood that the use of alternative teaching practices could make it possible for them to improve learner performance.

In conclusion, Sunshine does not display strong practice in the use of data for making decisions towards changing teaching practice, to improve learner achievement. This could be attributed to school leadership's lack of data usage to engage in questions that will encourage collaboration, and to share and learn practices to improve pedagogical content knowledge, and improve learning. Research findings may be a useful guide for schools to identify key factors that are significant in influencing effective data use.

These include:

- the quality and accuracy of available data;
- staff access to timely data;
- the capacity for data disaggregation;
- the collaborative use of data organised around a set of questions; and
- a leadership structure that supports school-wide use of data.

At Sunshine, it is necessary for the leadership to engage the whole school in conversations to establish outcomes and definitions concerning meaningful use of data. Another suggestion that may be useful for the school's leaders is to include teachers' professional judgement as a component of the information process – a data point, alongside other such quantified data as standardized tests. This would enable teachers at Sunshine to consider their judgement to be an important piece of knowledge, and make them unlikely to resist professional development initiatives such as those provided by the Department of Education. The district also has to

enable schools by building capacity and providing the necessary skills to engage, inquire, and interact, using questions to understand information based on data, and so be able to make decisions towards school effectiveness. The school needs to identify teachers with the skills to interpret data and transform it into knowledge, to help them understand learner needs, or to collaborate with neighbouring schools successful in use of data. In the absence of internal persons with such skills, the school may have to seek external professional help to provide them with necessary skill to engage with data. These skills are a necessity to enable schools to extend possible ways of improving teaching and learning.

Chapter 7

Case study 4 - Hope

7.1 Introduction

> *In order to realise a total shift in practice, in ways that support learner improvement, teachers must be willing to challenge their own practice and give up long-held beliefs if these are seen to not be working (Jaworski, 2008).*

Research shows that using data is effective when teacher decisions about instructional effectiveness are based on assessments of learners' actual proficiencies in various skill areas (Pardini, 2000). The use of data to support learner success and school improvement is considered one of the fundamental aspects of using data to improve learner performance (Bernhardt, 2000a; Codding & Rothman, 1999). Researchers argue that data is a powerful ally in stimulating positive change in teacher practice and improved learner performance (Lachat & Smith, 2005). However, the lack of knowledge and skills to recognise how data informs teaching practice is a challenge experienced by school management teams (SMTs) and teachers, and as a result, it becomes a challenge for a school to use data to effect good teaching practices to improve learner performance.

The Earlier Progress in International Reading Literacy Study (PIRLS) and the Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ) show poor performance by South African learners in the area of literacy and numeracy. The Department of Education's use of Annual National Assessment (ANA) tests to measure learner performance in Literacy and Maths also indicates that learner performance in South African schools is poor.

Hope is one of the four case study schools of my research. Learner performance at this school is the lowest when compared to schools in the same district. Overall, the school results fall in a category of under-performing status. Yet not all educators at this school seem to acknowledge the seriousness of what the data shows about their teaching practice. There is data from various assessment tasks and activities do not seem to be effectively used to enable educators to reflect and consider necessary change to improve teaching practice. Teachers do not seem to deliberately engage in questions that would enable them to identify problems in teaching, which may affect a student's learning. Although educators are aware of the significance of data, based on their responses there seem to be no indication of commitment to critically engage with data in order for teachers to find ways forward with their problems of practice (Brodie, 2013); and to make decisions to promote effective learning. Where there are attempts to use data within this school, it is often used to focus blame on others, such as learners, parents, and the Department of Education (DoE), rather than to question their teaching practices.

Using data is a powerful tool to strengthen academic outcomes for all learners, in particular in underserved communities. Research shows that greater reliance on data has led some teachers to be more accountable to one another through collaborative school improvement work and reflective practice. Collaboration is favoured as a way to create or strengthen the whole school in sharing expectations and common practices regarding the use of data. In order to foster collaboration, leadership should engage the entire school in conversations to establish outcomes and definitions concerning meaningful data. Data-driven inquiry processes act as tools to enable school leaders and teachers to implement change in schools (Holcomb, 1999, 2001),

which often would not be successful in attempts to achieve high standards of excellence without the effective use of data.

Research indicates that effective use of data is based on asking questions to get better results (Ingram, Louis, & Schroeder, (2004), as well as asking real questions that should not be "*whether* to ingrate the use of data in decision making, but *how*" (Nancy Protheroe (2009:1).

7.2 Hope school – Background

Hope is a school in a township in Soweto. It is a small school with only 171 learners. Unlike other schools that participated in this research, Hope does not have a deputy principal, since it is a small school. The school management team (SMT) is composed of the principal and two phase heads of department, one for the Foundation Phase (FP) and the other for the Senior Primary. All members of the SMT are involved in teaching, which is not always the case in schools with bigger enrolment and more staff members.

Hope starts from Grade R to and goes to Grade 7; each grade occupies only one classroom. The school serves a Tsonga language speaking community. It also accommodates learners from Mozambique, a neighbouring country east of South Africa, because one of the languages spoken in Mozambique is closer to the Tsonga language. The choice of language for learning and teaching (LOLT) at Hope school is Tsonga in the Foundation Phase and English in the Senior Primary. English starts to be introduced in the Foundation Phase from Grade 1 as a subject. All teachers at Hope

are qualified, except for those teaching Grade R, for which qualifications are not yet mandatory. A few teachers have been at this school for more than 10 years and there are also young teachers who have recently joined the school. Each teacher has a class and in the Intermediate phase, teachers do subject teaching; as a result, learners go to the teacher's class during that period.

Based on observation, there are sufficient classrooms for all grades and there is an administration block with the reception office, principal office, the staffroom, a storeroom and toilets. The school also has playgrounds and a vegetable garden, and the produce from the garden is used to feed learners. Each classroom has suitable furniture for each grade. In Foundation classrooms there are charts and various teaching and learning tools or teaching aids. These classrooms are colourful and contain representations of letters, numbers, shapes, and so on, as is commonly seen in young learners' classrooms. In the Senior Primary classrooms there are few charts presenting various topics, but classes do not have as many attractive materials as in Foundation Phase classes.

Learners at this school wear a black and white uniform. The school uniform is simple and inexpensive, since it can be bought from most clothing stores. Some learners were observed coming to school on a cold morning without warm jerseys, and others were without shoes. This suggests that some of these learners may come from very poor homes. The principal mentioned that the school provides meals in the morning and at lunch from donations, in addition to produce from the school garden. The feeding scheme caters for learners who come to school without having had anything

to eat. The principal said that for some children, the meals served at school are the only decent meal they enjoy for the entire day.

7.3 Data collection

In comparison with the initial information provided in the questionnaire, which was distributed to schools, the response from the Hope principal on the use of data was different from the other principals'. This made it an interesting school to have as a participant in this research. In her responses to the questionnaire (see Appendix C), the principal mentioned that the school did not use data to improve teaching practice. While the principal's statement, might have excluded the school from the study, I included it as an interesting case, as all other schools who returned questionnaires claimed to be using data to improve teaching and learning. I wanted to find out if the school's practices might actually not be reflected in the Principal's statement and if the practices are reflected, what factors inhibit Hope educators from using data, as it would provide answers to one of the research questions for this study.

After the principal had granted me permission to conduct my research at Hope, I visited the principal to explain the process and to arrange for dates that I could visit the school to collect data. There were delays before I had a chance to meet with teachers and collect data. I had arranged to spend as much time at the school so that I could interview members of staff whenever they were available. Semi-structured questions used in interviews aimed to enable teachers to provide information that

would tell a story about their school culture, and why assessment data was not prioritised for the improvement of teaching and learning.

I will discuss and/or present the direct views of the teachers and the school management team, based on interview responses and observations at Hope, as to how they may or may not use data to make decisions for change.

7.4 The role of data at Hope

Assessment is an integral part of teaching and learning and requires teachers to use different assessment strategies to equip learners with a variety of knowledge and skills that will enable them to engage in problem solving, thinking, and reasoning. Assessment data has to be used for accountability and the promotion of high standards, to measure school effectiveness through learner performance. It is the heart of reform efforts in education (Earl, 2005).

At the beginning of interviews teachers where asked what changes they have experienced in their classrooms since they started teaching. This question was asked in order to discover whether teachers are aware of educational developments that require changes in teaching practices. Some of the responses focused on what worked well and what made teachers' work difficult, as well as what they would love to see happen. Some of the responses indicated challenges that focused on poor learner and parent involvement, which they regard as a cause for poor achievement among learners.

Responses from teacher interviews confirm what the principal mentioned in the questionnaire: her school does not use data to improve teaching practice, but only to improve learner performance. However, most of the responses did not indicate that teachers thoughtfully examined data with deeper knowledge about the nature of learner problems (Boudett, City, & Murnane, 2008). For example, the response from one of the teachers in the language focus groups indicates that teachers find the benchmark ANA tests disruptive and frightening.

> *Actually like we are saddened by the performance, and it's not easy for us to sit down and discuss ANA as teachers. Because you know, it came as a…it didn't come in the right way, it came as a monster. Like let me give an example, this year they said, last year we prepared learners for writing ANA in December time, but they said, no, there's no ANA. Then all of a sudden, February came, and then learners have to write ANA. We have to go back, Grade 4s have to write, Grade 3 work, and we all stressed to say, and we needed to go back to say, ok, let me go back to the previous class and teach everything. That's time wasting. Let me go back to my Grade 5 learners, teach them language, maybe they've forgot. Let me go back to my Grade 6 learners, they're in Grade 7 now. [Sometime we don't have enough time to do that.*
> (Language FG, T1)

This response indicates that the teacher may prefer an uninterrupted, structured system, as a routine, to avoid losing track of what needs to be done. In order to understand the experiences that challenge teachers, a question was asked about changes that teachers experience to improve teaching. A maths focus group member's response is that,

> *I can say, that since we started, we used to assess learners on our own, marking their work and giving them marks. Now assessment is the learner has to assess himself, and the group has to assess themselves, and you as a teacher has to assess a group, a learner, so I think it's like a lot of work for a teacher. Since assessment is a long process, it is not like in the olden days.*
> (Maths FG, T3)

This indicates a lack of current knowledge and access to research that would enable teachers to find ways to improve teaching practice, and make it possible to promote effective learning. Some of the teachers at this school seem to spend a good deal of time engaging in blaming. There was not a culture of reflecting on one's own work.

When teachers were asked if they used assessment data to reflect on their teaching practice, another Language teacher blames poor learner performance on social issues as well as lack of parental support.

> *All I can say, maybe we should come together as numeracy teachers, come up with a strategy how to help the learners. Maybe we might go extra mile, like maybe giving then a lot of homework. Another thing that kills us is homework. Parents don't assist us.*

Another teacher says:

> *No, like in this case, you don't, if there's one thing about the learners, you don't blame it on the learners in the way that…before you assess…ok, you teach and then you come back and then before you know it, you look at the pattern on which this learner is performing, and then you sit down and ask the learner what are the issues? Sometimes you find that some of these learners carry these things from home and then they bring them to school, and before you know it, you play the role of a social worker, you play the role of a remedial teacher.* (Language FG, T3)

These responses indicate that teachers want to see improvements in learning, but without thinking or reflecting on teaching practice. Not much in the interview discussions reveals what they would do to improve their teaching practices.

7.5 Initiatives to improve learner performance

A question was put to the principal about successful initiatives she has made towards improving learner performance. She mentioned that despite other challenges, the school has a drive to improve learner performance. She mentions that based on ANA

results, she is doing remedial work to support learners with reading and writing problems.

> *Ok. The improvement or maybe the input that I've made, which I see it being successful, is the reading and writing. And then we had an NGO, which is READ/Business Trust. We were equipped with some various methodologies in reading. For example, the shared reading, the group reading, the individual reading, which [are part of the skill development during]read. The learners, they have to show up in some maybe comprehending or maybe writing stories, or doing some other sort of things. So we were trying to cope with the changes as the curriculum was forever changing. We are striving, but we have a vision that one day we'll reach wherever we want to.* (Principal)

The principal identifies several factors towards improving learner performance. The first is her involvement with remedial classes to improve learner reading and writing skills. In addition, the school is supported through training by a non-government organisation (NGO) to improve methodology in teaching reading and writing. The principal seems to be the one most involved in this project, because some teachers raised problems in reading among some learners, who are referred to the principal for extra reading classes or support. The third improvement to improve learning is the involvement of parents in literacy education. Together with the same NGO, the principal involves a few parents in understanding the importance of supporting their children, and working with educators to support learners to increase their interest in reading, and improve comprehension.

The principal also mentioned that in order to improve learner performance she works with senior learners to improve their reading abilities or skills. When I asked her why the focus is on senior learners with reading remedial activities, she said that,

> *Because we see that they've lost something behind, which maybe if we leave it like that, they're still going up, and then they won't venture where they're*

> *getting to. So we are trying maybe to make them at least to understand, especially this reading. Because they're carrying it forward to the higher grade and then it's so embarrassing for them to get into high schools without the knowledge of how to read with understanding.*

There are good intentions to equip learners for high school and for further learning. It may benefit the school more if the improvement of reading skills involved all teachers in different grades, to improve this skill necessary for every subject, which will possibly also enhance comprehension of assessment questions and so increase learner performance.

Teachers appreciate the reading and writing skills intervention, as they feel that they do not have knowledge and skills to do remedial work with learners. This is what the teacher said about the principal:

> *And usually on Wednesdays we submitted names of learners, who struggle in reading, and then she will sit around with them and a few teachers, and they read for an hour or two.* (Language FG, T3)

While this teacher makes reference to "a few teachers" being involved in this effort, neither the principal nor other teachers discussed involvement with the reading program. Lack of teacher participation in helping learners improve reading and writing would seem to weaken the effort made by the principal. In class, teachers identify areas that require improvement, for individual students, but do not get involved in training that will enhance their teaching methods and improve their knowledge and skills, which is necessary to support learners. This may relate to a lack of collaboration within the school and amongst teachers. This could also relate to a

larger issue hinted at by the principal, when she said, “It is not easy to be the principal when you do not have the support of your staff”.

Other efforts made to improve learning were mentioned by some teachers, who are conducting morning classes with learners.

> *So the only assistance that we give is that one of having extra classes because sometimes the principal takes the learners if she discovers that this learner has a problem with reading. She takes those learners early in the morning; they sit around this table and start reading. She helps them with reading, in most cases. So she does help a lot.* (Maths FG, T2)

By making the decision to engage learners in morning classes, the principal and teachers are informed by learner performance. This indicates that data is acknowledged as information to make them find ways to improve learner achievement. However, this is still focused on how the children need help, and not what the data says about the ways that educators are teaching.

7.6 Questions when using data to improve teaching practice

Nancy Protheroe’s research (2009:1), points out that data-based decisions are not enough to enable educators to identify alternative solutions related to assessment data problems, but the “real questions should not be *whether* to ingrate the use of data in decision making, but *how*”. The right questions to ask should be tailored to fit the needs of the school. To find out what questions or conversations teachers at Hope have to engage in when they look at learner results, there are some teachers who think differently. When asked what they think and what questions they ask when they see poor learner results, one of the maths focus group members said:

> *With me, I'll ask myself, am I having a problem [in teaching this area]? Why don't these learners underperform? Do they understand me? Am I giving them the right [knowledge], [am I] teaching [well]*. (Maths FG, T3)

This demonstrates that some kind of thinking or talking about what the data says about practice does happen with individuals within the school. If teachers were collectively asking these questions, it could afford the school an opportunity to engage in enquiry and decision making in order to change teaching practice, and improve learning. If these are merely individual questions, and there is no further conversation around them, there is no guarantee that growth towards a deeper understanding of learner performance will emerge. From the principal's response above, there is an indication that she tries to make teachers think about learner results; due to lack of visible collaboration, the questions may not be sufficient to provoke further discussion, and to make decisions that will improve teaching practice; minimising the poor learner performance indicated by ANA results.

7.7 Data-informed practice

In schools where researchers found that using data for school improvement succeeded, the principals recognised that the initiative would not succeed without setting time aside to focus on and explore information from data, and to organise opportunities to meet with other educators within and across grade levels and subjects. Also, principals recognised technology to be crucial to teacher data use (Marzano, 2003; Stingfield, Reynolds, & Schaffer, 2001).

The principal at Hope was asked about how she uses assessment data to improve teaching and learning. In her response she says that,

> *I'm involved in this way because when the question paper have been evaluated at first, they have to be seen, they have to be evaluated, they have to be seen to be…to be on the expected level of the learner, and then after. Yes. Myself and the co-ordinator, we are a team in fact. And then from there, after the children have written the question paper, the teacher has marked, it has to be moderated. And then the statistics are also being taken of the learners in every learning area that they have performed. And then we can gauge ourselves on their [performance] according to those statistics.* (Principal)

This response indicates that the principal is aware of the process which includes analysing data to reflect on teaching practise, in order to improve learner performance. In saying they gauge themselves it may mean that they question why learners did not perform well on other questions. What does not seem to be considered is what the data tells them about their teaching and how it can be improved. For the principal and the phase head of departments (HODs) to moderate assessment questions is an indication that educators may want to ensure that what is assessed is relevant to the knowledge taught to learners, as well as to measure the correct level or use of language in questions, checking that what is assessed is linked to the curriculum. However, that does not indicate an effective use of data to improve teaching and learning.

An interesting point raised by the principal is her concern that primary schools need to produce good teaching practices that prepares learners who intend to continue with their studies. She said that the final school year National School Certificate results are affected by what happens at primary schools and that educators are responsible for

learner poor performance; they have to do something to prepare learners and help then perform better.

> *The ANA? Yes, so we get some feedback from the district and then I do bring the feedback to the teachers. And again, apart from maybe getting the statistics from the district, we are always concerned about the results. The National School Certificate results, [shows] that we are all failing [learners to do well when they are at that level of their studies]. So we feel as teachers that we are also part and parcel of the National School Certificate results. So down here we have to push, we have to work hard.* (Principal)

This is an indication that the principal is aware that good teaching at lower grades can influence how well learners' performance can improve and that later in their studies they would also succeed. However, some teacher responses seem to ignore the underperforming status of their school. This could mean that the principal's vision of preparing learners to do well in their studies will not be achievable. When asked how they rate performance of their school generally, one of the language focus group teachers mentioned that,

> *And when we measure our Grade 7 learners, when they go to high school, even those who were not performing so well, we thought, you know what, this one, we don't know what's going to happen. You find that three years, or two years later, the child is like. It reflects, yes, when they go to high school, because at high school, they come back to say, wow, we want to see this school, your learners are doing wonders, your learners this and that. That's why I'm saying, you know, to keep on doubting yourselves, you know, we are there, we are there.*

The response seems to indicate that the teachers focus attention on a few learners who may have been doing well in their studies, ignoring that performance of the majority of learners represents the unsatisfactory and underperformance rating of school. Based on both the principals' and the teachers' responses, there seems to be a denial of the challenges in teaching, which reflects the reality of the poor performance in the school. Another limitation could be a result of being uninformed about how to use

data, for self-examination and introspection in their position as educators, and be held accountable.

Insufficient use of data at Hope could be associated to the lack of skills to interpret data and translate it into information, as a process involving data-driven decision making tools; necessary toward the effective use of data (Mandinach, Rivas, Light, Honey, & Heinze, 2006). Another challenge may be attributed to the fact that schools submit data to the district centres and are not directly supported in engaging with data to enquire & construct a practice of talking about learner performance (Boudett, City, & Murnane, 2008). The process of aggregating marks at district level may not be informative for schools even through it enables the district to identify schools with teaching and learning problems. This practice does not seem to enable capacity building in schools, neither does it reinforce collaboration between schools and the district.

7.8 Enforcing collaboration through data

Collaboration and information-sharing is regarded as a common theme in educational improvement, and collaboration resulting from using data can benefit teaching beyond one-to-one relationships (Wayman, 2005). When the principal was asked if she engages teachers to discuss learner performance, she said that,

> *Yes, we have our staff meetings, where we discuss, like now, I've got some statistics from the district, [as these statistics are based on] common tests, especially the Grade threes and the Grade six.* (Principal)

From the principal's response, there is no mention of how she and the teachers work together to enquire through data analysis, ask relevant questions, and make decisions. The principal further justified why it is not necessary for them to engage with data.

> *No. In fact, you know why? Because something that comes, that is for everybody, we don't put more interest on it. If maybe it was said, here are your results, [you need to focus on the following], it was going to temper our interest and we were going to look it with another eye, not the eye that is looking at the general thing. But the eye that maybe will provoke us to be concerned, to be more concerned, and to have more plans or strategies on to look on our, maybe our weakness, if maybe we are weak in some certain areas. To look seriously on those areas, and then it will give us the opportunity maybe to work ourselves up. But we don't actually get that.*

What is worrying about this kind of response is the complete ignorance of how to engage data in decision-making. Gunn and King (2003) suggest that to avoid pitfalls when discussing problems of teaching and learning, it is best to establish a collective understanding of goals, and engage in professional development enquiry.

It is necessary for educators at Hope to gain exposure to knowledge about and develop skills to work with data, such as analysing, interpreting and transforming data into knowledge that will enable them ask relevant questions, and thus engage in conversations to improve teaching practice. The school needs to create a culture of sharing and learning, and become a learning community to improve knowledge of their subject as well as of effective teaching practice. According to Love (2004), the use of data is one way a school can create working teams to engage and make inquiries to inform it about improving standards of teaching. Fostering collaboration can strengthen a culture that engages through asking relevant questions that will

stimulate discussions collaboratively and effectively, to improve teaching and learning, and it must be subject based.

Lack of collaboration and support between schools and the Department of Education is also raised as something that impacts negatively on effective teaching and learning. When new ideas or information, such as new curricula, are introduced, teachers said they need support to familiarise them with the new information. For example, in the case where data indicates that the school is ineffective, they would like officials from the Department of Education to address the situation and work with schools to help them identify areas of concern and provide necessary support. The common practice, as mentioned by teachers, is that teacher development programmes are general, and do not address an individual schools' needs. This could mean that to afford support to address individual school's needs, school-based support could be considered, in addition to general teacher development for schools like Hope.

7.9 Perceptions to improve teaching and learning

Research indicates that in schools where teachers and school leaders collaborate, there is evidence of improved learner performance, and the use of data enables teachers and school leaders to identify areas needing improvement. Based on the principals' responses, she is making an effort to engage learners in the reading program, to improve individual performance; however, there is no evidence of intentions to use data to collaborate with members of staff in order to improve teaching practice. Neither is there evidence that data is used to reflect on teaching practice.

In the process of teaching, teachers need support and guidance to gain confidence to use different teaching strategies that will improve learner performance. This support can be internal, where teachers and school leaders work together to share and learn in order to effectively implement new ideas on teaching. When asked what support teachers need to improve their teaching practice, one teacher said:

> *Use of time effectively? We must give ourselves more time for the learners. The little time that we get, we have to stay in class, teach effectively, and concentrate on those learners who are struggling.* (Language FG, T2)

Christie and Lingard (2006) consider "productive pedagogies" to be classroom practices that focus on improvement of learning. In order to make a total shift in teaching practice, in ways that will promote effective learner improvement, teachers must be willing to change their own practice and give up long-held beliefs if these are seen to be ineffective (Jaworski, 2008; McLaughlin & Talbert, 2008). If all teachers recognise the importance of changing teaching practises, and collaborate to share and learn from, and with, each other, a high standard of learner performance is more likely to be realised in schools.

When asked what role principal plays in supporting teachers to improve learner performance, her response was,

> *You know why I say, the district results, sometimes they don't make a serious input on teachers to work hard. I say this because I'm not alone in this train. Well, as I know teachers, some are hard-working, some are reluctant, you know, we differ. So with those who are hard workers, it has a meaning to them, this paper that comes with general statistics. It has a meaning to them. But to those who are reluctant and whatever, they tend maybe to say, no, we are not alone [other schools do poorly too]. Even as a principal I gather them, I speak to them seriously about the statistics, showing them how it affects our learners. Some of the educators will take it seriously, [and promise] to do something [about it]. So this may hit on the head of the teacher, they will know*

> *that this it's what I've done, this is what I've attained. If I've never done more spade work with the learners, this is what I've attained, and then here is where [we are].* (Principal)

The principal's response indicates that she may be trying to work with learners to improve performance in reading and writing, but that she lacks ability to engage teachers in questions that would make them reflect on teaching practice. This could be due to factors relating to lack of support from teachers, or not knowing how to go about affording opportunities for collaboration through data inquiry, to facilitate collective decision making for improved teaching. Lack of collaboration between teachers and the principal seems to impede progress. This was made evident when the principal mentioned that sadly, she does not get full cooperation from her staff members.

Teachers admitted to poor learner performance in their school, except for one HOD who sees everything as running smoothly. One of the teachers mentioned that the maths benchmark test results for their school were dismal. When asked about how these results reflect on her teaching, the teacher acknowledges that they have a responsibility to collaborate, and share ideas on how best to improve the situation. She mentioned that,

> *Like, maybe if we can, like start planning together, having the phase or subject meetings, talking about the difficulties that the learners have, and how to improve. Maybe giving learners remedial activities, maybe we can improve.* (Maths FG, T2)

This response is an indication that teachers at Hope work mostly in isolation. Research suggests that improvement of teachers is not attainable through the

isolationism that marks most schools, but rather through frequent discussion and activities centred on teaching practice (Schmoker, 2004). Teachers mentioned various challenges that impede their proficiency to teach and promote effective learning.

7.10 Challenges affecting good teaching and learning

Teachers can be agents of change, and have to engage in a positive culture of teaching to influence better learner achievement. As a result, they need to have classroom-focused policies that guide them to improve teaching practice. To create an effective teaching culture, they must be able to identify good instructional practice that will help to improve learner achievement (Black & William, 1998).

When the principal was asked how maths teachers can improve the dismal benchmark results they learned characterised their school, this is the response from one of the teachers,

> *All I can say, maybe we should come together as numeracy teachers, come up with a strategy how to help the learners. Maybe we might go extra mile, like maybe giving then a lot of homework. Another thing that kills us is homework. Parents don't assist us.* (Maths FG, T1)

However, this answer does not suggest how, through use of different teaching techniques, teachers will be able to improve learning; instead she expects homework and parental involvement to be the solution. There is no reflection of teaching practice, or consideration of exploring different teaching techniques that will enable learners to better understand content knowledge. This kind of response indicates how little the educators understand their responsibility for improving their teaching.

Perhaps this is due to teachers' lack of core knowledge, skills, and exposure to developments and educational changes, or perhaps it is indicative of a culture that does not foster a sense of responsibility for their work.

Another challenge is the fact that there is minimal time devoted to meetings where teachers discuss possible ways to formulate or identify alternative teaching techniques. Meetings to discuss learner results seem to happen only once every quarter. The Senior Primary HOD mentioned that to improve teaching, they meet to discuss learner performance. She said that,

> *And we have meetings once per term, as Intermediate phase [Senior Primary], whereby we meet to discuss the problems and the successes of the phase. And then if we have problems we tackle them there and there with the SBST, which is the school based support team, whereby we refer the school based support team learners with problems to the school based support team, whereby the school based support team will tackle or help the teachers who have children with learning barriers and learning problems. So in the meetings, teachers will come out with the problems they encounter.*

If meetings are only held quarterly, there may be too long a wait between them to have teachers resolve some of the challenges they encounter on a daily basis in their classrooms. This would mean that there is limited support for and amongst teachers. Research indicates that in schools where teachers and school leaders work collaboratively, there is evidence of improved learner performance, and that data is also used to identify areas needing improvement (Pathways to College.Networks, n.d).

At Hope, teachers are supposed to conduct specialised subject teaching. However, many teach subjects they did not specialise in when in teacher training. This could very likely result in a situation where teachers' lack of insight and proficiency in

subject knowledge and teaching skills will disadvantage effective learner performance. During the interviews, one of the teachers said that,

> *This goes back to the point that I have mentioned that of being a primary teacher you are supposed to teach all the learning areas. Because some of the [subjects]there is a part which I don't understand, even myself, I have to ask another teacher to come and help me with the content that I'm supposed to teach. So if the system of if I specialise in literacy, I teach literacy. I concentrate on literacy. Learners were going to improve. Another teacher comes in with like skills, he do that life skill.* (Maths FG T3)

Previous teacher training courses for primary teachers prepared teachers to be general practitioners in all subjects. This did not prepare them for the reality, where they have become specialised subject teachers. As a result, teachers lack deep subject knowledge and pedagogical content knowledge of the subject they are expected to teach once they are employed. Despite district teacher development interventions put in place to support and improve teacher knowledge and skills, teachers do not seem to consider these helpful. They are regarded as a waste of time by some of the teachers.

Various other challenges were raised by teachers and school leadership, which they consider to impact on their effectiveness in carrying out teaching tasks, and improving poor learner performance.

7.10.1 Language of learning

The language of learning and teaching is one of the challenges the school faces. The principal explained that,

> *With the assessment, it comes with some borrowed words, of which sometimes you find it when the teacher has to assess the child. He's also puzzled by some terminologies which are in, and then you find that the teacher even then, does not know the terminology that is in the paper, and then she has to give the*

paper, the assessment, the question paper that the child to write. And then that we find it to be a problem a little bit. But we have raised it, I don't know, because it said we have chosen the language to be [taught] in foundation phase we have chosen Xitsonga as our LOLT, so it is said the policy says we have to carry through with it for four years. Maybe we can change after four years or so. So it's a bit of barrier on us.

The difference between the spoken language and the written language, in particular for material designed in the Gauteng Primary Literacy and Mathematics Strategy (GPLMS) for under-performing schools, is raised as a serious problem, with little impact on learner performance. When asked about the problems they raised regarding the language used in these materials, there were very definite answers. The questions asked included: "Who writes additional learners materials?"; "Which dialect is chosen and how different is the dialect used for developing the GPLMS materials from other written books used for Tsonga language?"; "How the dialect differs to the spoken Tsonga language?" Answers to these questions did not indicate that the special materials designed to help teachers improve learner performance were helpful.

7.10.2 Curriculum and assessment

Curriculum changes within a short space of time are another example of a challenge experienced by teachers. These changes, due to change in government systems over the years, seem to have had a negative impact on teachers' confidence about what and how to teach and assess. Teachers feel left out because their knowledge and skills are tested to the limit. They consider the teacher development efforts intended to expose teachers to be too brief, with little impact on preparation needed by teachers for what to do in the classroom. From responses of some the teachers there is sense of feeling overwhelmed by the different ways they have to assess and keep data.

> *I can say, that since we started, we used to assess learners on our own, marking their work and giving them marks. Now assessment is the learner has to assess himself, and the group has to assess themselves, and you as a teacher has to assess a group, a learner, so I think it's like a lot of work for a teacher. Since assessment is a long process, it is not like in the olden days. Because you've got to record the learners' assessment, the individual, the group, and what the learner he, himself or herself has assessed him. And you've got to assess the whole group, each group in a class, you see?* (Senior Primary HOD)

This response presents an assumption that there is a gap between the old and the new curriculum, since teachers find it hard to adjust to expected new assessment strategies. What this means is that teachers need support to learn and understand the purposes for the use of different assessment techniques in order to help learners achieve. It would be necessary for teachers to be exposed to models such as the revised *Bloom's Taxonomy (2001)*, so that they are able to integrate various levels of cognitive questioning that will engage learners in oral and written classroom tasks, in preparation for benchmark ANA tests and examinations. Lack of exposure to the use of different levels of cognitive questions can have a serious impact on learner performance.

7.10.3 Large classes

Although Hope is a small school, compared to the other schools that participated in this research, the challenge of large classes was raised as a concern. They mentioned that because there is only one classroom for each grade, they experience large classes.

When asked what support teachers need to improve teaching and to enhance effective learning, the teachers' responses indicated that they find large classes are a barrier to effective teaching. One of the teachers in the maths focus groups said that,

> *Overcrowding [is a problem] in our classrooms. Like in my class, I've got more than 40 learners, and most of them they are like five and a half years old.* (Language FG, T3)

Teachers feel that if they were to give learners individual support, learner performance would improve. In addition, teachers think that if the department can provide schools with additional personnel to provide support to teachers, which is a practice that is seen to benefit schools, they will be able to improve learner achievement. Because learners do not perform at the expected level, teachers think that additional support will provide an opportunity for teachers, or the support person, to assist struggling learners.

Considering the size of the school, it is difficult to understand why large classes are raised as a problem that impedes effective teaching Hope. Instead of these teachers finding alternative ways to improve teaching and learning, they look for relief by blaming other factors. However, the underperforming status of the school will remain as long as teachers do not take responsibility for improving teaching practice.

7.10.4 Poor teacher work ethic

Based on observation and what some of the teachers said, the work ethic for some of the teachers at Hope is of concern. There is complacency in the school regarding the existing state of affairs. To complain that the use of different assessment methods to promote learning is a "lot of work" raises questions about the level of dedication these teachers have to their profession. Although the culture of teaching differs based on availability of resources, levels o f teacher training, and other factors affecting

individual schools, assessment data will always tell a story about the impact of teaching, in every context. It is therefore the responsibility of teachers to be in school and to teach. They have to be accountable, and dedicate their efforts and time to teaching, and so motivate high standards of learning.

7.11 Conclusion

Based on responses from both the school management and the teachers, it can be concluded that there is partial agreement that much still needs to be done to uplift the standards of teaching and learning at Hope. This research study shows that there is very little evidence that teachers have any sense of agency to improve their practice. Rather, educators blame other factors for limiting their ability to engage in effective teaching.

The principal is also not showing strong leadership in guiding the teachers with a clear vision as to where she intends to drive the school, towards achieving better teaching and learning. The principal believes that improving learners' reading and writing skills will make learning effective, yet there are more problems the school have to address; issues related to effective teaching, in order to improve learner performance. Improving these skills is also important for learning purposes. However, since the principal is the only one working with learners to improve their ability to read and write, very little in the way of results will be achieved.

There is a need for instructional routines to be put in place to support teachers to improve pedagogical content knowledge of their subjects. Networking with other school/s may expose them to effective teaching. However, there is also a need for honesty in their own judgement, regarding their school's situation. this will enable teachers to acknowledge weaknesses that need to be addressed, and find ways to improve the present situation.

The principal's comment that she does not receive 100% cooperation from members of staff is a concern. That alone can create problems in managing the school, and establishing and maintaining a culture of collaboration, which would encourage sharing and learning among teachers. Unless teachers see the need to work as a team, isolation in their own teaching will not be addressed so that related challenges related around poor learner performance can be resolved.

The different opinions about what is considered effective teaching at Hope are another concern. There are contradictions in what individuals say they do at Hope School, compared to the reality of their situation. At present, the school is labelled under-performing because of the quarterly assessment data analysed at district centres, and data from ANA results; yet some educators regard their school as doing well in comparison to other schools in the area. Either there is lack of understanding as to what defines good teaching, or there is denial about what is happening at the school.

Building trust and being honest are necessary to improve school effectiveness. The school leadership and its teachers say different things. For example, one of the HODs said meetings are held quarterly, and a teacher said, monthly. When listening to such conflicting messages, the question to ask is whether there is any way these teachers ever come together, or whether the responses given were merely to impress the researcher (an outsider) that all is well at the school.

To improve the situation at Hope, the principal or school leadership will have to work together to share a vision and goals to be upheld by other educators. When there is no clarity about where the school leadership intends to take the school, there is no one who will take responsibility and become accountable for school effectiveness and this results in shifts in blame, without realising that much damage can be done to the future of the learners taught at this school. The situation at Hope seems to lack a sense of accountability to engage with data that will enable teachers to reflect on their practice and improve learner performance. The attitude of blame and ignorance around the need for educational change seems to dominate observed attitudes and responses with regard to teaching and learning.

Lack of the use of data at Hope may be considered a major challenge. Without making enquiries based on data to understand learning problems, it is not going to be possible for teachers to commit to changing teaching practice, and consider using various teaching methods to improve learning. Data can also enable teachers to involve creative learning styles in their teaching.

In conclusion, research studies show the use of data to be an effective means to create possibilities for teachers and the school leaders to collaborate, share, and learn together; using data to ask relevant questions, in order to understand learning problems. These processes are likely to improve the status of underperformance in teaching and in learning at Hope. As indicated above, research findings indicate that using data effectively provides opportunities for improved teaching practice and motivation for high standards in teaching, with good learning outcomes. Teachers are also motivated, and aspire to make teaching a better profession, taking responsibility and being held accountable for development of young minds.

Chapter 8

Cross-case content analysis

8.1 Introduction

A school's aims and purpose are to teach, provide learners with the knowledge and skills they will need to contribute to society and the economy, and to engage them in matters that require mature thinking for decision making. To be able to do that, the school has to provide structures and opportunities to enable the school leadership and teachers to gain exposure to new ideas that will inspire them to promote and sustain high standards of teaching and learning. The use of data is one of the processes that schools can choose to use to learn, understand learner needs, and address learning problems, which will enable them to improve and maintain high standards of teaching and learning.

To improve school effectiveness and learner performance, school leaders have to concentrate on developing and monitoring the implementation and coverage of the curriculum. Scholars argue that to successfully integrate data-driven decision-making to improve teaching and learning, assessment data should be an integral part of the process. This would include instructional, curricular, resources allocation, and planning decisions (Datnow, Park, & Wohlstetter, 2007). It would be best for school leadership to take the lead in using data facilitators to connect achievement with curriculum, instruction, remediation, acceleration, teachers' professional development, and the allocation of human and fiscal resources for school improvement (Shen & Cooley, 2008).

In schools with poor learner performance, researchers have found that school leadership is a cause for concern. Some school leaders in South African schools have been promoted to the position solely because of their strong teaching background and given no orientation to the position. In other cases, principals are offered their positions as a reward for their role as political activists. Leaders without the necessary skills are often overwhelmed by the task of giving teachers direction, such as influencing them to improve school effectiveness by engaging in decisions based on assessment data. The South Africa government has introduced the Advanced Certificate education (ACE), as a qualification for aspiring school principals as part of its wider strategy to improve educational standards. The aim of the ACE programme was to make an appreciable difference in participants' management practice, leading to school improvement (Bush, Kiggundu, Moorosi, 2011). This programme is being delivered by universities, through a common framework agreed with the National Department of Education and the National Management and Leadership Committee (NMLC), while the intention was to require all aspiring principals to undertake an ACE, it remains an aspirational goal rather than a requirement.

"To improve school effectiveness and learner performance, promote shared leadership and collaboration with teachers, initiatives the school has undertaken consistently reviewed in order to answer the question: Is what we are doing working?" (Protheroe, 2009:30). The current school reforms that aim to improve teaching and learning, all depend for their success on the motivations and capacities of the school leadership. According to Leithwood, Harris, & Hopkins (2008), successful leaders develop and count on contributions for others in the school. Other reforms used to improve teaching and learning, school leadership can have an influence on the use of data. This is considered a motivation for teachers to use it as well.

Collaboration and information sharing is a common theme in educational improvement, and the collaboration resulting from data use can benefit teaching beyond one-to-one relationships (Wayman, 2005). Strong leadership qualities, together with knowledge of the use of data to improve teaching practices and learner achievement, are needed to create collaboration and improve a culture of working together in schools (Armstrong & Anthes, 2001; Massel, 2001). The use of data can be used to create opportunities for teachers to collaborate, and for capacity building. School leadership could foster meaningful collaboration through data analysis, create capacity building for the use of data, and facilitate powerful conversations about data that will lead to improved teaching practice and effective learning (Love, 2004). Collaboration is also considered necessary for the communication of high expectations that encourage teachers and school leaders to make significant contributions to provide and promote an effective learning environment.

A lack of professional development or technical assistance for school leaders and teachers to translate multiple data into information, and then turn it into realistic action plans, using data, can be a hindrance to the improvement of learner performance. Given that the use of large scale assessment data to improve practice is still a relatively new concept in South Africa, it is not surprising that little professional development has taken this challenge up to date. The fact that we are seeing it in some schools is a testament to its utility. Due to insufficient capacity to develop evaluation strategies that appropriately connect and measure the effectiveness of action plans, such as data interpretation; some schools do not enter into conversations that raise questions that will help them understand learning challenges. This

means that they lack the necessary insight to know what to look for and do to improve teaching and learning through this means.

Schools have lots of data from which to choose in order to find that which could be relevant for decision making. However, not all schools that participated in this research study have developed the knowledge and skills to engage with data to reflect on their teaching practice, and to use it as information to understand learner needs and help improve learner performance. The use of data in South Africa is still a relatively new concept, and most schools are grappling with engaging in processes of decision making to improve teaching and learning. To grow the use of data in schools, school leadership with a vision of using data needs to allocate time for collaboration; creating opportunities for school leaders and teachers to raise questions that will enable them to dig deeper and focus on subject or topic areas for which improvement is necessary.

Data is helpful for narrowing the focus and avoiding attempts to fix everything at once. To promote the use of data in schools in South Africa, partnerships of schools, districts, and researchers in higher institutions of learning could be of assistance. They might accelerate and help school leaders and teachers to gain the necessary knowledge and skills, to learn and understand how using data can help identify real leaner needs, rather than working with their own intuition as to what learners need (Brodie, 2013).

8.2 Cross-case content analysis

This chapter presents a multiple cross-case content analysis from four case studies that participated in this study. Each case study is described and discussed in detail in chapters 4-7. The conceptual framework below is used to illustrate how individual schools in this study demonstrated their use of data to improve teaching and learning. The broken rectangles are the three focus points of the concepts that point to the different purposes for which data is used. The arrows from these focus points further explain processes or actions that happen when using data.

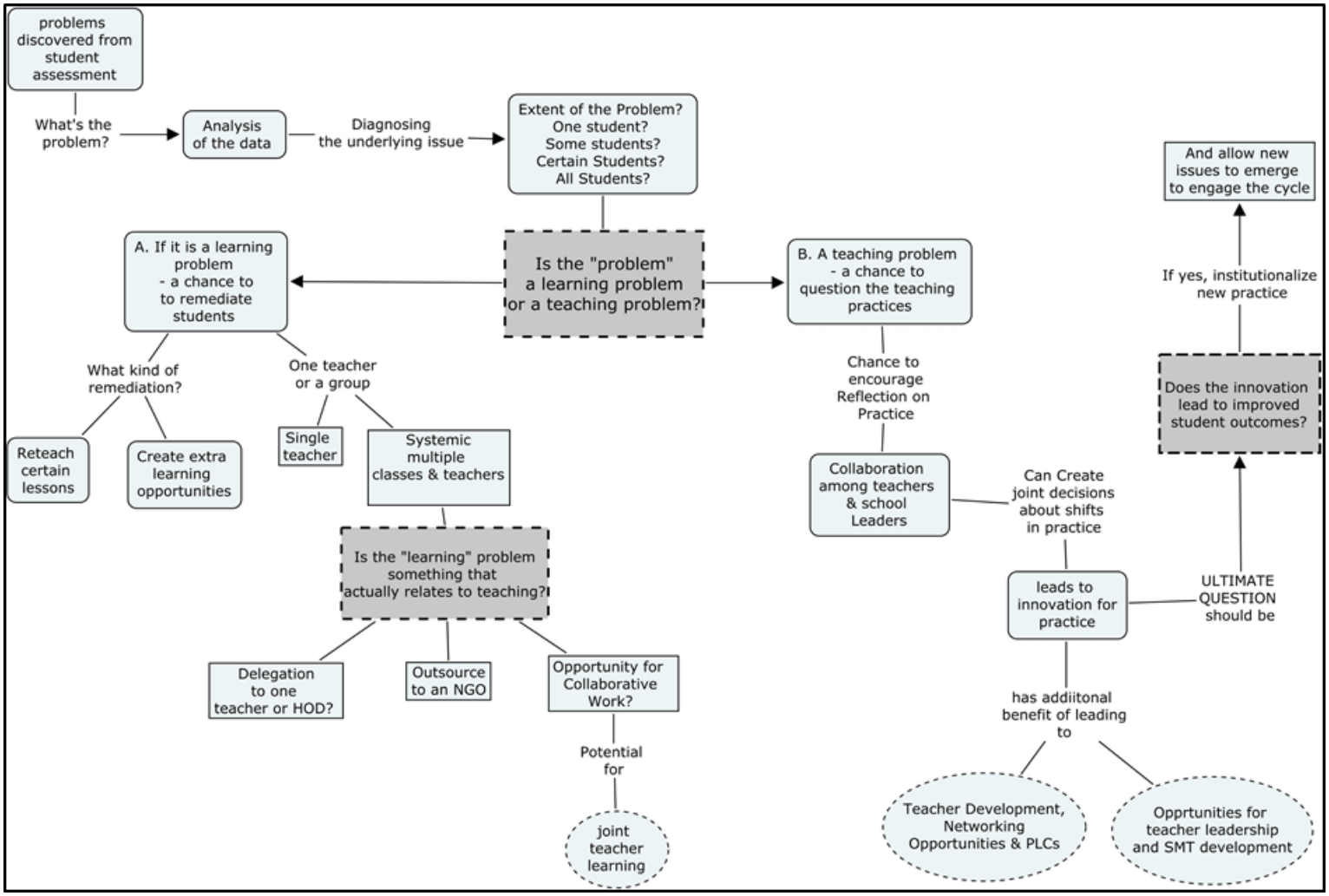


Figure 3: Grounded theory on how schools choose use data to improve teaching and learning based on the experience of four Gauteng Primary schools.

Figure 3 above is a grounded theory model that captures information from collected data. The model illustrates how each case study that participated in this study reported on involvement of using data. The emerging categories from the table explains different levels and processes that occured including: the types of data used, who is involved in data use, and the purpose for which each school uses data in order to improve teaching and/or learning. This model can help other schools not familiar to use of data to gain knowledge of how to engage data in understanding learning problems and how they can collaborate to share and learn from and with each other in decision making.

To discuss how each of the four case studies in this research use data, the Data Wise improvement process steps in Boudett and Steele (2007:8) will be used as a reference to compare the success rate at which data is engaged in these schools, to improve teaching and learning. The three phases highlighted as important in the Data Wise improvement process include: Preparedness, Inquiry, and Action. Each phase is regarded as important in building a school's capacity to use data, in order to improve teaching practice and learner performance.

School	Types of data used	Who is involved	Purpose
Dinaledi	Tests, exams and ANA benchmark tests	Principal and two deputies analyse data, turn it into information, and becomes knowledge to engage staff in decision making.	Encourage collaboration for decision making to address challenges in teaching and learning. Teachers are held accountable to produce high standards of teaching and learning.
	Classroom activities and tests	HODs and teachers	SL introduces new innovations to improve teaching and learner performance.
	Classroom activities	Teachers	Reflect; collaborate to find solutions to improve teaching practice. Learn and help learners identify errors to improve teaching
Leratadima	ANA benchmark tests	Principal	Releases FP HODs from teaching to work and support teachers improve learning
	Classroom activities and tests	HODs and teachers	Subject teams collaborate to identify learning problems
Sunshine	ANA benchmark tests	Principal	Changed subject to class teaching to track teacher accountability and to improve learning
	Classroom activities and tests	HODs and teachers	Subject teams collaborate to improve learner performance
Hope	Classroom activities and tests	Principal	Do remedial work for learners with poor reading and writing skills to improve learning

Table 1: What data, who is involve and purpose of using data in schools

8.3 Understanding the use of data to improve school effectiveness

At Dinaledi, in what becomes the preparedness phase, the principal and the two deputy principals create a data team, which collects data and builds assessment literacy, as they take responsibility for interpreting the results from the quarterly and the Annual National Assessment tests. The school leadership takes the lead in analysing data and transforming it into information, which they use to facilitate collaborative discussions with teachers, in order to make decisions to improve school effectiveness and learner performance.

Data is used to inform and enable school leadership to make evidence-based decisions for school improvement. Data is also used to make schools accountable, and enable school leadership to explore and formulate innovative ways to improve school effectiveness. To initiate discussion during interviews, one of the questions asked to all school leaders who participated in this study, was aimed at finding out what educational innovations, informed by data, were implemented to improve school effectiveness. The responses of the school leadership at Dinaledi indicated their ability to interpret, understand, make decisions, implement the changes necessary to improve school effectiveness, and to improve learner achievement. The data is used to identify emerging challenges in teaching and learning. This enables the school management team to identify areas that require intervention.

One such area was overcrowded classrooms, identified as a challenge related to learner performance. This informed an innovation implemented by the principal and members of the school management team. The classes were restructured into separate gender groups in Grade 7, and streamlined according to levels of performance. The reason given was that learners

were in their adolescent stage and even learners who were known to have been performing well were being sluggish. Other innovations or interventions mentioned that were aimed at improving learner performance included allocation of resources that would enable teachers to engage learners to work with knowledge differently, in order to eliminate some of their learning problems. The school leadership also organised teacher development to keep teachers informed about new knowledge and ideas that they could use to promote high standards of teaching and learning. The principal also explained that through data, they compared learner performance in earlier assessments, in order to plan and prepare learners for forthcoming assessment tests; to motivate and encourage learners to perform better in their studies.

In the other three case studies presented here, both school leaders and teachers seemed to be aware that assessment data is significant and can inform them of emerging learning problems, but they did not seem to consider it as something that could enable them to reflect on their teaching practice, as was the case at Dinaledi. At Leratadima and Sunshine, data is used to focus mostly on improving learning. In these two schools to correct poor learner performance, remedial work was used as a process to enable learners to improve, but the student results were not used to reflect on teacher practice. Using the same teaching methods to improve learner performance cannot guarantee that there would be improvement in learning, and this may confirm what some teachers said about learners not being enthusiastic about learning. In support of this, Timperley (2009) advises that data inquiry is supposed to deepen the teacher's professional knowledge, and refine the skills that enable them to engage learners in new learning experiences.

The HODs at Leratadima mentioned that they are sometimes concerned with the poor pedagogical content knowledge that some of the teachers display, as well as the ways in which assessment questions are constructed. The HODs, in a position of instructional leadership based on their long teaching experience and mastery of knowledge of a particular subject, believe that that their position means they are able to guide teachers in effective ways of teaching. However, this does not mean that their guidance is based on a systematic, evidence-informed cycles of enquiry, to build the relevant professional knowledge, skills and disposition (Timperley, 2009:22). This process would include teachers' involvement in decision making rather than being informed of a specific way to improve teaching, especially if the HODs have not been informed by new ideas in education.

The process of managing preparation for learner assessing seems to be taken seriously to eliminate errors that would otherwise impact on learner performance. All assessment tasks are moderated by the HODs for necessary corrections before being handed back to learners. This is used in all the case studies to monitor that learner work assessed is relevant and related to the stipulated topic in the curriculum. Teachers also confirmed that moderation of assessment tasks helps them to minimise problems that can lead to poor learner performance, such as poorly constructed, ambiguous or difficult questions.

At Hope, the situation was different, as the principal made clear in her response to the initial questionnaire used to find schools to participate in this research. She indicated that they were not consciously using data but wanted to participate in the study to find out if they were using data to improve school effectiveness. In her interview responses, the principal mentioned that through data they can identify learners with learning problems. Reading and writing were

attributed to poor learner performance. As a result, the school is getting support to improve teaching skills in reading and writing from one of the non-governmental organisations. The principal is the only one who takes responsibility for remedial work to improve learner reading and writing, by taking learners for additional classes and is alone in trying to rectify problems emerging from poor teaching, without involving teachers to find solutions to improve their teaching. The benchmark results from the ANA tests continue to indicate very poor performance when compared to other schools in the despite her good intentions and supports the notion that without collaboration improvement in performance is impossible. Regrettably, the teachers in the school showed little interest in examining their own practice.

Both the HODs and teachers at Hope spoke generally about data, but focus attention on blaming the learners for poor performance, rather than considering that their teaching may be a contributing factor in the poor performance. Teachers did not seem to consider learning from the data as their responsibility, except that they have to collect, collate and send data to the district for aggregation. They are content to merely learn of their school's performance in comparison to other schools in the district.

Hope has performed below the already very low average since the ANA tests were introduced by the Department of Education in 2009. Surprisingly, there was no sense of deep concern from the principal and teachers regarding the low status of their school's performance. Instead, both the principal and some of the teachers find comfort that they are but one of a number of other schools who did not meet the expected standards. When asked how she felt about her school performance and what is she intending to do to improve the situation, the Principal's response was not very assuring. She was not specific as to whether she will

involve teachers in understanding data to find solutions to improve teaching and/or learning. The principal's ignorance of problems in teaching and learning does not indicate strong leadership qualities that are necessary to support teachers in seeking out and understanding educational innovations that can improve this school's effectiveness.

To sum up, in comparing how data is used to improve teaching and learning, research indicates that equity and accountability have made it an imperative for educators to base decisions on accurate and meaningful data about learner achievement (Johnson, 2002; Lachat, 2002). At Dinaledi, this seems to be successfully put into practice; more so than is the case at the other three case studies in this research. The findings show that the school leadership uses data to collectively understand where and what kind of problems emerge from the data. In the case where there are problems related to teaching, the school leadership, in collaboration with teachers, works to find ways that will support teachers in improving their practice. Teacher development workshops are organised and they also network with other neighbouring schools to increase their knowledge and skills, to improve teaching. To improve poor learner performance, the school leadership encourages collaboration among teachers and HODs. They engage with classroom activity data and some tests, to enable them to learn about and understand learner needs, and find solutions to improve learning. During collaborative discussions, teachers and HODs can raise questions that help them focus on relevant learning challenges, and identify whether these problems require a change in teaching practice, or whether to engage learners differently in learning. Teachers share and learn in order to grow their understanding of the subject knowledge, and to support each other in engaging in various ways of implementing pedagogical content knowledge in order to improve their teaching techniques.

At Leratadima, Sunshine, and Hope, teachers mentioned that they attend teacher development workshops organised by the district. However, for various reasons they did not find these workshops fruitful. This was particularly the case for improving their subject content knowledge and their ability to improve teaching skills. Instead, some teachers regarded the workshops a waste of time. The school leadership at these schools did not mention providing teacher development workshops as a way of supporting teachers' growth and exposure to necessary educational changes; such as exposing teachers to the idea of using of data to improve teaching and learning.

It is recognised that in schools with a culture of collaboration, staff work together to achieve their collective purpose of teaching and learning for all (Dufour, 2004). In order to make a school effective, school leaders are to exercise an indirect but powerful influence on the use of data, and promote a culture of collaboration to improve learner achievement. These practices are realised more significantly at Dinaledi than in the other three case studies.

There was no indication of how data was used to influence decisions to improve teaching at Leratadima and Sunshine. The principal at Leratadima confirmed his role as an overseer; not directly involved in helping teachers to apply lessons from the data, but rather in attending to discrepancies and studying the data to make sure information is presented as expected, before it is sent to the district. The deputy principal, who is supposed to be working hand in hand with the HODs to support teachers improve teaching and learning, did not at any point include how she is involved and how she would encourage teachers use data to improve

teaching and learning. The same situation was described by the deputy principal at Sunshine, as explained in chapter six. He was not informed as to how to engage with data to make decisions to improve teaching and learning.

In these comparisons, it is interesting to learn that of the four case studies, only one principal and her team are more involved with instructional leadership and involve teachers in the use of data to promoting effective teaching and learning. As alluded to by Timperley (2009), school leaders need to have conversations with teachers to unpack the meaning of assessment data and make appropriate adjustments to teaching practice, to improve learning. It is only school leadership at Dinaledi that seems to be modelling an effective use of data and involve teachers so as to understand learner needs, and implement necessary changes to improve teaching and learning.

Another significant difference that is notable at Dinaledi, in comparison to the other three case studies, is that time is scheduled for meetings to engage with school leaders and interact with teachers. The school leadership in the other schools do not invest time to allow the process of encouraging teachers to use data to engage in the inquiry and knowledge-building cycle, to promote learner outcomes. School leadership and teachers need to engage in questions that make them address learner needs. According to Love (2004), a school leader must encourage collaboration through data analysis, build data teams, and facilitate powerful conversations about data that will lead to improved teaching and learning. At Dinaledi the culture of collaboration is practiced to engage with data. This continuous collaboration emerges as professional learning communities that are characterised by a collective purpose, respect and trust among collaborative teams, facilitating communication through questions,

sharing relevant information derived from evidence-based inquiry, developing shared meaning, making assumptions explicit, and deciding by consensus (Wald et al., 2000).

Based on interview responses at Leratadima and Sunshine, collaboration exists among the HODs and teachers, who have a common interest in finding ways to understand learning challenges and improve learning. However, these meetings rarely focus on data informed discussions to the use of data; even though the intention of collaborating is to share relevant information and make decisions by consensus, to improve learning.

The principal at Sunshine tried to emphasise that there is collaboration at his school, but this is based on a short meeting held in the mornings before lessons resume, where he shares information about circulars and other information mostly from the district related to the running of the school. His sense of collaboration does not reflect a purpose of engaging teachers with issues around improvements in teaching and learning. On the other hand, the HODs claimed to meet and discuss matters related to challenges in learning with teachers. HOD and teacher meetings are sporadic, and their purpose is to identify problems, to decide which aspects of the curriculum they think need more attention, in order to improve learner performance. There was an indication that changing teaching practice was to some extent considered, as they would often mention the phrase "*to make teaching better"*, but there was no indication of how teaching practice was changed, as most teachers talked about teaching the problem area again, without mentioning any change in the teaching practice. Meetings to encourage teachers and leadership to spend time in conversation relating to teaching and learning are not scheduled, so there is no assurance that collaboration in its true sense is happening. This confirms responses from all Sunshine participants: meetings to study

assessment data from tests and exam results only happen at the end of each term and these quarterly meetings do not address learning challenges identified by the data.

At Hope, the situation is different to the other case studies. The meetings are rare and the principal said that the relationship between her and some staff members is "almost non-existent". The principal is a gentle person and the HOD, a powerful member of a teacher union, who seems to work against the principal and not support her in making decisions for school effectiveness. The principal confirmed that there are some teachers who do not cooperate with or support her in the efforts she tries to use to improve learning. Since the school leadership and the teachers do not work together and collectively find ways that can help improve teaching and learning, it is affecting the school's effectiveness in improving learner performance. Based on teachers responses and lack of collaboration among teachers and the principal, the morale at this school seem low on learner performance. Teachers are not doing enough to show accountability for providing effective teaching. This situation makes it impossible for collaboration to develop a culture of team work, where members can respect and trust each other, in order to share and learn together. According to the principal, she works alone to identify learning problems. This happens when she collects learners' books to check what is happening in classrooms. Due to poor working relationships within the school, there is no support, nor is there a way for the staff to collaborate. In addition, data is not used to make decisions relevant to improve teaching and learning. This seemed to have a negative impact on the morale of some of the younger members of staff with whom I spoke.

8.4 School leadership role in the use of data

School leaders with knowledge of instructional leadership and the skills to create an environment for distributive leadership are in a better position to make rapid improvements, than those whose roles are mainly based on school management (Botha, 2012). As in Dinaledi, the school's leadership must set a tone for improvement by modelling active participation with data, investing time in the process, and focus on promoting instructional practice.

The findings show that there is a big gap between the school leaders in the four case studies that participated in the study. Only at Dinaledi, is the entire school management team actively involved and encouraging the teachers in the use of data to implement educational changes in order to improve teaching and learning. As mentioned earlier in this chapter, school leadership should be responsible for analysing data to transform it into information that can initiate discussions with teachers. At Dinaledi, the principal is more than the manager of the school; she is involved in instructional leadership with a shared vision of the use of data and uses his influence over the teachers to encourage them to work with data, and so to improve teaching and learning. The two deputy principals have strong knowledge and skills around using technology. They help the principal in capturing data, interpreting it, transforming it into information in the form of graphs, as knowledge which is shared with teachers and used to stimulate discussions leading to decision making. The HODs also use data to engage teachers at a level of subject or phase teams to monitor learning progress and to support each other to improve teaching and learning. Data is also used to guide the school management team in making decisions regarding necessary innovations to improve school effectiveness. Collaboration is a culture that is embraced and practiced at this school. In preparing the year plan, meetings are scheduled on the timetable, and this makes it possible and purposeful for teachers to collaborate.

At Leratadima, it was observed that the school uses a hierarchical leadership style, which works well for the culture of this school to a certain extent. The principal is the general manager of the school, creates time and space for HODs to support and work with teachers to increase opportunities to improve teaching practice, to promote effective learning. The leadership style does not seem to create problems for the older generation of educators from the same cultural orientation, but this was not the case for a young female teacher who felt that ideas from young and new teachers were not acknowledged. The deputy principal, HODs and teachers interrogate data in their quarterly meetings, and the school management team is responsible for decision making, such as buying laptops for the entire teaching team, to enable them to access to ideas and activities that can improve learning. Teachers use the laptops to store data they collect for various classroom activities and tests, and to keep track of learner performance. At no point in their responses did teachers talk about how the collected data is used to help them improve learner performance. The assumption may be that laptops make it easy for them to access marks when required for reports.

A similar leadership style is practiced at Sunshine, where the principal is an overseer and manager. An example of using data was given when the principal, realised that learner performance in maths was affected by regular teacher absenteeism. The principal then introduced class teaching to make teachers accountable. Sadly, the same teacher continued to be absent, even after the changes were implemented. This continued to affect learner performance in internal and external tests, including ANA maths tests. Lack of data usage by the principal and his deputy has not created a balanced, collaborative culture in which they

can share and learn about learning problems, and provide support to teachers so that they can improve learning.

The deputy principal is supposed to take responsibility for instructional leadership. However, findings indicate that he does not make decisions to improve teaching and learning based on data, but might be using alternative measures, which were not mentioned. In his responses, there seem to be gaps in knowledge and information on ways to engage new ideas in teaching and learning. As an instructional leader, it would be difficult to envisage how he can have influence or motivate teachers be exposed to new innovations of teaching to improve learner performance. While the HOD's direct responsibility is to work with and support teachers, and be accountable for guiding teachers to enable good learner performance, his responses also lacked informed knowledge to indicate awareness of knowledge about the use of data to improve teaching and learning. This does not mean data is the only way schools should consider to improve teaching and learning, as long as poor performance is not used only for blaming and shaming learners.

At Hope, as the school is identified as underperforming based on ANA results, the school gets support from a non-government organisation (NGO) to help teachers improve teaching techniques to improve learners' reading and writing skills. The school is also supported and provided with materials by the district, known as the support improvement programme (SIP) to help underperforming schools improve learning. These materials were criticised by the teachers as not being effective enough to make a difference, as the language used in them creates further learning problems (see chapter 7 for details). To make an attempt at improving learner performance, the principal takes on much of the responsibility for improving their

reading and writing skills. Lack of participation in this innovation can retard progress, if the principal is to attend to each learner's learning problems. The leadership cannot encourage teamwork as relationships between her and some of the teachers are almost non-existent.

8.5 Data inquiry to inform teaching practice

All schools that participated in this research considered data use an effective way teachers can make decisions about instructional effectiveness based on assessments of learners' performance. However, how data is used differ. Schools differ in whop is involved in data use, how they use information from data to make decisions. Another difference is whether questions asked in using dat provide right answers to eable schools to improve teaching and learning. Mot all teachers in these schools use data to reflect on their own teaching practice to inform decisions they make to improve learner achievement. As a result, no improvement is realised despite repeating to teaching the same content aas what they consider remedial work.

A strong leader with instructional qualities and a vision on data use data is needed to improve teaching practices to improve teaching practices and learner achievement and learner achievement and school culture that promote high standards of teaching a to improve teaching practices and learner achievement nd learning. At Dinaledi, the school leadership is able to use data effectively to inform inquiry-based knowledge for decision making, because they are knowledgeable about and are committed to using data, since they share a strong vision for how it can inform them about educational changes necessary to improve teaching practice in their school. The information produced from data and presented in form of graphs, and used to generate discussions with the teaching staff, can help in identifying strengths and weaknesses in teaching practices. As a result, support is provided for teachers to improve content knowledge and pedagogical content knowledge, and to involve learners in learning

experiences different to all those they have known before. The school management team is continuously creating opportunities to support teachers and provide resources to make it possible for effective teaching to happen.

The school management team's interview responses, at Dinaledi, and information from reviewed documents, provides evidence that this school strives to engage with assessment data to find areas where teachers need support in order to improve teaching practice. The school leadership's understanding of the use of data enables them to collaboratively engage to share, learn with each other, and support one another. Through emerging professional learning communities (PLCs), teachers are encouraged to be lifelong learners; to catch up with rapid educational changes. The action plan at Dinaledi indicates a process whereby PLCs would deepen professional knowledge and redefine teaching skills as evidence of this kind of teacher learning (Timperley, 2009:23). The school leadership demonstrates and encourages a culture of hard work, and sets high standards of teaching to motivate learners to adopt a similar culture of hard work.

The HODs at Dianledi, Leratadima and Sunshine seems to take responsibility and make efforts to support teachers to improve learner performance. The deliberate focus to engage teachers in may also be seen to be a mince to build capacity and promote collaboration to make teachers work together and support each other, although in it is to a certain extend limited. Older, more experienced teachers also have a responsibility to orientate inexperienced and support new teachers. Researchers identify factors related to the dynamic instructional behaviour that teachers have to observe to make teaching and learning effective. These would include orientation, structuring, questioning, teaching-modelling, application,

management of time, teacher role in making the classroom a learning environment, and classroom assessment (Creemers & Kyrakides, 2009). These may be areas lacking at the beginning of teaching, but which are necessary. For the HODs at Leratadima and Sunshine to successfully model a good dynamic instructional role they would have to consider these factors. The use of assessment data would enable the HODs and teachers to measure success in learning, and enable them to reflect on their instructional roles.

The school leadership and staff at Leratadima and Sunshine meet quarterly to consider data, but the interview responses did not provide confirmation that data informs teaching practice, but rather that data is used only to identify weakness in learner performance.

The leadership of the HODs at Sunshine promotes collaboration to some extent, among smaller groups of subject teachers, to learn and understand data in order to improve learning. Instead their concern was that parents do not take responsibility for their children's education. The concern raised in regard to lack of parental involvement to their children's education seems to be a problem experienced in all four case studies. A positive culture of education is still being only slowly absorbed in many South African communities where it was previously not considered important or severely disrupted by the struggle against Apartheid. The maths HOD mentioned that learner poor performance cannot just be solved by doing remedial work, because there are more factors that affect learning. For example, some learners are dyslexic and require special education. Even though teachers intend to help learners improve, they are unable to successfully impact learner performance without the relevant knowledge and required skills necessary to assist learners who need special education. A disturbing concern raised by some of the school leadership is that the district insists that some of the learners

with serious learning problems still have to be promoted to the next grade. Teachers consider this a severe problem as the same learners usually struggle to grasp new concepts introduced in the new class, and add to the number of poor performers.

School leaders and teachers' professional judgement are a component of the information process – a data point, alongside other quantified data such as standardized tests. These enable teachers to consider their judgement an important piece of knowledge, and make them unlikely to resist professional development initiatives. In all the case studies in this research, teachers have access to data based on learner performance; however, their professional judgement is at times overridden by certain policies from the district, such as learners who are promoted even when they fail to meet the criteria to succeed at that level of education. Whenever teachers get a role that provides them with opportunities to have access to the performance of their learners in a variety of contexts and over extended periods of time (Black & Williams, 1998), they may acquire knowledge and skills in learning from data. This will allow them to reflect on their teaching practice. Researchers argue that when teachers engage with data and become part of the decision making process, their attitudes towards educational practice improve and this has an influence on learner performance (Armstrong & Anthes, 2001). The change in attitude of school leadership and teachers at Dinaledi is an example of where data is used to reflect upon and improve teaching practice.

One teacher, among the rest of those interviewed at Hope, mentioned that whenever learner performance is poor, she asks questions that make her think about how to improve teaching and revive learning in her class. Research shows that teachers working in isolation are not accountable to each other and are not likely to improve teaching practice (Schmoker, 2004).

Although this teacher's thoughts had not been shared with others, it could have been helpful if an opportunity was created to have teachers collaborate, to enable her to share her questions with others and perhaps influence other teachers in the subject. This teacher's response brought about hope in the knowledge that all is not doom and gloom, based on the previous perception of the school. Perhaps this is when I gained hope for the future of this school. As teachers recognise the dire situation in their schools, they may seek help to turn things around. However, it was difficult to manage the poor working culture and have her attempt to making teaching more effective choked. If only this group of maths teachers were to have chance to improve their teaching practice, learner performance would improve. This hope can only be realised if the principal has enough influence to encourage teachers to work together, and share and learn from and with each other. To improve, the principal and teachers at Hope would have to share the vision of practice that underlies the reform agenda, which requires teachers to rethink their teaching practice, to construct new classroom roles and expectations about learners' outcomes, and to teach in ways they have never taught before (Darling-Hammond & McLaughlin, 1995).

8.6 Using data for accountability

Assessment data has been used for accountability and high standards to measure school effectiveness through learner performance, and is the heart of reform efforts in education (Earl, 2005). The use of data to improve educational outcomes emphasises that data is a powerful tool to strengthen academic outcomes for all learners.

Each of the schools that participated in this research study made claims that data informs them of emerging learning problems and assists them to make decisions about how they can improve teaching and learning. Findings show that Dinaledi consciously uses data to support teacher to improve practice, and so motivate higher standards of learning. Whenever the school leadership becomes aware of teachers' needs to revive or refresh their knowledge and/or pedagogical content knowledge, internal arrangements are made for teacher development. The senior primary deputy principal at Dinaledi gave various examples of ways in which teachers are involved in professional development. For example, teachers are encouraged to attend cluster meetings organised by one of the teacher unions involved in promoting and developing teachers' skills, and to improve knowledge for specific subjects; teachers collaborate to exchange ideas with neighbouring schools to demonstrate effective ways of sharing good pedagogical content knowledge with each other; and the school invites in subject area experts areas where they think their teachers lack the skills or confidence to execute their instructional responsibility. The school leadership organises the necessary support to empower teachers, to ensure that learner performance is improved. The innovation of teaching learners with different learning abilities separately, was also identified and implemented to engage teachers effectively and to motivate for competitive learning among learners. The efforts made by the school leadership at Dinaledi show dedication to promoting a sense of accountability and to providing for effective teaching and learning.

At Leratadima, Sunshine and Hope, there are no teacher developments programmes organised to collaboratively engage teachers to study data and make decisions to improve school effectiveness. The school leaders in these schools do not have a strong vision of using data to influence teachers to engage with data, in order to improve teaching and learning. The district is already using data to study learner performance and to hold schools accountable.

Perhaps teacher development training on the use of data could be prioritised to encourage schools to develop knowledge and skills in this area, and make them rely on inquiry from evidence-based knowledge, to be able to make informed decisions for school improvement.

8.7 Using data for capacity building

Using data is key to the effective capacity building for school improvement. Through capacity building, districts or schools can encourage teachers to be part of a group that meets regularly to share and learn with each other in understanding challenges in learning, to improve content knowledge and skills to teach it. However, unlike Dinaledi, the process of capacity building in the use of data is not yet effectively used in other schools.

Dinaledi's school leaders facilitate the use of data to promote higher standards and accountability mandates, which is one of the building capacities to improve learner performance. It is therefore the school's responsibility to have data facilitators or mentors who will have knowledge of and techniques for the use of data to assist teachers in this capacity. Capacity building in this area could also be introduced as preparation for future career promotions.

Capacity building can also motivate the involvement of individuals in assuming responsibility for taking leadership roles, such as when planning activity, moderating assessment tasks and involve others in analysing data to learn and understand learner needs. This is likely a possible way teachers will feel acknowledged, and make efforts to volunteer their knowledge and skills as a contribution towards improving teaching and learning. As part

of capacity building, the distribution of responsibilities can promote interactions between school leaders and teachers to support educational improvements.

Through correct questions schools using data should be able to dig deep into the data to engage in dialogue that enable teachers to learn and understand learning problems, and devise innovative solution to improving teaching and unlocking the learning potential.

It is necessary for these schools to develop and implement data-driven decision making tools toward the effective use of data, in order to provide opportunities for and encourage the participation of all teachers. To increase capacity building in the use of data, each school can benefit from having a person/s with knowledge and skills to in both the interpretation of data and the use of technology to deliver data. These tools could be used through ongoing professional development in the unique situation presented here; promoting the widespread involvement of teachers, as part of the school community, to support effective data use in schools. For example, the use of data could provide a means whereby teachers can identify real learner needs, rather than working with their own intuition as to what learners need.

8.8 Factors that promote or hinder the use of data

The findings of this study uncover that factors that hinder the use of data to improve teacher practice and learner performance are similar to those identified in various other research studies. In many instances, data is used as mechanism for criticism and blame, rather than a way to identify and come up with constructive strategies for school improvement and improve learning. Some teachers feel that efforts they make to improve learner performance do not impact positively, because they do not always understand and work with the

demonstrated learner needs to improve learning, but rather rely on own intuitions about what step to take. Unless teachers change teaching practice and engage learners in different experiences in learning, the cycle of learning challenges will continue. Lack of school leadership with a vision for using data hinders opportunities for teachers to learn and understand learner needs. For example, if the school leadership does not provide time for teachers to collaborate, find solutions, and make decisions for necessary changes, the learning problem will continue without being addressed.

Lack of professional development or technical assistance for school leaders and teachers to translate multiple data into information, and make it a realistic action plan to improve learner performance, is another hindrance to the use of data. Due to insufficient capacity to develop evaluation strategies that appropriately connect and measure the effectiveness of action plans such as data interpretation, some schools do not enter into conversations that help them understand learning challenges. This means that they lack the insight to raise questions that will help them identify what they have to look for, and do, to improve teaching and learning.

A lack of time, and not scheduling time, for teachers to engage and discuss their understanding of information from data, does not motivate teachers to see that they have a responsibility to volunteer their private time to engage with data. Among other reasons given by teachers, they raised concern that there is contradiction between the Department of Education (DoE) expectations and the labour Unions' demands. The Union demands that as employees, teachers work certain hours in a day, whereas the DoE expects teaching to be a twenty-four hour profession. The members of the Union are blamed for causing disruptions which affect normal working hour for teaching in order to maintain and/or sustain high

quality of work. In addition, the school leadership authority is usually undermining in the process. However, where there is no such disruption, school leaders provide guidance, and use of data to initiate discussion with groups of teachers. Through interpretation of data, collaborative teams are encouraged to ask relevant question to understand challenges in learning, and also to facilitate discussions around data information that enable the school's leaders and teachers to make decisions for change to improve school effectiveness.

There are other related issues that were raised as concerns that may result in a negative reception. Although the school leadership and the teachers at Dinaledi engage with data to improve teaching and learning, a concern raised by the principal was that after teachers have been capacitated with knowledge and skills to enable them to gain confidence in distributive leadership roles, the school loses them to other educational institutions, such as the districts or non-governmental organisations. As a result, they continuously have to induct new teachers and familiarise them with using data, to involve them in the school culture that promotes it as way to interact in decision making to improve teaching and learning. This may seem like a loss to the school, but on the other hand, it can be seen as a positive contribution to a demand for more people with knowledge and skills in such work, in positions that would enable them to enhance, and take responsibility in, roles of teacher development training and other related developments in education.

At Leratadima, the HODs make efforts to use data to identify challenges in learning, but this seems to be done as a means to judge and reprimand teachers with poor learner performance. Discussions of data with teachers happen on quarterly bases is also to make sure that information to be entered in reports in correct. At this stage it may be too late to focus on

specific problems that can lead to reflection on teaching practice and to improved learner performance. As indicated in the literature, mentioned earlier in this chapter, encouraging meaningful collaboration through the use of data can facilitate powerful conversations that will lead to improved teaching practice and effective learning. In this case, the HODs have to create opportunities to engage teachers in data analysis, to encourage reflection to improve their practice, and to learn and understand learner errors and needs with each other. Junior teachers' concerns are that their knowledge and skills are ignored and they are not given a chance to contribute or to voice their opinions on what they may think may be useful to improve teaching and learning. The practice of a top-down leadership style at this school contradicts views of newly qualified teachers who may have learned about collaboration for sharing and learning with each other, rather than being a recipient of information from their seniors. Capacity building and distributive leadership for young teachers may be delayed, and these teachers may, in turn, not see the need to stay in schools dominated by older, experienced teacher and leadership for longer.

The schools that participated in this research may have intentions to contribute to the need to educate learners and prepare them to be contributing members of society. Among other ways to improve teaching and learning, understanding information from assessment data can enable teachers identify challenges to learning, and be able to find ways to resolve learner problems. Because not all learner problems are the same, with data teachers may identify areas of individual weakness in a particular area, than to deal with learning problems blindly. Without using data to influence teachers to collaborate and encourage conversations and collective decision making, the mind set of teachers working in isolation will not shift so that they appreciate collaborating with others, and learn, share and support one another in implementing changes to improve learning. Lack of collaboration in some of the schools that

participated in this research encourages teachers to work in isolation, and through union activities, sometimes teachers are kept out of classrooms. On the contrary, when school leadership encourages collective interaction among teachers, so that they share knowledge and try to use skills in ways that have proven to be successful; teaching practice will be improved. This can include the use of varied assessment questions to involve learners in thinking and engaging with knowledge, which could be used as preparation for tests and examinations. This can enable teachers to commit and be able to do good work and be satisfied with the outcomes based on learner performance.

Sporadic meetings, or a lack of scheduled meetings, do not encourage teachers to commit to collaborating and engaging and working together to effect changes in addressing emerging learning challenges that teachers encounter on a day to day basis in their classrooms. In the case where data is analysed only on a quarterly basis, there is no guarantee that identified teaching or learning problems will be addressed in teaching new topics, in the new season. Without commitment from the school to address learning problems as they happen, it is difficult to believe that as learning problems build up, they will be attended to at a later stage. This may be what causes learner performance in ANA bench marks to remain poor, as these tests are a once off occurrence.

The findings of this research study show that there are a number of factors that hinder the use of data. Not being able to track learner performance and understanding learning challenges may be what leads to poor teaching which results in poor learning outcomes. Three out of the four school leaders rely on the district to analyse their school data, instead of being capacitated to know how to engage data in make decisions to improve teaching and learning.

This would not give these schools first-hand information about challenges related to teaching and learning, as when comparing their school performance in comparison with the rest of aggregated data from the districts, they may not get to address their own problems, according to the context of their school's needs.

8.9 Conclusion

In South Africa, using data for decision making is still a new concept, which may not yet be entirely used in schools in order to improve teaching and learning. Teacher empowerment in the use of data is lacking, despite the DoE intention to use ANA data to track schools that need support, they fail to build capacity to empower schools with knowledge and skills to engage in systematic data-inquiry. As the department use data to monitor developments in schools, they cannot make claim that data is the only way they can make schools accountable and to improve high standards in teaching and learning. The Minister of Basic Education, Angie Motshekga, made claims in the public media that the department uses data to identify schools with poor performance, and provides support to these schools to improve learning. However, based on ANA and National Certificate results there are still schools with poor performance. The department cannot be expected to analyse data for all schools and try to address teaching and learning challenges within the different school contexts. To effectively introduce the use of data, schools have to be provided with training, or with personnel with technological knowledge and skills to capture, analyse data, and transform it into information that the school can use to start conversations and make decisions. It would benefit schools if each school have trained facilitators with a strong knowledge of analysing and interpreting data, to engage schools leaders and teachers in understanding where they need to focus to improve teaching and learning.

Collaboration and networking could be another way for schools to engage in sharing and learning knowledge and skills to use data, and to interact using valid questions that will enable them to get to the heart of the problems in teaching and learning. Based on the findings of this research study, schools like Dinaledi could be used as a model for which other schools might learn to use data to improve teaching and learning.

In this age of technological advancement, videos of schools practising the use of data; engaging with it for school effectiveness and to promote learning, could be distributed. This type of information sharing could benefit other schools. It would minimise the work of the district in producing written material, which may present language problems, and learning through watching and listening to DVDs could be a better way to share information. The district work would be to conduct follow up and do school-based support, ensuring that they address related issues to improve teaching and learning. The government partnership with producers of technology, which can help schools with programmes to analyse and interpret data, can encourage far more involvement with data.

This study shows that strong leadership and a vision of using data to enable capacity building is effective in schools, and enhances possibilities to make decisions to improve teaching and learning. In schools where the school leadership and teachers have established a culture of collaborating to share and learn, it is possible for teachers to commit to promoting high standards in teaching and learning. Dinaledi is an example of a school with a culture of promoting collaboration and using data, for leadership and teachers to work together, find

solutions to teaching and learning problems; and to promote, maintain, and improve high standards in teaching and learning.

It is an accepted fact that imbalances in distribution of resources in schools may be a challenge for some schools' performance. Other examples, on the contrary, such as benchmark tests in literacy and numeracy, show that South Africa is outperformed by eight surrounding countries, many of which, including Mozambique, Kenya, Uganda and Tanzania, are much poorer; with gross domestic products in the order of one-tenth to one-fifth of South Africa's. This places South Africa as the worst performing country (Taylor, 2008). Although some learning problems can be as a result of socio-economic factors in other sectors of the communities, this cannot remain as an excuse for the poor performance maintained in schools. Data can help teachers identify strengths in areas where learners can do well, and channel their attention into a subject that can pave their career paths and relieve them from the oppression of poverty. Taylor's study highlighted that poverty is strongly associated with performance in general; yet many school systems achieve higher quality with far fewer resources than South Africa has. The same applies in schools that are in remote parts of the country with scarce resources, but produce very good results. If data is what informs these schools good performance in teaching and learning, their experiences have to be shared with other schools.

The discussions above indicate that the purpose and understanding of using data is different in different schools. It is necessary for school leaders and teachers to consider data as one of the ways they can learn, and understand this as information to make decisions that teachers can use towards necessary educational changes in teaching and learning. Having resources

such as technology available is found to be effective for analysing and transforming data into information. This does not mean that schools with few, or no, resources and skills cannot make attempts to learn from data. School leadership and teachers must be exposed to emerging educational changes in order to have various options for improving teaching and learning.

Creating an environment for collaborative learning is also recognised as beneficial for schools, rather than depending only on support from the district to address problems in teaching and learning. Continuous collaboration using data can lead to the creation professional learning communities to encourage collective interactions, and increase a climate of accountability. Professional learning communities are a possible way to provide opportunities for teachers to learn and think together about how to improve teaching practices (Botha, 2012).

Among schools that participated in this research, Dinaledi proved that effective use of data can improve teaching and enable schools to set high standards of learning. Researchers highlight that a strong accountability mandate, including the Annual National Assessment benchmark tests, demands that schools focus on achieving high standards for all learners, and require evidence of progress towards those standards (Herman & Gribbons, 2001). Good education for all children in South Africa should be a priority; providing them with a chance for them to excel and be competitive with their peers on a global scale. Findings also show that teachers at Dinaledi are continuously encouraged to take responsibility for improving their subject knowledge, particularly in subjects such as maths; and that they take pride in promoting effective teaching and learning. Networking and teacher development are also

used as part of enhancing the exposure teachers gain to new knowledge and ideas for effective teaching. This provides them with opportunities to become part of professional learning communities, internally and externally.

Chapter 9

Summary, Limitations and Recommendations for Future Research

This study intended to explore how or whether data is used in primary schools to improve teaching and learning. This chapter summarises the findings based on emerging themes and patterns informed by processes of using data, or lack thereof. These are based on interview responses from school leadership and teachers of the four primary schools that participated in this research study, and a review of some documents from one of these schools, that provided evidence of data information used to engage teachers in decision making. The findings of this study show that there are four requirements that guide how schools can use data effectively to improve teaching and learning. These include data analysis and interpretation, knowledge and skills; school leadership with a data usage vision; the creation of collaboration systems to share and learn from data; and the development of a culture of professional learning communities, as a move away from working in isolation. These processes and developments are possible when schools have a good understanding of using data, as it can encourage them to share and learn about learner needs. Thus solutions to emerging problems can be found together, and decisions made to improve teaching and learning.

School teachers continuously engage in learner assessment, orally or in writing, on what they have been taught. Marks allocated to learners are based on the level of competency each learner displays, and this is what forms part of the data that informs the school about the learner's academic developments in different subject taken in his or her grade. Poor learner performance is supposed to make teachers raise questions about problems that cause learners to fail to perform in their studies. The ANA benchmark results are used by the districts and provincial departments of education to measure competence in maths and literacy in schools

in South Africa. However, it does not seem as though school leaders and teachers have a mandate to use data from these tests to reflect on and review the standards of teaching and learning in their schools. The literature shows that the use of data as evidence-based inquiry for decision making is crucial to improving teaching and learning outcomes.

The main question of this research was to find out how schools use data as evidence-based inquiry to inform decision making to improve teaching practices and learner achievement. The sub-questions for the study were:

- What kinds of student data are schools using to understand the performance of their students?
- How is assessment data in South African primary schools used to improve teacher practice and learner achievement?
- Who is involved in decision making based on data and why?
- What questions do teachers develop when linking learner data and teaching practice?
- What factors promote or inhibit educators using data to inform practice in primary schools?

As assessment is considered integral to teaching, data is a summative record teachers use to understand the progress of learner performance. It can also powerfully be used to reflect on own teaching. The research questions made it possible to gain understanding of school leader's and teacher's understanding of the significant of data used in decisions made to improve teaching and learning. At the leadership level, Dinaledi and Leratadima SMTs used the information derived from data analysis to provide support for teachers. Not all school leaders at each of these schools were involved in interpreting data to make decision that would help teachers improve their teaching practice. The findings also shows that some principal are not involved with instructional leadership, instead the HODs as specialist in

their subject areas are the ones working with teachers to study data on quarterly basis and identify areas with learning problems.

In three of the schools, the HODs take responsibility to engage data to improve teaching and learning, this is done at the end of term after teaching and assessing particular sections taught. There was no guarantee that teachers revisit the sections of the curriculum which revealed learning challenges, however, most teachers in the study schools seem to appreciate that working with data could help them to address learner performance. What was often or usually Far less frequent was the consideration of how they might use this same data to promote changes in teaching practice in order to expose learners to new ways of engaging with knowledge and thinking. As a result, there was not much change realised through the remedial classes or repetition of lessons as the teaching practices remained the same.

There is concern that in three of the schools that participated in this study it was difficult to get the essence of questions asked when engaging with data. Whereas at Dinaledi, the school leaders have a better awareness of use of data, as specific questions raised enabled them to identify and understand learner problems for decision making. Changes made through information from data, involved teachers differently to improve learner performance, as well as giving teachers support and encouragement to engage in internal and external development programmes.

With regard to which data schools use for decision making, it was surprising that all school leaders' responses focused on the Annual National Assessment (ANA). When asked which data they use to improve teaching and learning, not much emphasis was placed on data

collected on assessment of daily activities, and weekly or monthly tests if they were done. The teachers to some extent did talk about quarterly exams data, but it lacked a great deal of specificity and these were not the focus of discussion during interviews.

This study will contribute to existing literature on data use and how it can considered as another way schools can create a culture of collaboration to make decisions on how best to improve teaching practice and expose learners to different ways to engage with information to improve learning. The example of use of data at Dinaledi is proof that there are schools in South Africa with knowledge and skills of using data. Collaboration and creation of professional learning communities in schools and among schools is evidence that as a way of sharing and learning together, data can influence change needed in schools.

Where school leadership and teachers have the knowledge and skills to analyse and interpret data, and turn it into information that will enable them to learn and understand teaching and learning problems, it begins a process of considering ways that schools can improve school effectiveness and learner performance.

The use of data provides opportunities for school leadership and teachers to engage in enquiry-based discussions that help in the search for answers, and solutions, around whether problems relate to teaching or learning. For schools to improve either teaching practice or learning, the purpose of discussions should be clear, so as to avoid focusing on irrelevant issues. This would prevent reaching the intended outcomes of the discussions.

When comparing how data is used in the four primary schools, in only one school did leadership display knowledge of, and have a vision for, using data. The leadership at Dinaledi took a lead in analysing and interpreting data, which was used to engage teachers in collaborative decision-making to improve teaching and learning. With the guidance of leadership, the school has created a culture of high standards of teaching and learning, using evidence-based inquiry processes to improve school effectiveness. For example, to address a decline of learner performance as a result of adolescent stage behaviour and large classes, school leadership used data to make the decision to convert the normal dual classes in grade seven to separated gender group classes. This resulted in competitive classes with high achievements. Teachers' strength in content knowledge and pedagogical knowledge were used to target learners displaying different learning abilities, and every time a learner improved, they would be promoted to a class of high achievers; the opposite would also happen. The school found this process improved learner achievement tremendously, as well as inspiring teachers to learn new innovations in teaching in order to improve their work.

The findings also show that in schools where leadership takes a lead in using data as information to engage teachers, there is encouragement for creating a culture of collaboration. Collaboration and information-sharing is regarded as a common theme in education improvement, and the collaboration resulting from data use is considered necessary to benefit teaching beyond one-to-one relationships (Wayman, 2005). Through collaboration, teachers share and learn from data to find solutions to improve teaching practice. The findings indicate that in three of the schools that participated, there are different purposes for which data is used. For example, at Dinaledi School, leadership and teachers are informed by data as to when to engage in activities that maximise improvements in teaching and learning. By contrast, at Leratadima and Sunshine, only the HODs and teachers collaborate to find

solutions to improve learning. When learner performance is not satisfactory, remedial work is considered relevant to improve learning. However, there is a possibility that learning can improve without teachers reflecting and changing teaching practices, but there is no guarantee that improvements will be significant when the same teaching techniques continue to be used. This was confirmed by interview responses that learners continue to make the same mistakes, or do not show much interest in learning, despite the fact that teachers spent time doing remedial work to improve learning. At Hope, the fourth case study, there was no indication of use of data, even though they had all the data at their disposal.

In support of encouraging collaboration in schools using data, research shows that inspiring lessons about success, to support teachers, include careful creation of a culture of collaboration and to promotion of working together to devise creative strategies for digging into data to unlock the learning potential of every learner (Tomberlin, 2007:71). School leadership in educational change is therefore necessary to forge the relationships required for sustained school improvement.

An additional benefit to encouraging the use of data is that through continuous collaboration, it is possible for professional learning communities to emerge. These may be formal or informal. At a formal level, school leadership can provide for teachers' exposure to new educational ideas through internal or external teacher development. Teachers would learn new pedagogical content knowledge that will enable them to engage learners in new experiences of learning. At an informal level, teachers of the same subjects can collaborate to share and support each other to improve their teaching. It is necessary to allocate to encourage teachers to continuously engage with, and learn from, each other. For example, at

Dinaledi the school leadership has scheduled time for weekly meetings where teachers are encourage to interact in their subject teaching groups to plan lessons, activities, and assessment tasks, as well as find solutions to emerging problems, based on existing data. These communities also extend beyond the school environment, to a network of schools in the area that the principal has helped to create. The purpose of networking is to extend collaboration, and the development of learning communities that share and learn about new educational innovations that enable them to improve teaching and learning. The networking started with ANA test results, when the leadership at four schools were surprised by the fact that their schools did not perform as well as they had anticipated. Comparing their data allowed them to engage in questions that would help them find out whether it assisted in locating problems with teaching or learning, or both.

In summary, knowledge and skills are necessary to engage schools in the analysis and interpretation of data, enabling them to learn about learner needs and make decisions towards improving teaching and learning. To change and empower teachers who have always worked in isolation, data can encourage collaboration to promote a culture of sharing, learning and supporting each other. School leaders with a vision of using data can influence a new culture of creating professional learning communities that will collectively reflect upon, and share a vision of high expectations for teaching practices that will influence transformed learning experiences.

The figure below provides a process that summarises and reflects on the findings of this research study. I named this a summary of '*evidence-informed inquiry and action processes'* as it demonstrates how using data can engage processes that may result in actions that

involve interactions for mutual learning, support, exploration , and decision making to improve teaching and learning.

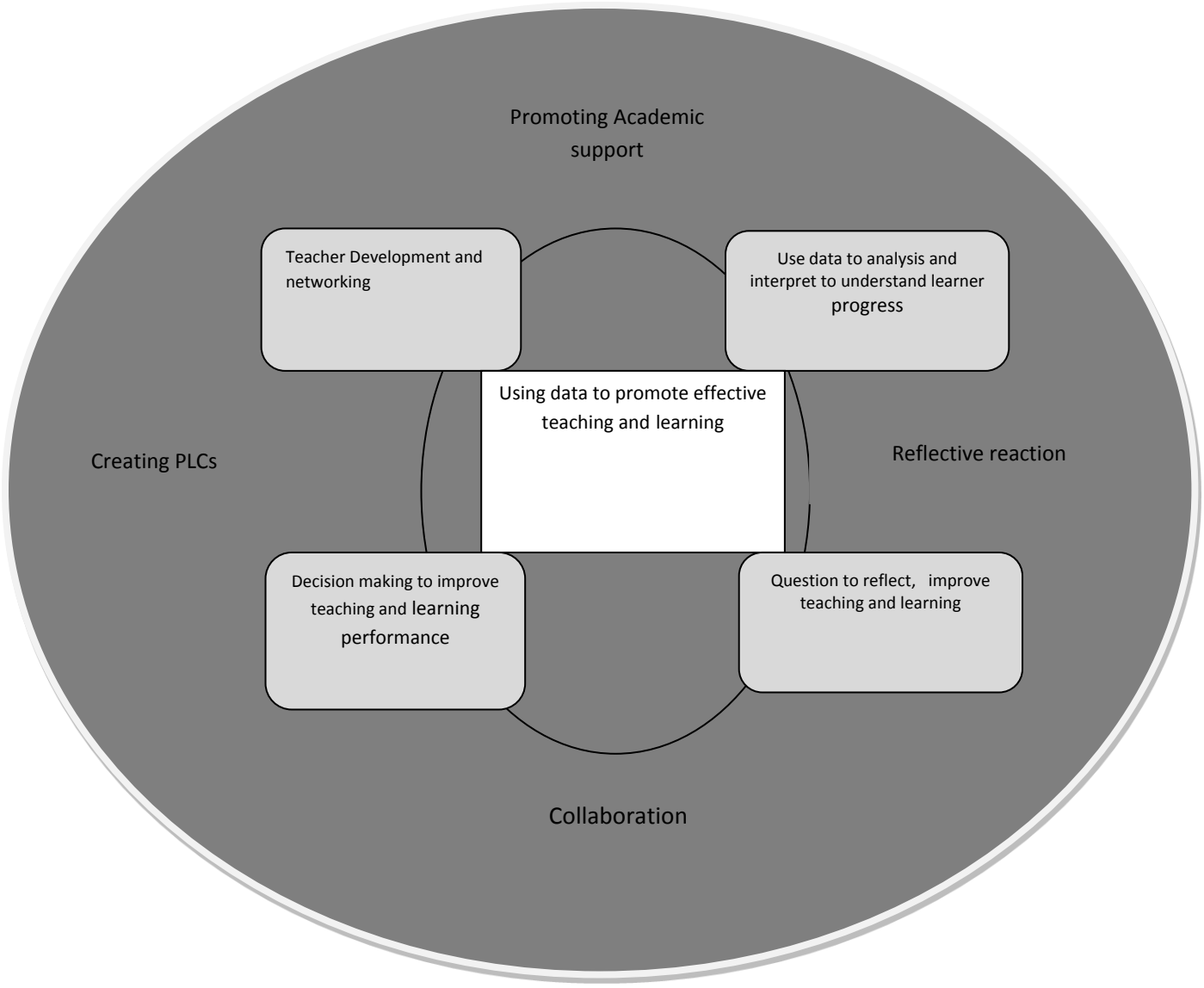


Figure 4: Evidence-informed inquiry and action processes

This section also presents two limitations of this research. In planning for this research study I did not include observing meetings where school leaders and teachers engage with data. This limitation makes it impossible for me to provide tangible evidence that qualifies interview responses on the use of data. The combination of interviews and observation for the actual process of engaging with data to make decisions to improve teaching and learning would have been helpful, and enriched the findings of this study.

Another limitation was choosing schools that participated in this study. Through questionnaires, principals volunteered on behalf of their schools to participate in this study, based on claims that they were using data to improve teaching and learning. Only one school principal did mention that they were not using data, but an interest in engaging with and understanding how data can help improve teaching and learning. Although intervention was not part of this study, this questionnaire response drew my interest as to which factors inhibit the use of data, how the school decides what needs to be improved, and how it arrives at decisions to improve learner performance, without involving data. In analysing data from this school, there was no new information contributing towards the use of data, except around the challenges that affect poor school performance.

Finally, this research offers recommendations that can inform future research, and necessary interventions that could be undertaken to provide schools with the knowledge and skills to use data as a new educational idea to help improve teaching and learning.

Further research will have to be conducted in order to discover how classroom activity and test data compare to standardised results; what the differences are, and how and why these can be used to inform decisions to improve learning. Since the use of data also has the ability to influence improved teaching, it would be useful to enable schools to learn how to reflect upon it, and what questions they need to ask, as well as how they decide what they need to improve to make teaching practices effective.

Other research topics that may be considered, in order to further explore research studies in the use of data, could include:

- Identifying which data is selected to make decisions to improve teaching and learning, and how it is used.
- Establishing how to encourage or create a culture of collaboration in using data.
- Creating a triangular collaboration among schools, districts and universities in the use of data to improve teaching and learning.
- The use of data to create professional learning communities.
- Involving learners in the use of data to improve learning.

As important as it is to involve technology in data use to improve teaching and learning, researchers also need to explore other methods. These include the effectiveness of assessment techniques, the use of learner errors to reflect on teaching practice and help learners learn from their own errors, and the use of language that promotes an understanding of carrying out tasks that increase positive ways to improve learner performance.

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Appendix A

DEPARTMENT OF EDUCATION PERMISSION TO DO RESEARCH IN SCHOOLS

UMnyango WezeMfundo
Department of Education

Lefapha la Thuto
Departement van Onderwys

Enquiries: Nomvula Ubisi (011)3550488

Date:	22 February 2010
Name of Researcher:	Botha Elizabeth Mathakga
Address of Researcher:	77 Botha Street
	Ext 9 Eldorado Park
	1811
Telephone Number:	0119671785/0829671785
Fax Number:	0865532338
Research Topic:	School Communities and Use of Data to Improve Teaching and Learning in Primary Schools
Number and type of schools:	2 Primary Schools
District/s/HO	Johannesburg South

Re: Approval in Respect of Request to Conduct Research

This letter serves to indicate that approval is hereby granted to the above-mentioned researcher to proceed with research in respect of the study indicated above. The onus rests with the researcher to negotiate appropriate and relevant time schedules with the school/s and/or offices involved to conduct the research. A separate copy of this letter must be presented to both the School (both Principal and SGB) and the District/Head Office Senior Manager confirming that permission has been granted for the research to be conducted.

Permission has been granted to proceed with the above study subject to the conditions listed below being met, and may be withdrawn should any of these conditions be flouted:

1. ***The District/Head Office Senior Manager/s concerned must be presented with a copy of this letter that would indicate that the said researcher/s has/have been granted permission from the Gauteng Department of Education to conduct the research study.***
2. ***The District/Head Office Senior Manager/s must be approached separately, and in writing, for permission to involve District/Head Office Officials in the project.***
3. ***A copy of this letter must be forwarded to the school principal and the chairperson of the School Governing Body (SGB) that would indicate that the researcher/s have been granted permission from the Gauteng Department of Education to conduct the research study.***

Office of the Chief Director: Information and Knowledge Management
Room 501, 111 Commissioner Street, Johannesburg, 2000 P.O.Box 7710, Johannesburg, 2000
Tel: (011) 355-0809 Fax: (011) 355-0734

4. *A letter / document that outlines the purpose of the research and the anticipated outcomes of such research must be made available to the principals, SGBs and District/Head Office Senior Managers of the schools and districts/offices concerned, respectively.*
5. *The Researcher will make every effort obtain the goodwill and co-operation of all the GDE officials, principals, and chairpersons of the SGBs, teachers and learners involved. Persons who offer their co-operation will not receive additional remuneration from the Department while those that opt not to participate will not be penalised in any way.*
6. *Research may only be conducted after school hours so that the normal school programme is not interrupted. The Principal (if at a school) and/or Director (if at a district/head office) must be consulted about an appropriate time when the researcher/s may carry out their research at the sites that they manage.*
7. *Research may only commence from the second week of February and must be concluded before the beginning of the last quarter of the academic year.*
8. *Items 6 and 7 will not apply to any research effort being undertaken on behalf of the GDE. Such research will have been commissioned and be paid for by the Gauteng Department of Education.*
9. *It is the researcher's responsibility to obtain written parental consent of all learners that are expected to participate in the study.*
10. *The researcher is responsible for supplying and utilising his/her own research resources, such as stationery, photocopies, transport, faxes and telephones and should not depend on the goodwill of the institutions and/or the offices visited for supplying such resources.*
11. *The names of the GDE officials, schools, principals, parents, teachers and learners that participate in the study may not appear in the research report without the written consent of each of these individuals and/or organisations.*
12. *On completion of the study the researcher must supply the Director: Knowledge Management & Research with one Hard Cover bound and one Ring bound copy of the final, approved research report. The researcher would also provide the said manager with an electronic copy of the research abstract/summary and/or annotation.*
13. *The researcher may be expected to provide short presentations on the purpose, findings and recommendations of his/her research to both GDE officials and the schools concerned.*
14. *Should the researcher have been involved with research at a school and/or a district/head office level, the Director concerned must also be supplied with a brief summary of the purpose, findings and recommendations of the research study.*

The Gauteng Department of Education wishes you well in this important undertaking and looks forward to examining the findings of your research study.

Kind regards

Pp Nomvula Ubisi
Martha Mashego
ACTING DIRECTOR: KNOWLEDGE MANAGEMENT & RESEARCH

The contents of this letter has been read and understood by the researcher.	
Signature of Researcher:	
Date:	

Wits School of Education

27 St Andrews Road, Parktown, Johannesburg, 2193 • Private Bag 3, Wits 2050, South Africa
Tel: +27 11 717-3007 • Fax: +27 11 717-3009 • E-mail: enquiries@educ.wits.ac.za • Website: www.wits.ac.za

Student Number: 9101034J
Protocol: 2010ECE05C

25 March 2010

Mrs Elizabeth Mathakga Botha
77 Botha Street
Ext 9
ELDORADO PARK
1811

Dear Mrs. Botha

Application for Ethics Clearance: Doctor of Philosophy

I have a pleasure in advising you that the Ethics Committee in Education of the Faculty of Humanities, acting on behalf of the Senate has agreed to approve your application for ethics clearance submitted for your proposal entitled:

School communities and use of data to improve teaching and learning in primary schools in South Africa

The Protocol Number above should be submitted to the Graduate Studies in Education Committee upon submission of your final research report.

Yours sincerely

M Mabeta
Matsie Mabeta
Wits School of Education

Cc Supervisor: Prof B Fleisch

Appendix C

A QUESTIONNAIRE

PART 1

QUESTIONNAIRE

Please answer the following.

This information will be kept confidential and no names will be disclosed. However, I do need some personal details in order for me to assign an appropriate code to each school participating in this research project.

PART 1

Name of school: ……..

Type of school: …….

(eg. township public school, ex-model C, etc.)

District:.....

Name: …… (Optional)

Sex: Male or Female ……

Position: …… (HOD, Deputy Principal, Principal)

Qualifications: (1)…….. (2) …… (3) ……

Teaching experience: …… (eg. 1975 – 1988 teacher, 1989-1995 HOD, 1995- principal)

Number of years at this school: …….....

Number of teachers in your school: .....

Number of HODs:.....

Number of Language teachers: .....

Number of Mathematics teachers:.....

Number of learners: Grade 4 ..... Grade 5 ..... Grade 6 .....

School email address:.....

PART 2

The following questions are part of data collection for my research to find out how your school is involved in use of assessment data use to make decisions to improve teaching and learning.

Please spend a few minutes of your time to answer the following questions:

Section A:

Circle the relevant answer for this section

1. Do you and your staff use learner assessment records (data) to improve learner's performance?

Yes **No**

2. Are previous results on learner performance ever used to find ways of improving learner performance in the new school year?

Yes **No**

3. Do you think use of learner assessment data have influence to teachers reflecting their teaching practice?

Yes **No**

4. Do you and the school management allow for dialogue with member of staff to make decisions as a result of data based on learner assessment records?

Yes **No**

5. Are there team assigned to manage assessment data in your school to process learner achievement after every assessment done at any given period of the year?

Yes **No**

6. Do you think that use of assessment data can make teachers improve their teaching practice?

Yes **No**

7. Have you used assessment data to answer concerns about your learner performance but found that the data was not helping you get the right answers?

Yes **No**

8. Do you believe that through data analysis you can collaborate with your colleagues to improve your school effectiveness?

Yes **No**

9. Has use of assessment data been effective in enabling teachers improved learners performance?

Yes **No**

10. Do you compare your subject learner performance results to the average performance from the district?

Yes **No**

PART 3

Please write your answers in detail on the space provided for the following questions.

1. How do you and your staff use assessment data to improve learner's performance?

---

2. What educational questions do you consider most important to ask when assessment data is used to improve learner performance and why?

---

2. Are learner assessment records used to inform about teaching practice? Why or why not?

---

3. Are there factors that act as barriers in your school to effectively use assessment data to improve learner performance and teacher practice?

---

4. What professional development do you think your school need to improve effective use of assessment data?

Are you willing to have your school participate in this research? **Yes** **No**

Thank you for your time.

Appendix D.1

LETTER TO REQUEST PRINICIPAL TO CONDUCT RESEARCH

Date

To the Principal

Name of School

Dear Sir/Madam

Request to conduct research

I am a registered student with the University of the Witwatersrand doing my Ph.D. the focus of my study is: *Effective use assessment data in primary schools to improve to teaching and learning.* Attached is a letter from Gauteng Department of Education and my supervisor as proof for my registration and permission to engage in data collection.

I wish to request permission to collect data for the purpose of my Ph.D. study.

The research is a qualitative study and will require participants to respond to a questionnaire and interview questions. The study also requires that I have access to school documents such learner assessment records and yearly final learner reports. I would also appreciate to observe in meetings where decision making is done based on learner performance. The information from the documents and meetings will be treated with strict confidentiality.

The participants to this study will include the principal, deputy principal, HODs and language and mathematics teachers. Your participation will be treated with full confidentiality and no names of either the school or participants will be disclosed in my final report.

As part of the study, I am supposed to administer questionnaires with all willing to participate. Please find enclosed the questionnaires to be completed within 2 weeks of receipt. All questionnaires collected will be analyzed as part of the report findings for my study.

Thank you

Yours sincerely

Mathakga Botha

Curriculum Division

Wits School of Education

Mathakga.botha@wits.ac.za

Tel: 011 717 3199 (office hours)

Cell: 082 967 1785

Appendix D.2

LETTER TO REQUEST EDUCATORS TO CONDUCT RESEARCH

Date

Name of School

Dear Sir/Madam

I am a registered student with the University of the Witwatersrand doing my Ph.D. the focus of my study is: *Effective use assessment data in primary schools to improve to teaching and learning.*

The aim of this research is to contribute to the knowledge and understanding school use of data to improve teacher practice and learner achievement. Use of assessment data for the purpose of this research has to do with learner performance records and how assessment data is used to promote school effectiveness. There are various data available in schools, which are rarely used to inform teaching practices and to improve learner academic achievement.

In this study the researcher intends to ask you to complete a questionnaire, engage in interviews, allow her observe meetings where discussions about learner performance takes place, and view documents such as learner records. The combination of these sources of data allow for cross-checking of data necessary for this research.

Your responses to the questionnaire will provide me with the information that made your school a possible selection for this research study. Your participation will be treated confidentially and no names of either the school or participants will be disclosed in my final report. Codes will be used in the final report instead of names. You will be free to withdraw at anytime you decide not to want to participate in this research.

I can be contacted for any clarification or any information to do with this research telephonically or by email.

Thank you

Mathakga Botha

Mathakga.botha@wits.ac.za

Tel: 011 717 3199 (office hours)

Cell: 082 967 1785

Appendix E

PARTICIPANTS CONSENT FORM

Date:

School: …….. District: ……..

Location:……..

I (full names) ……

Hereby agree to participate in the research project: *Effective use assessment data in primary schools to improve to teaching and learning*.

I understand that the information is for research purpose only and that I will respond to the questionnaire and interviews and that the interview will be taped recorded. I consent to the tape recording of the interview and to the use of my responses in the research project. I am also willing to provide necessary assessment data documents and to allow the researcher to sit in meetings in relation to decision making using data.

I understand that my responses will be treated confidentially, that the information will be treated respecting anonymity upon transcription of the interviews or any of the published results of the study. I am aware that I may withdraw from the project at any time by just notifying the researcher.

I understand that my participation is voluntary and that there is no penalty whatsoever for participating and that I have not been coerced or pressurised into signing this consent form.

Signature: …….. Date: ……..

Researcher: …….. Date: ……..

Appendix F

THESE ARE SEMI-STRUCTURED QUESTIONS FOR INTERVIEWS OF THIS RESEARCH.

For the principal, deputy and HOD:

You mention in the questionnaire that you school use assessment data encourage teachers to change their teaching practice as well as help improve their learner performance.

Questions:

a. What is your role in use of data and how do you involve other members of staff?
b. How often do you meet to discuss learner performance using data?
c. Is there time set aside for these meetings? If not, when do you decide to meet, and how effective are this random meetings?
d. Do you think that through use of assessment data teaching practices can be improved? How?
e. When you work with teachers using learner assessment data, what educational questions do you ask among yourselves to enable you make decisions that enable you and the teachers find solutions to implement to improve teaching and learning?
f. How is learner assessment data captured and analysed?
g. What do you think your school still need to improve how to work with learner assessment data?

For the teacher focus group:

You work with a variety of learner performance data everyday in the classroom. The data indicate when learners are doing well in other sections and maybe not so good in other sections of your lessons. One can assume that it bothers every teacher to see learners not perform to their best.

Questions:

a. How do you use data to improve learner performance?
b. Can you say how learner performance data make you think about your own teaching practice?
c. When you work with learner assessment data, what educational questions do you ask to enable you understand emerging problems from the results?
d. Would you consider working together a way to empower one another and to give you opportunity to learn about yourself and about learners?
e. How often do you meet to discuss learner performance using data?
f. Is time to meet allocated on the time-table? Do you think it should? Why?

g. Would you say it necessary for every member of staff to engage in data use and decision making for learner achievement? Why?

h. Would you consider the role of the principal and/or the SMT necessary in data use to improve teaching and learning? Why?

i. What role should leadership have in data use to improve learner performance?

j. What support do you think you still need to make use of data effectively for you and for your learners?