

**Analysis of management constraints in the distribution of qualified mathematics and science teachers in a post-1994 education system of South Africa: A case study of Senior Secondary Schools in the Mpumalanga Province.**

by

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submitted in accordance with the requirements  
for the degree of

DOCTOR OF EDUCATION

in the subject

EDUCATION MANAGEMENT

at the

UNIVERSITY OF SOUTH AFRICA

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OCTOBER 2014

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I declare that **Analysis of management constraints in the distribution of qualified mathematics and science teachers in a post-1994 education system of South Africa: A case study of Senior Secondary Schools in the Mpumalanga Province** is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

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SIGNATURE

(Mr S M Thwala)

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DATE

## **DEDICATION**

I dedicate this project to my father, Abram Ncabaniso Thwala, and my mother, Thalita Nomlindelo Thwala, for ensuring that I received education in spite of their weak financial position. I am indebted to them for financing my junior degree which became the foundation for this study. Equally, the thesis is dedicated to my wife, Maria, and our sons – Samuel, Zwelakhe and Bonginkosi – for their invaluable support and understanding throughout this study. Finally, I dedicate the successful completion of this study to the memory of my late uncle, Baleni David Madonsela, who was my great inspiration towards becoming: “a doctor who does not heal”.

## ACKNOWLEDGEMENTS

I thank all the people whose names appear in the catalogue of those who have contributed to the success of this study. I wish to acknowledge some of the names from this long catalogue. The late Prof. L. Nyaumwe is acknowledged as my first supervisor who successfully guided me through the proposal of the study. I am indebted to Prof. L.M. Kaino, who took over the responsibility and ensured a successful completion of the study. I am also grateful to Prof. B. Nchindila for editing the study. I acknowledge the guidance from Dr. Gallie Muavia on the “journey to research”, and the support that my friend, Mr Glen Abrahams, has provided throughout the research journey. Similarly, I hereby acknowledge the role played by Ms. C. Sifunda, Mr J. Mathibela, Ms B. Visser, Ms N. Mabuza, Mr. G. Mahlangu and all the members of the “magnificent seven” – a workplace support group – for all the logistical support they have provided as well as Mr Maputle for proof reading the document.

My sincere thanks to all the teachers, principals and education officials who agreed to contribute to this study. Their involvement is a contribution advances education transformation in the country. I also acknowledge Mr A.H. Baloyi from the Mpumalanga Department of Education for recommending approval of my request to conduct the study. Equally, the same gratitude goes toward Mrs L. Moyane, Acting Head of the MDE for the approval of my request to conduct the study.

Thanks to my sister, Khabonina, for her encouragement, and to my relatives, especially Mrs Nomsa T. Mhlongo for her sacrifices and encouragement during the stormy periods that threatened the completion of this study. Finally, I am thankful to my Creator who gave me strength and for teaching me that by *“wisdom a house is built, and through understanding it is established; through knowledge its rooms are filled with rare and beautiful treasures”* (Proverbs 24:3).

## ABSTRACT

The study analysed the management constraints in the distribution of qualified mathematics and science teachers in a post-1994 education system of South Africa. The study was qualitative and 14 participants were purposively sampled and semi-structured interviews were used to collect data from the identified participants. The interview transcripts were constantly compared and analysed and the data was classified into three main categories of management constraints and patterns: beliefs, experiences on management constraints and strategies for the elimination of management constraints. *Turning vision into practice* (TVP) framework was used to explain the relationship between its seven pillars of managing teacher recruitment and the links in the development, adoption, implementation, monitoring and evaluation of a teacher deployment system, focusing on mathematics and science. Findings of this study suggest that the current hybrid post establishment model is generic and focuses more on cost curtailment than on the supply of qualified mathematics and science teachers. The shortcomings of the model are exacerbated by the transgressions of the Employment of Educators Act. Contrary to the Employment of Educators Act, entry-level vacancies are not advertised in the province. In addition, the appointment and service conditions of qualified teachers are differential. While teachers from government bursary schemes are appointed immediately on permanent status and without probation, other qualified and long-serving mathematics and science teachers remain on temporary status for almost two years and without fringe benefits. The differential treatment leads to job insecurity and facilitates the exit of these qualified mathematics and science teachers from the profession. Moreover, schools hoard and use qualified mathematics and science teachers in subjects they are not qualified to teach. It is recommended that through the suggested TVP framework, the current teacher recruitment and deployment strategies be revisited regularly to ensure effectiveness of teacher usage in mathematics and science. It is further recommended that school principals and other educational leaders should be provided with personnel management skills to ensure maximum effective recruitment and deployment of qualified mathematics and science teachers, particularly to the impoverished schools.

**Key terms:** management constraints, change management, redeployment, school governing body, mathematics and science, foreign teachers, *Funza Lushaka*, teacher unions, senior secondary schools, post establishment.

## LIST OF ABBREVIATIONS

|        |   |
|--------|---|
| ANC    | African National Congress                                       |
| CDE    | Centre for Development and Enterprise                           |
| CI     | Curriculum Implementer  |
| CODESA | Congress for a Democratic South Africa                          |
| COSATU | Congress of South African Trade Unions                          |
| CIPSET | Centre for Integrated Education and Training Research Institute |
| CV     | Curriculum Vitae  |
| DBE    | Department of Basic Education                                   |
| DoE    | Department of Education   |
| DHET   | Department of Higher Education and Training                     |
| EEA    | Employment of Educators Act                                     |
| EHWP   | Employee Health and Wellness Programme                          |
| ELRC   | Education Labour Relations Council                              |
| EMIS   | Education Management Information System                         |
| EPF    | Education Policy Framework                                      |
| ERS    | Education Renewal Strategy                                      |
| FET    | Further Education and Training                                  |
| GDE    | Gauteng Department of Education                                 |
| HoD    | Head of Department  |
| HRM    | Human Resource Management                                       |
| HSRC   | Human Sciences Research Council                                 |
| INSET  | In-service training   |
| ILO    | International Labour Organisation                               |
| IQMS   | Integrated Quality Management System                            |
| MASTEC | Mathematics, Science and Technology Education College           |
| MDE    | Mpumalanga Department of Education                              |
| MEC    | Member of the Executive Council                                 |
| NCTAF  | National Commission on Teaching and America's Future            |
| NDP    | National Development Plan                                       |

|        |  |
|--------|--|
| NEPA   | National Education Policy Act  |
| NMI    | Nelson Mandela Institute   |
| NSC    | National Senior Certificate  |
| OECD   | Organisation for Economic Cooperation and Development                      |
| PAM:   | Personnel Administrative Measures  |
| PED    | Provincial Education Department  |
| REQV   | Relative Education Qualification Value                                     |
| RSA    | Republic of South Africa   |
| SACE   | South African Council of Educators   |
| SADTU  | South African Democratic Teachers' Union                                   |
| SAIRR  | South African Institute of Race Relations                                  |
| SACMEQ | Southern and East African Consortium for Monitoring Educational<br>Quality |
| SASA   | South African Schools Act  |
| SGB    | School Governing Body  |
| STEM   | Science, Technology, Engineering and Mathematics                           |
| TIMSS  | Trends in International Mathematics and Science Study                      |
| UK     | United Kingdom   |
| UNESCO | United Nation Education, Science and Culture Organisation                  |
| US     | United States  |
| VSPs   | Voluntary Severance Packages   |
| WSE    | Whole School Evaluation  |



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## CHAPTER ONE

### INTRODUCTION OF THE STUDY

#### 1.1. GENERAL OVERVIEW

Anecdotal evidence suggests that many years after the introduction of education reforms, high quality mathematics and science education programmes were still inaccessible to most historically disadvantaged learners due to various reasons, the main one being the apparent lack or inability to recruit and deploy qualified mathematics and science teachers in these historically disadvantaged schools. Although the Department of Education (DoE) introduced massive and expensive projects such as the *Dinaledi* (Stars) schools and the *Funza Lushaka* bursary scheme as well as recruitment of foreign teachers, official reports suggest that most impoverished schools were still without qualified mathematics and science teachers.

#### **Objectives of the study**

In the light of the above point, the general objective of this study was to analyse and gain an in-depth understanding of the management constraints that the post-1994 education system of South Africa faces in the recruitment of qualified mathematics and science teachers.

#### **Research design and methods**

This qualitative case study was preceded by a pilot project in one school where three participants were interviewed. Information from the pilot study was used to validate the interview schedules that were eventually used in the main study. The main study involved 14 participants that were sampled purposively. The four schools that were involved in the study are situated in both affluent and impoverished communities in the province of Mpumalanga. The demographics of the two schools that are situated in the affluent communities included both white and African learners while the demographics of the other two schools from impoverished communities predominantly African. In-depth one-on-one semi-structured interviews and the examination of documents were used for the collection of data which was later transcribed. Important phrases and sentences that could be linked to the research question were identified and coded. Salient and relevant information from the examined documents was indexed and linked or placed next to the relevant codes. The codes were written next to the text. Thereafter, the coded phrases were further labelled to form themes or categories. These themes were

further analysed in order to determine relationships among them. Related themes were collapsed to form major themes with sub-themes. Themes were analysed in order to identify emerging patterns that were also interpreted for plausible explanations.

## **Literature review**

A comprehensive literature review was conducted on the demand, supply, shortage and recruitment of qualified teachers in both the developed and developing countries but with a reflection on South Africa. The review indicates, among others, that the shortage of mathematics and science teachers affects both the developed and developing countries (Mulkeen et al. 2007; Hutchings, 2011, Adedeji & Olaniyan, 2011). However, literature points out that Finland, Cuba and Singapore are among countries that have managed to overcome the shortage of qualified mathematics and science teachers (Hickling-Hudson, 2004; Sahlberg, 2011; Carnoy et al. 2009; Gasperini, 2000). South Africa is in the group of countries that are continuing to face the teacher shortage problem (DoE, 2007; Kopolo, 2009, Canoy & Chisholm, 2008). Apparently, some of the education policies that have been introduced in South Africa aggravate the shortage as they tend to promote two sub-systems of education: one for the rich and another one for the poor (Reddy, 2003; Whittle, 2007). The South African Schools Act (Act No. 84 of 1996) is often cited as one of the policies that seems to delay the transformation of the education system (Motala & Pampallis, 2005; Samoff, 2008). It is argued that the infusion of two contrasting decentralisation philosophies into the South African Schools Act has compromised both the management of education and provision of qualified teachers to the disadvantaged communities (Motala & Pampallis, Samoff, 2008; Whittle, 2007; Christie, 2010).

The conflicting philosophies on the devolution of power derive from the National Party's Education Renewal Strategy (ERS) and the African National Congress (ANC) Education Policy Framework (EPF) of 1994-1995 (Motala & Pampallis, 2005; Samoff, 2008). While the EPF aimed at community involvement in education, the ERS was designed as a measure through which interests of the minority white parents would be secured even after the collapse of apartheid (Motala & Pampallis, 2005; Samoff, 2008). Furthermore, literature suggests that the values of equality and equity will not be realised through the implementation of school-based management (SBM) principles that are suitable for developed countries (Christie, 2010). These SBM principles include *choice and competition* which encourages schools to compete for resources, teachers and learners based on academic results (World Bank, 2007). The assumption is that the demand-side pressure will improve the performance of all schools if they want to compete for learners (World Bank, 2007). In the South African milieu, however, the demand-side pressure has apparently facilitated the emigration of learners from

township schools to the former Model C schools that previously served white affluent communities (Chisholm, 2004). In this context, it can be concluded that education development and the emerging systems in a post-apartheid South Africa have favoured an expanding racially-mixed middle class (Chisholm, 2004).

In essence, the *substantive equality* and *equity* principle (Henrard, 2002:24) with regard redress in education is probably far from being realised. Conversely, literature suggests that equality in the education system of Finland starts with the provision of qualified and competent teachers to all learners (Sahlberg, 2011). In Singapore the education system is designed and managed in ways that prioritise the needs of the country more than anything else (Sahlberg, 2011; Choo & Darling-Hammond, 2011). For instance, Singapore has an annual teacher rotation policy which can be equated to the South African teacher redeployment. The difference is that teachers in Singapore are allowed to request job rotation but only after they have worked where government deployed them at least for a year and they are rotated according to the country's manpower needs (Choo & Darling-Hammond, 2011:34). Despite the evidence from the aforementioned literature, there is a gap in knowledge regarding the analysis of management constraints in the recruitment of qualified mathematics and science teachers in the posts-1994 education system in view of the continuing shortage. Therefore, it was necessary to conduct an analysis of these management constraints that the education system faces in the recruitment and deployment of qualified teachers in both the affluent and impoverished schools.

### **Turning vision into practice**

The review of literature has led to the development of the *turning vision into practice* conceptual framework. This framework adopted and modified Kotter's Eight-Step Change Model in order to set the parameters of this study and to analyse the management constraints in the recruitment of qualified mathematics and science teachers. In addition, Marlow's hierarchy of need and Herzberg's two-factor theories also had an influence in the development of the *turning vision into practice* framework. Reasons for considering Marlow and Herzberg's theories in this study relate to their usefulness in describing how human basic needs of employees in a changing organisation influence leadership behaviours. Given that Kotter's change model includes eight steps that are prescriptive and that must be followed sequentially regardless of their relevance in certain contexts, the *turning vision into practice* framework was therefore developed to explain the relationship between its seven pillars and to guide the process of designing criteria for the promotion of quality mathematics and science education through the recruitment of qualified teachers in these subjects.



## **Findings of the study**

In answering the main research question: “what management constraints does the post-1994 education system of South Africa face in the recruitment of qualified mathematics and science teachers?” the study established the following:

*Post establishment model:* the Mpumalanga Department of Education (MDE) uses the nationally developed *post establishment* model in order to allocate teaching posts annually to individual schools. The model is a precursor for the recruitment of new teachers and the redeployment of those that are declared in excess in their respective schools. However, the model has not been helpful to the provincial Department of Education with regard to the deployment of qualified mathematics and science teachers to impoverished schools. Another finding is that infusion of the central authority and market systems of teacher deployment in the post establishment model exacerbates tensions between school communities and the education officials in relation to responsibilities in the recruitment and appointment of teachers.

*Transgressions and narrow goals:* the study suggests that the appointment of entry level or post level-1 teachers in the MDE takes place outside the parameters of the Constitution of the Republic of South Africa and the related legislation. According to the findings, the values and principles of equality and equity are undermined by the failure to adhere to prescripts including the advertisement of vacancies for post level-1 teachers. In addition, the devolution of functions to school-based management structures reinforces anomalies that were inherited from the apartheid government as schools compete for resources but with little intention of promoting national priorities.

*Role of teacher unions:* findings of the study reveal that the relationship between school principals, education officials and teacher unions is characterised by tensions and disputes. The dominant and influential teachers union, the South African Democratic Teachers Union (SADTU), has been arraigned in public and through research (Zengele, 2013:89; Pattillo, 2012:71; Smit & Ooshuizen, 2011:64) for apparently overstepping its responsibilities by disrupting processes aimed at filling vacancies in schools. Although this study could not confirm the alleged undue pressure of the union on the school governing bodies, the finding is that union representatives actively participate during interviewing and that this constitutes a transgression of the Employment of Educators Act.

## Conclusions

Based on the findings, the following conclusions have been drawn:

Firstly, the *post establishment* model does not help the provincial Department of Education to address the shortage of qualified mathematics and science teachers in impoverished schools. Implicitly, the model is a cost curtailment measure which focuses on regulating personnel expenditure regardless of the effects on the provision of quality education in a post-apartheid South Africa. Similarly, the offshoot of the model, redeployment process, fails to identify and redeploy qualified mathematics and science teachers from schools that are unnecessarily hoarding these teachers by allocating them to subjects they were not qualified to teach.

Secondly, in view of the continuing transgressions on the provisions of the Employment of Educators Act and Constitution of the Republic of South Africa, the appointment of entry level teachers in the Mpumalanga Province can be deemed to have been irregular and unlawful as from the dawn of democracy in 1994. Finally, devolution of the recruitment responsibilities to school governing bodies has diluted the focus on the national socio-economic priorities of the country. The quality of education depends on the type of teachers the SGBs recruit and deploy in the mathematics and science classrooms.

*Role of teacher unions:* the major role for unions in education is to enhance and deepen values of a democratic society. These values include equality, equity and transparency. Presumably, the inclusion of union representatives in the interview committee and other related structures was based on the understanding that the presence of unions will minimise the risks of corruption, bribery and indecent conduct that literature provides as examples of a market system of teacher deployment. However, the active involvement of unions in the interviewing process not only undermines their role in education reform but casts doubt on their ability to ensure that processes of teacher recruitment and appointment are fair and that there is redress and accountability within schools and in the education system in general.

## Recommendations

The additional recommendations from the study are as follows:

- The Department of Education should consider discarding the *post establishment model* and replace it with a strategy that ensures that apartheid anomalies are being addressed through the provision of qualified teachers, particularly in the fields of mathematics and science;
- The Department of Education should invoke and *comply* with legislation and advertise vacancies in order to *broaden its recruitment base* and to ensure redress in the education system;
- Teacher unions should consider focusing on ensuring that recruitment of teachers relates to the socio-economic reforms and that the values of the Constitution of the country are being upheld.

## Significance of the study

This study contributes new knowledge in the following areas:

First, the findings revealed that since its introduction in 1998, the *post establishment* model has not been helpful to the Department of Education regarding the reduction of apartheid anomalies as well as advancing the post-1994 vision of expanding high quality, flexible and appropriate mathematics and science education programmes through the recruitment of qualified mathematics and science teachers to historically disadvantaged schools. Equally, the study draws the attention of education leaders and managers to the extent to which legislation is being transgressed and the associated risks in the process of education transformation in South Africa. The study identified constraints and reasons relating to the placement of *Funza Lushaka* in schools. These findings create an in-depth understanding for education leaders, managers, stakeholders and policy makers. Most importantly, the study provides the different education leaders and stakeholders with the turning vision into practice framework as a guide for the elimination of management constraints in the recruitment and management of qualified mathematics and science teachers in a post-1994 education system of South Africa.

## 1.2. BACKGROUND TO THE STUDY

In 1953 the minority Afrikaner dominated National Party took control of education in South Africa and stratified teacher provision according to race. Quality mathematics and science education was reserved for the minority white citizenry while the majority of Africans received inferior education in line with the objectives of the apartheid ideology which was articulated by H.F. Verwoerd, who was the Minister of Native Affairs in the Nationalist Party government:

*When I have control over native education I will reform it so that the natives will be taught from childhood to realize that equality with Europeans is not for them...What is the use of teaching the Bantu mathematics when it cannot use it in practice? (Lapping, 1987:1).*

An enthusiastic and faultless implementation and monitoring of the apartheid ideology throughout society resulted in a complete exclusion of the majority Africans from meaningful employment as they were virtually confined to inferior education and menial jobs. The concentration of mathematical and scientific skills in the hands of a minority white community resulted in South Africa being unable to tap the skills of the majority of its citizens. However, in 1994 the National Party lost political power during the first non-racial general elections in South Africa. A new Government of National Unity (GNU) was established under the leadership of the African National Congress (ANC). During its struggle years, the ANC envisioned a non-racial education provision in an apartheid-free South Africa which would ensure the expansion of access to “high quality, appropriate and flexible programmes in mathematics and science to all South Africans” (African National Congress (ANC, 1992:34). This vision was captured in a series of policy documents that were in circulation before the first democratic general elections in the country.

These policy documents included the Reconstruction and Development Programme (RDP) which stated that a new curriculum for a post-apartheid South Africa must prioritise science, mathematics, technology, arts and culture because “African education had suffered severe deficits in these areas” (ANC, 1994:65). The RDP became one of the key policy documents during the multi-party negotiations at the Congress for a Democratic South Africa (CODESA). The major result of the multi-party negotiations was the adoption of a new constitution which laid a foundation for the introduction of a government of national unity (GNU) led by the ANC with a majority of seats in a non-racial parliament. In addition, the new constitution introduced values such as the promotion of the principles of *substantive equality* and *equity*. The principle of substantive equality requires the government to introduce remedial measures that are

“geared to addressing both individual and group disadvantages created by a history of oppression and apartheid” (Henrard, 2002:24). In line with the country’s new constitution, the GNU abolished the racially stratified departments of education and introduced a single, non-racial and non-sexist Department of Education (Mouton, Louw & Strydom, 2012:1211).

The contents of the Reconstruction and Development Programme (RDP) were introduced in the policy documents of the post-apartheid government. For instance, the first White Paper on education states that all Ministries of the Government of National Unity (GNU) were “expected to re-orient their programmes and budgets in accordance with the RDP priorities” (Republic of South Africa (RSA, 1995:19). The White Paper further indicates that the attrition of mathematics and science in African schools was viewed as a special case which has resulted in the number of teachers graduating from colleges as well as universities in these subjects being far too small to make an impression on the needs of schools and that the teachers’ subject knowledge and professional confidence were generally poor (RSA, 1995:27). The White Paper concluded that “a cycle of mediocrity” was being perpetuated through the efforts of these teachers in the classroom and that this “cycle of mediocrity” was not only wasteful from an education point of view but catastrophic from the perspective of national developmental needs (RSA, 1995:27). In the light of these factors, the post-apartheid government committed itself to the deployment of qualified mathematics as well as science teachers to all secondary schools (Gadebe, 2007:1) in order to expand access to high quality mathematics and science education to historically disadvantaged learners in South Africa.

However, the major challenges in the expansion of quality mathematics and science education included the demographics of the country. Mouton et al. (2012:1213) see these demographics as influences that affect education in South Africa in terms of the constitutional demarcation of the country into nine provinces, each with its own legislature, Premier and Provincial Members of the Executive Councils (MECs). These authors further explain that each province features its own socio-economic issues including the level of poverty that has unfortunately compelled some of the provincial governments to prioritise the provision of food and shelter rather than education (Mouton et al. 2012:1213). These poverty-related demographics seem to equally affect citizens of the provinces across the colour bar in as far as policy is concerned. However, the present demographics slightly differ from those that the apartheid government encouraged and that were characterised by highly qualified white teachers living in affluent cities and towns, while the most unqualified teachers were Africans and were mainly situated in impoverished townships and rural areas (Mda, 2009:209). The results were that the majority of African graduates were barred from accessing the benefit of

quality education which largely manifests itself in the form of human capital where education increases the employment skills, productivity and earning power of individuals, thus contributing to economic growth (Harber & Mncube, 2011:233).

Although Mouton et al. (2012:1213) argue that the prevalence of poverty in communities is often reflected in schools within these communities, it can also be presumed that the opulence of the historically white communities is often reflected in the schools within these communities. Despite the apartheid legacy of poverty and wealth as reflected in both the urban and township schools, Motala and Baatjes (2014:8) note that the exclusion of young adults from education and the economy is still continuing in a post-apartheid South Africa because most of these young adults remain unemployed. At present, the unemployment rate of South Africa is reportedly the highest in the world and that it is largely concentrated in the young and unskilled African population (Rasool & Botha, 2011:10). This unemployment is a result of skills shortage caused by institutionalised apartheid education provision which deprived a large number of African learners access to high quality mathematics and science teachers. Reports from the national Department of Education indicate that the utmost demand in post-school institutions and the labour market is for school-leavers with a stronger background in mathematics and science (Department of Basic Education (DBE, 2011:30).

Despite this stated demand for mathematics and science in the labour market, most schools in the South African educational system have reportedly “organised themselves to produce something that is not student achievement” (Carnoy, Chisholm & Chilisa, 2012:xix). In view of the mismatch between the outcomes from the majority of schools and the economic demand for mathematics and science skills, it was prudent for South Africa to reduce the anomalies of the apartheid education system and to maximize the output on scientific and technological skills instead of only burdening the minority white segment of the population with the production task (Benson, 2011:1). According to Mouton et al. (2012:1211), the political thinking of the 1994 GNU was to abolish all the old policies linked to the apartheid governance system and replace them with new policies in all government spheres. The rationalisation of the civil service and the redeployment of teachers were among the first noticeable reforms that the GNU introduced. These policies were essentially intended to rationalise or “right size” as well as to redeploy or redistribute resources across all government spheres in order to reduce the apartheid skewed staffing patterns in government institutions such as schools.

Redeployment was introduced through Resolution 3 of 1996 which was signed between the Department of Education (DoE) and the teacher unions that are part of the Education Labour Relations Council (ELRC). It is worth noting that the ELRC was established

with the purpose of maintaining labour peace through negotiations and dispute resolution mechanisms (Christie, 2010:703). According to Resolution 3, excess teachers were to be redeployed or relocated to disadvantaged schools that faced the challenge of insufficient supply of qualified teachers (Chudnovsky, 1998:26). The resolution further stated that excess teachers who did not wish to be redeployed would be allowed to exit the profession through Voluntary Severance Packages (VSPs) – monetary incentives paid to those opting out of the public service on condition that they will not return in future (Chudnovsky, 1998:26). The granting of VSPs was apparently premised on an understanding that South Africa has a surplus of teachers. Subsequently, thousands of teachers were redeployed in spite of pockets of resistance from several School Governing Bodies (SGBs) and teachers (Jansen & Taylor, 2003: 31).

Christie (2010:703) posits that the “right-sizing” strategy destabilized relations between government and teacher organisations. Despite challenges in the implementation of redeployment, the strategy continues to define the teacher recruitment landscape in a post-1994 education system of South Africa. However, the strategy has probably failed to assist the provincial Education Departments with the redeployment of qualified mathematics and science teachers to the majority of needy schools (DoE, 2007:11). The South African Institute of Race Relations (SAIRR (2013:1) indicates that there are about 84 schools in the country that are only offering mathematics literacy to learners from Grades 10 to 12 and no longer mathematics due to the lack of qualified teachers. According to the SAIRR report, nine of these 84 schools are situated in the province of Mpumalanga. The aforementioned remark suggests that the pillars of the stratified apartheid education system largely remain unchanged in a democratic South Africa. For instance, in Mpumalanga, the Department of Education (MDE) states that despite a slight increase in the performance of Grade 8 and 9 mathematics and science learners in the 2011 Trends in International Mathematics and Science Study (TIMSS), the province remains at the bottom four in comparison to other provinces in the country (Mpumalanga Department of Education (MDE, 2014:6). This performance can be attributed to the reasons contained in another report from the national Department of Education (DoE) titled: *Investigation into the implementation of mathematics, science and technology*. According to this particular report, the province of Mpumalanga faces a dire shortage of qualified and skilled mathematics and science teachers (Department of Education (DoE, n.d). These reported shortage of qualified mathematics and science teachers in certain schools seem to indicate that several PEDs face management constraints in ensuring that qualified teachers are recruited and deployed evenly to affluent and impoverished schools in a post-1994 education system. The implication of the apparent inability to recruit and deploy qualified teachers in the subjects of mathematics and science is that the post-apartheid vision of providing “high quality,

appropriate and flexible programmes in mathematics and science to all South Africans” may not be realised. Other implications include the following:

- The goal of the National Policy Framework in terms of recruiting and retaining teachers in scarce skills areas such as mathematics and science could be deferred;
- The government’s commitment in ensuring the deployment of qualified mathematics and science teachers to all secondary schools has been undermined; and
- The declaration of mathematics and mathematics literacy as compulsory subjects has not been matched by a sufficient supply of teachers with relevant skills in these subjects.

The uneven deployment of qualified mathematics and science teachers seems to persist in spite of government’s adoption of policies that make the subject of mathematics and mathematics literacy compulsory (Department of Education (DoE, 2006). Most importantly, a variety of policies have been introduced in order to attract and retain qualified mathematics and science teachers in all secondary schools. These policies include: The National strategy for mathematics, science and technology which aims at raising participation and performance by historically disadvantaged learners in the National Senior Certificate for mathematics and physical science and the creation of dedicated schools (DoE, 2001). *Teachers for the future* (DoE, 2005) and the *Funza Lushaka* programme (DoE, 2001) for the recruitment and retention of qualified teachers as well as the National Policy Framework for Teacher Education and Development in South Africa which are aimed at addressing teacher development face challenges and the apparent shortage of teachers in mathematics, science and technology in particular (DoE, 2007:13). Some of the key aspects of the National Policy Framework are:

- Ensuring the establishment of a national electronic database and information service on teacher demand and supply in collaboration with Provincial Departments of Education [PEDs];
- Adjusting conditions of service to respond to challenges of recruitment including financial incentives to recruit and retain teachers in scarce skills areas, for top performing teachers, and for teachers in rural areas;
- PEDs are required to “make special provisions” with regard to mathematics, science, technology and language teachers in view of their scarcity.

In addition, Naledi Pandor, who was the Minister of Education then, pronounced that government will ensure that the deployment of qualified mathematics as well as science teachers to all secondary schools should take place. She further identified the possible source of supply saying:



*If we don't have these teachers in our country, we must get teachers from outside...we can't have any high school without these (Gadebe, 2007:1).*

However, the abovementioned undertaking came at a time when Thulas Nxesi, who was General-Secretary of the biggest and dominant teacher union in the country – the South African Democratic Teachers Union (SADTU) – was quoted by its international federation, the Education International (EI, 2006:1), as saying “there are more than enough teachers in South Africa, some working as temporary teachers in the Eastern Cape” and further indicated that SADTU was opposed to the importing of mathematics and science teachers. If the assertion by SADTU is true that there are “more than enough teachers in South Africa,” the question that arises immediately is: *why are these teachers not permanently appointed and deployed to all the schools that are presently facing a shortage of qualified teachers in the country?* Carnoy, Chisholm and Chilisa (2012:xiii) mention that it is worth noting that South African teachers are highly unionised with more than 80 per cent belonging to various unions. The vast majority of the unionised teachers belong to SADTU (Carnoy et al. 2012: xiii). Therefore, the pronouncement of SADTU seems to raise real concerns in the country when compared to those of smaller teacher unions such as the National Association of Professional Teacher Organisations of South Africa (NAPTOSA) and the *Suid-Afrikaanse Onderwysers Unie (SAOU)* Carnoy et al. 2012: xiii).

Notwithstanding, the continuing temporary employment of teachers seems to contribute to the management crisis in some of the country's schools, particularly in terms of planning and job security. For instance, in August 2008, the Minister of Education responded to a parliamentary question and stated that the reason for the continuing employment of teachers in temporary status was that about 28,315 out of the 31, 949 temporary teachers that were employed by the different provincial PEDs by July 2008 were occupying substantive posts that were in the process of being filled through the advertisement of vacancy lists (DoE, 2008a:1–3). However, an analysis of the ELRC processes seems to suggest that these posts were eventually being filled in accordance of collective agreements in the ELRC. For example, Resolution No 4 of 2001 seems to have set precedence with regard to the conversion of temporary employment of teachers to permanent employment. This particular ELRC Resolution (ELRC, 2001:1) reveals that under-qualified teachers are often recruited on a temporary status and later converted to permanent status based on their long and uninterrupted service:

- Under-qualified teachers may in future only be appointed where no qualified teachers can be recruited and that they may only be appointed in a temporary status;

- Under-qualified teachers who had been appointed to temporary, full-time and substantive posts and who had rendered satisfactory service for at least five years on 31 December 2000 would become permanent, subjects to applicable legislation;
- Under-qualified teachers who had been appointed to temporary, full-time and substantive posts and who had been in service for at least 10 years on 31 December 2000 would automatically become permanent.

The implication of the above collective agreement is that under-qualified teachers are being recruited to teach mathematics and science subjects on a temporary status but the teachers do not exit the schooling system as they become permanent, thus contributing to the situation the first education White Paper of 1995 describes as “catastrophic from the perspective of national developmental needs” (RSA, 1995:27). This catastrophic situation is often confirmed by the reality that learners from the affluent former white schools still outperform learners from schools that are situated in impoverished African communities (Mhlolo, 2011:1). Perhaps the address of the then General-Secretary of the Congress of South African Trade Unions (COSATU), Zwelinzima Vavi, to the 7<sup>th</sup> National Congress of SADTU captures the present situation of the South African education system:

It is crucial to emphasise that black working class students are still at the receiving end of an unequal education system marked by unequal access to resources such as libraries, laboratories, learner support materials and *even teachers* [own emphasis] (Vavi, 2010:2).

In essence, the abovementioned remark suggests that the democratically elected government is still struggling in terms of reducing the inherited anomalies in the education system of a post-1994 South Africa, particularly with regard to the supply of qualified mathematics and science teachers to the historically disadvantaged schools. This apparent inability with respect to teacher supply happens in spite of the early signals from the post-apartheid government that the transformation of the education system was a priority and that education would be a catalyst in building a new South Africa (Organisation for Economic Cooperation and Development (OECD, 2008:293). In the light of this discussion, the question that arises is:

*How are qualified mathematics and science teachers being distributed and managed in a post-1994 South Africa?*

Literature suggests that there is a gap in knowledge that the post-1994 education system has to fill in order to address the apartheid legacy regarding the recruitment and deployment of qualified mathematics and science teachers in both affluent and impoverished schools of South Africa.

### **1.3. PROBLEM STATEMENT**

After the end of apartheid rule the democratically elected government introduced education reforms aimed at creating greater access to “high quality, appropriate and flexible programmes in mathematics and science” for the historically disadvantaged learners (ANC, 1992:34). In its National Development Plan (NDP) the post-apartheid government aims to produce about 450 000 learners that are eligible for bachelors programme with mathematics and science by the year 2030 (RSA, 2011:289). This target is apparently based on earlier reform initiatives such as the government’s priority skills strategy of 2006, the Joint Initiative on Priority Skills Acquisition (JIPSA), which also prioritised mathematics, science and language competence in the schooling system (Republic of South Africa, 2010:17). In recent years the earlier reforms initiatives have been strengthened by the requirement that learners from Grade 10 to 12 should choose either mathematics or mathematics literacy as a compulsory subject (DoE, 2006:7). Furthermore, the post-apartheid government declared few schools as *Dinaledi* (The Stars) and provided them with additional resources and qualified mathematics and science teachers to ensure quality teaching and learning in mathematics as well as science (DoE, 2001). The *Funza Lushaka* bursary scheme was also established to attract and develop future teachers for these critical subjects (DoE, 2009a). Meanwhile, the redeployment of excess teachers has continued in schools in order to ensure that there is an even spread of qualified teachers, especially with regard to those in impoverished communities. While these initiatives may imply that there is progress towards the realisation of the vision to expand access to quality mathematics and science education to historically disadvantaged learners, in practice this has not been the case because many schools still face a shortage of qualified mathematics and science teachers. The majority of these schools are situated in the impoverished provinces such as Mpumalanga, Eastern Cape and KwaZulu-Natal (SAIRR, 2013; DoE, n.d.). Some of these schools choose to offer only mathematics literacy due to the lack of qualified mathematics teachers (SAIRR, 2013:1).

The literature review paints a picture of a post-1994 education system that has made good strides in expanding access primary and secondary education through increased learner enrolment (DoE, 2009b:4). However, less success has been achieved in the creation of educational opportunity because of unequal access to good quality schooling, particularly with regard to increasing the number of passes with university-entrance (i.e.

bachelor passes) in the subjects of mathematics and science (Harber & Mncube, 2011:236; DoE, 2009b:4). This apparent inequality in accessing educational opportunities in the critical fields of mathematics and science is evidenced by the mismanagement of qualified teachers (CDE, 2011:2) and a cyclical redeployment process that has so far failed to ensure an even deployment of qualified mathematics and science teachers to all schools (MDE, 2013:1). This redeployment policy seemingly bars newly qualified mathematics and science teachers from entering the profession (Xaba, 2003:287). Given the lack of new teaching posts in the education system, the vacancies that become available due to teacher attrition are reserved for the redeployment of excess teachers as well as the placement of bursary holders (ELRC, 2014:5). Although the redeployment of excess teachers has continued, the post-1994 education system has achieved modest success in the redeployment of qualified maths and science teachers. This could be attributed to the reluctance of several SGBs to receive excess teachers and to the reported resistance of some teachers to relocate (Jansen & Taylor, 2003:31).

The granting of VSPs as a means of removing those teachers that are viewed as being redundant seems no longer appealing to teachers and VSPs cannot be unilaterally imposed on these teachers. The result is that PEDs keep excess teachers as “additional to the post establishment” (Gauteng Department of Education (GDE, 2009:4). This means that teachers appointed in a permanent status that have been identified to be in excess have to wait for redeployment at their current schools (GDE, 2009:4) and the PEDs continue to pay their salaries. The slow pace of the redeployment of excess teachers constrains the intake of new entrants to the profession. For instance, the inability of the education system to efficiently take up the *Funza Lushaka* graduates (DBE, 2011:40) potentially stalls the recruitment of teachers outside of this project. In the meantime, unqualified teachers were being hired to fill teaching vacancies, particularly in the impoverished rural schools (DBE, 2011:40). This goes against the requirement of the National Policy Framework which states that PEDs must ensure that “appropriately qualified teachers fill all vacancies in all schools and that there is a dynamic balance between demand and supply of teachers” (DoE, 2007:9). These factors give credence to the observation that “evidence from various databases suggests that, in terms of numbers, there may be enough teachers in South Africa, but that there is a problem related to distribution according to: geographic areas, provinces, regions/districts, grade levels, subjects, qualifications, skills, quality, race, and language” (Mda, 2009:201–202). However, there is a dearth in research on the recruitment of qualified mathematics and science teachers in the post-1994 education system. Therefore it became necessary to conduct an analysis on management constraints in the recruitment of qualified mathematics and science teachers in a post-1994 education system of South Africa with the aim of answering the following main research question:

*“What management constraints do the post-1994 education system of South Africa face in the distribution of qualified mathematics and science teachers?”*

#### **1.4. OBJECTIVES OF THE STUDY**

The general objective of this study was to analyse and gain an in-depth understanding of the management constraints that the post-1994 education system of South Africa faces in the recruitment of qualified mathematics and science teachers.

Specific objectives of the study are as follows:

1.4.1. Establish and analyse the management constraints in the recruitment of qualified mathematics and science teachers in affluent and impoverished schools in the Mpumalanga Province;

1.4.2. Understand the views of teachers, principals and education officials on management constraints in the recruitment of qualified mathematics and science teachers in affluent and impoverished schools in the Mpumalanga Province;

1.4.3. Develop strategies that may reduce management constraints in the recruitment of qualified mathematics and science teachers in affluent and impoverished schools in the Mpumalanga Province.

#### **1.5. SPECIFIC RESEARCH QUESTIONS**

In seeking an in-depth understanding of the main research question, the following specific sub-questions were posed:

1.5.1. How are qualified mathematics and science teachers recruited in affluent and impoverished schools in the Mpumalanga Province?

1.5.2. How do teachers, principals and education officials experience the recruitment of qualified mathematics and science teachers in affluent and impoverished schools in the Mpumalanga Province?

1.5.3. What strategies can be developed to reduce management constraints in the recruitment of qualified mathematics and science teachers in affluent and impoverished schools in the Mpumalanga Province?

## **1.6. SIGNIFICANCE OF THE STUDY**

This study is significant because it introduces the *turning vision into practice* (TVP) which addresses the gap in knowledge regarding the recruitment of qualified mathematics and science teachers in a post-1994 education system of South Africa. Given that the framework is a process model situated in the change management realm, it links its seven pillars to procedures regarding monitoring and evaluation of policy implementation in the recruitment of qualified mathematics and science teachers in South African schools. Therefore, the study should assist education leaders, managers and other education stakeholders to convert policy rhetoric into practical actions in order to reduce anomalies in the recruitment and deployment of qualified mathematics and science in both the affluent and impoverished schools. In addition, the TVP framework should assist school principals, teachers, SGB members, provincial education officials with an in-depth understanding regarding the urgency that the national Department of Education requires in the recruitment of qualified mathematics and science teachers to impoverished schools.

Another significance of the study is with regard to compliance with the rule of law. For instance, findings suggest that the provisions of the Employment of Educators Act were being transgressed. These transgressions include the Memorandum of Understanding (MoU) signed between the national Department of Education and the *Funza Lushaka* candidates, the non-advertisement of entry level teachers' posts and the ELRC interference with the Head of Department' authority under section 6B. Therefore, this study provides an in-depth understanding to educational leaders and managers, principals, teachers, policymakers and other relevant educational stakeholders such as teacher unions as well as ELRC parties regarding the importance of evaluating compliance with legislation in order to ensure accountability and transparency in a democratised post-1994 system of education.

## **1.7. CONCEPTUAL FRAMEWORK**

This study is guided by the change management theory, also known as organisational change management, organisational development or transformation (Pryor, Taneja, Humphreys, Anderson & Singleton, 2008:1). According to Pryor et al. change management theories posit that it is only organisational leaders who anticipate change, react quickly and responsibly that are more successful. The process of organisational change is seen as continuous (Blackman, Flynn & Ugyel, 2013:1). Organisational leaders are placed in the centre as drivers and directors of the change. Most importantly, change management requires effective leaders that engage in behaviours that facilitate

goal attainment and maximize the value of achievement, thereby affecting the experiences of followers, valence, performance and satisfaction (Sanda & Sraha, 2011:5).

Falkenham (2010:14) explains that change management theories can be used in order to describe the situation being studied, to answer research questions and to analyse the studied change as well as delimit the research problem. Therefore, the change management theory helps to analyse management constraints and to delimit the research problem. The result is that Kotter's Eight-Step Change Model was adopted and modified to design the *turning vision into practice* (TVP) framework. The TVP conceptual framework was used in delimiting the research problem and in the analysis of management constraints in the recruitment of qualified mathematics and science teachers. Considering that change processes tend to affect employees psychologically and physiologically, Maslow's Hierarchy of Need and Herzberg's Two-Factor theories were also considered as points of reference for this study. These latter theories helped to create a better understanding of education leaders and managers' behaviours toward motivating and ensuring a safe working environment for qualified mathematics and science teachers considering their scarcity in a post-1994 education system of South Africa. The details of these aforementioned theories are dealt with in the next chapter.

## **1.8. LIMITATIONS OF THE STUDY**

There are three apparent limitations of this qualitative study. The first limitation relates to data collection. Information was collected from only four secondary schools and from qualified mathematics and science teachers for grade 12 classes. Those who do not teach mathematics and science in grade 12 were not included in this study. The second limitation involves biases in the study. Biases could derive from semi-structured interviews that rely on what participants say. It is likely that participants exercised caution when responding to questions because of their awareness that the researcher holds a senior position in the management structures of the Mpumalanga Department of Education (MDE). However, the threat of bias to the study was addressed through different strategies such as mechanical recordings and confidentiality as well as anonymity assurances. The third limitation is that the study did not analyse the classroom effectiveness or the level of the content knowledge of *Funza Lushaka* graduates and foreign teachers as well as the quality of education programmes they went through during their initial training.

The final limitation is that although a quantitative breakdown of mathematics and science teachers in the Mpumalanga province was provided, the researcher was unable to obtain verifiable statistical information for districts, circuits and schools.

## 1.9. DEFINITION OF CONCEPTS

**Management constraints:** this phrase refers to management actions, systematic processes and decisions that have negative effects regarding the recruitment and retention of qualified mathematics and science teachers in a post-1994 education system of South Africa.

**Department of Education (DoE):** the Department was established early in 1994 when the racially stratified Departments of Education created under the apartheid administration were dismantled. The DoE was responsible for public education including schools and institutions of higher education and training.

**Department of Basic Education (DBE):** it was created after the general election of 2009. It resulted from the division of the Department of Education into the Department of Higher Education and Training (DHET) as well as Department of Basic Education (DBE). The DBE oversees education in schools while the DHET is responsible for universities and institutions of Further Education and Training (FET).

**Post establishment:** is a model introduced in 1998 which is used to annually determine the number of teaching posts for each school. The criteria of this model entail the weighting of individual subjects against the number of learners in a school in order to determine the number of teaching posts that are allocated to individual schools.

**Qualified teachers:** qualifications of teachers are based on the Relative Education Qualification Value (REQV). Qualified teachers are people that have obtained a National Senior Certificate (NSC) or Grade 12 and a 3-year teaching qualification (M+3) from accredited institutions of education and training. However, recent policy reforms such as the National Policy Framework for Teacher Education and Development puts the minimum entry requirements for new teachers at the Relative Education Qualification Value [REQV] of level 14. In addition, a person is allowed to practice as a teacher if not registered with the South African Council of Educators (SACE). SACE is a professional council for teachers which was established through the South African Council for Educators Act (Act No. 31 of 2000).

**Impoverished secondary schools:** during the apartheid rule and toward its implosion, these schools were administered by the Department of Education and Training and the various homelands' Departments of Education and Culture. The majority of these schools were neglected in terms of the provision of infrastructure and highly qualified teachers.



***Affluent secondary schools:*** under apartheid rule, the majority of these schools belonged to the category which was called Model C, which was different from Models A and B. The schools were predominantly white (Whittle, 2007:57).

***Unqualified teachers:*** people that are actively involved in teaching after they have obtained the National Senior Certificate (NSC) (M+0) are unqualified teachers.

***Under-qualified teachers:*** refers to people that are actively involved in teaching after obtaining a National Senior Certificate or its equivalent and a 1-year or 2-year post-secondary education qualification (i.e. REQV 11 and 12). Equally, people that have obtained Bachelor degrees but are without professional or teaching qualifications are included in this category of under-qualified teachers.

***Dinaledi (The Stars) schools:*** these are schools the Department of Education identified for additional resources and qualified teachers in order to implement the mathematics, science and technology strategy.

***Funza Lushaka (Educate the Nation) graduates:*** these are graduates whose studies were funded by the Department of Education through the *Funza Lushaka* bursary programme. The programme was launched in 2007 to promote teaching in public schools in the areas of national priority such as mathematics, science, technology and languages (Department of Education, 2009a:8). In terms of their agreement with the Department of Education, the graduates cannot choose where they must be placed and their placement cannot be delayed (**Appendix L**).

***School Governing Body (SGB):*** this refers to the body or structure which is responsible for the formulation and adoption of school policy. The functions and responsibilities of the governing body are regulated in terms of sections 20 and 21 of the South African Schools Act (Act No. 84 of 1996).

***Apartheid:*** this was a racial ideology which was introduced by the National Party government to ensure a social, economic and political discrimination between the white and non-white population groups of South Africa.

## 1.10. STRUCTURE OF THE STUDY

This study is divided into six separate but interrelated chapters as discussed below.

**Chapter one:** This chapter presents an overview of the study. Its main sections are the background and problem statement, the objective of the study, research questions and significance, limitations of the study, a conceptual framework as well as the structure of the study.

**Chapter two:** The contents of this chapter focus on a literature review. The review provides an international and the South African perspectives into the problem of teacher shortage, particularly with regard to trends in their deployment. Generic causes of the shortage and the management of qualified teachers are reviewed as well.

**Chapter three:** In this chapter, the research approach, the design of the study, data collection instruments, ethical considerations, validity and reliability as well as data analysis are all extensively discussed.

**Chapter four:** Findings of the study are presented in this chapter. Rich, thick descriptors are used in order to present the views of the participants as accurately as possible. Therefore, extensive quotes from the transcripts of the interviews are used.

**Chapter five:** This chapter discusses and interprets the findings that are presented in the preceding chapter. The purpose of interpreting the findings is to answer the research questions.

**Chapter six:** This chapter provides a summary of the entire study and presents recommendations based on the findings and concludes the study.

## 1.11. CHAPTER SUMMARY

This chapter provided an overview of the entire case study including the background. The origins of institutionalised ethnic and racial anomalies were discussed under the background section of this chapter. The socio-economic effects of these apartheid policies with regard to the exclusion of the majority of citizens from quality mathematics and science teachers were extensively discussed. The chapter also explained that the end of apartheid rule occurred at the multi-party CODESA where a new constitution was adopted and the framework for a Government of National Unity (GNU) was agreed. The introduction of the GNU signalled a policy departure from the apartheid racial and over-centralised system of governance, especially in the management of education. The collapse of apartheid institutions paved the way for

redress, equity and equality in schools and other institutions. The result was the introduction of a plethora of reform policies which included the general rationalisation or “right-sizing” of the civil service as well as the redeployment of teachers across the colour bar.

Despite these policies, the chapter outlined the elusiveness of the post-1994 vision in respect of expanding access to high quality mathematics and science education to the historically disadvantaged learners. It is an elusiveness that is largely attributed to the apparent shortage of qualified mathematics and science teachers. This shortage has also been traced from the apartheid strategy of depriving Africans an opportunity to pursue mathematical and scientific careers and instead confined Africans to menial jobs. Therefore, the post-1994 government carries the expectations of the majority of Africans who desire freedom from the trappings of abject poverty and unemployment through quality education, particularly in the fields of mathematics and science. However, the chapter revealed that the end of the apartheid legacy is not yet near because historically disadvantaged learners are still faced with conditions that are akin to those that prevailed under the apartheid government. The hallmarks of these conditions include unequal access to qualified mathematics and science teachers. The next chapter will focus on the literature review which deals with issues of teacher demand, supply and retention from the perspectives of both the developed and developing countries.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1. INTRODUCTION

The previous chapter contextualised this study and also provided a general overview. In this chapter, a detailed theoretical framework is discussed in relation to management and leadership theories as well as theories that are associated with basic human needs of employees. Thereafter, an expansive literature review is presented with regard to the supply and shortage of qualified mathematics and science teachers. The reviewed literature analyses teacher supply and shortage from the international and South African perspectives. Finally, the approach to the literature review was based on the understanding that teacher shortage occurs in situations that are characterised by insufficient qualified teachers and the uneven deployment of available qualified mathematics and science teachers from the perspective of geography and subject matter (Even & Leslau, 2010:2; Mda, 2009:209).

#### 2.2. PART ONE: THEORETICAL FRAMEWORK

Previous research presents many definitions and examples of conceptual frameworks. However, Solomon and Solomon (n.d.:6) provides a broad and inclusive definition. These authors see a conceptual framework as a methodology used to establish a body of knowledge in a discipline by codifying the literature, and using it to develop a model of reality. This addresses the key aspects of this study, particularly with regard to the codification of literature which relates to the management, leadership, performance, basic human needs and motivation in an organisation.

##### 2.2.1. *Change management*

The research questions of this study seek answers on process issues which address actions undertaken (Pryor et al. 2008:2) in the recruitment of qualified mathematics and science in apost-1994 education system. Therefore, the study is situated in the change management theory. Rees and Hall (2013:104) mention that the terms ‘managing change’ or ‘change management’ can be used to describe the application of systematic interventions to implement a planned change within an organisation in order to achieve a desired future state. This assertion is supported by Pryor et al. (2008:2) who explain that organisational change is the movement of an organisation from the existing plateau toward a desired future. In addition, change management is a theory which encompasses a set of abilities, techniques and disciplines through which complexity and specialisation

are transformed into actions and results (Pisla, Irimias & Muntean, 2010:166). However, research indicates that there is a gap in the need for transformation in education and the actual success of such initiatives because each incoming administration tends to launch a reform effort of its own which sometimes contradicts earlier measures. For many education leaders, reforms have led to stakeholder resistance and outright unrest (Moujaes et al. 2012:2). Resistance to change has been attributed to the fear of the unknown, lack of information, fear of failure, political undercurrents, the lack of benefits as well as the lack of cooperation in the organisation (Sanda & Sraha, 2011:5). Therefore, the responsibilities of leaders include addressing employees' fears and uncertainties (Moujaes et al. 2012:2).

According to Moujaes et al. (2012:4), education ministers and senior civil servants must play a key role in setting the vision, providing resources and setting regulatory frameworks while principals, teachers, community activists, and entrepreneurs lead on the frontline. Rees and Hall (2013:104) believe that also mention that leaders in senior positions may deem it necessary to initiate change and to direct the change process throughout. A study on skills shortage in South Africa shows how leaders under the apartheid government successfully executed their political mandate of ensuring that high quality mathematics and science teachers were being recruited and deployed to all affluent white schools and in ensuring that African learners did not access such quality teachers (Mda, 2009:209). According to Carnoy, Chisholm and Chilisa (2012:33), South Africa's conflict-ridden history has given rise to a set of pressures on education and resulted in conflicting change processes. They further mention that many teachers left the profession during the early years of democracy while the new government set in motion policy processes that were radical in their impact to reverse the effects of apartheid. According to Carnoy et al., the policy processes included a curriculum which de-legitimised teacher knowledge and practice. However, Carnoy et al. (2012:33) draw a conclusion which acknowledges that more recent government reform initiatives recognise the importance of specialised subject knowledge and practice in teacher education and development:

*In the light of this history and on-going poor performance in international as well as Annual Assessments, teacher supply, usage and development have become critical priorities (Carnoy et al. 2012:33).*

The aforementioned excerpt repeats the priorities that the post-1994 government has set itself regarding the concurrent supply and professional development of teachers. However, the present challenges that the education system face in these areas of supply and development have been attributed to management and leadership behaviours during the embryonic years of the post-apartheid education system. For instance, a 2008 review

by the OECD (2008:295-296) posits that the Norms and Standards for Educators (NSE) was unrealistic and far too elaborate superstructure for the circumstances that prevailed, particularly for beginning teachers. According to the OECD, the NSE represents a competency-based approach which sets out the requirements of the Department of Education in respect of the values and skills that a teacher must acquire (OECD, 2008:295-296). The OECD further indicates that during the introduction of the NSE teachers faced challenges because of the top-down approach in a compressed time-scale and with insufficient preparation or resourcing. These teacher development changes were coupled with measures that were intended to evaluate teacher performance to which salary provision and modes of career advancement were linked. Thus a reward and sanctions approach was adopted as a guiding tool for teacher remuneration (Schleiecher, 2012:61).

Top-down initiatives alone in education are often seen by policy-makers as insufficient to achieve deep and lasting changes in practice (Schleiecher, 2012:61). In essence, the leadership and management approach which was adopted to drive this change resonates with transactional leadership behaviours. However, Moujaes et al. (2012:2) discount such leadership approach and posit that the more complex the education system, the greater the need for leadership that advances the goal of reform while ensuring buy-in and participation from multiple stakeholders (Moujaes et al. 2012:2). This type of leadership recognises its responsibility of inspiring and motivating followers throughout the change process. Inspiring and motivating others implies that leaders will have to address the basic needs of the followers considering that all people are motivated by such basic needs. Maslow's Hierarchy of Need theory helps in explaining how the fulfilment of these basic needs motivate people in an organisation (Sharma & Jain, 2013:316). Maslow's categories influence the behaviour of transformational leaders in their pursuit for change. For instance, it is the leader's role to assist followers to attain their self-esteem and self-actualization needs in order for the followers to offer their best to the service of the organisation (Jerome, 2013:42).

Based on factors such as the emotional attachment of employees and the importance of organisational leadership during change processes, the present study adopted but modified Kotter's (1996) Eight-Steps Change Model which acknowledges that real change is directed from the top, and that emotion is at the heart of a change process (Webster, 2012:15). Kotter's model clearly supports the view that effective communication is necessary in obtaining buy-in from employees. Effective communication includes telling employees why the change is needed and how it will be achieved (Appelbaum, Habashy, Malo & Shafiq, 2012:766). During a change transition, there are psychological adjustments that individuals must make, including letting go one's old situation and identity as well as moving through a period of ambiguity and

contradictions (Sanda & Sraha, 2011:5). In the context of this study, effective communication affords teachers and opportunity to move “through a period of ambiguity and contradictions” and ponder over the government’s vision of deploying qualified mathematics and science teachers in schools that are situated in unfamiliar and impoverished surroundings.

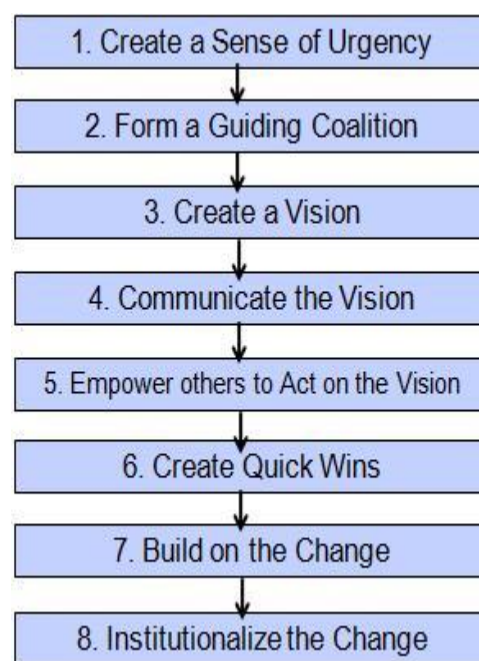
Framed within Kotter’s (1996) Eight-Steps Change Model, the present study analysed the sorts of management constraints that a post-1994 education system faces in the recruitment of qualified mathematics and science teachers in South Africa. The objective of this analysis was to gaining an in-depth understanding of such management constraints and to explored strategies that can be adopted in order to reduce them in order to facilitate the recruitment of qualified mathematics and science teachers. Considering that the lack of qualified mathematics and science teachers mainly affect rural schools, this study analysed the management constraints from the perspective of a situation described as “the uneven distribution from the perspectives of geography and subject matter” (Even & Leslau, 2010:2).

It was imperative for this study to take into consideration the perspectives of the schools and districts, considering that reform in education policy is at times viewed as an “elegant cartography but one not necessarily suited to the complex and uneven terrain that required change” (Christie, 2010:702). For instance, Christie posits that most of the post-apartheid education policies were developed for institutions that were already functioning well and that the policies fail to recognise that South African schools do not function equally and that many of these schools are dysfunctional (Christie, 2010:707). The disparities between the South African schools have been summarised in a report by the OECD (2008:299). The report not only reveals anomalies of a unitary post-apartheid education system regarding the working conditions for teachers but also seems to underscore the belief that South Africa has a two-tiered education system: one for the rich and another one for the poor (Whittle, 2007:157):

The reviewers visited schools that were as well equipped and organised as good schools in other countries, but even here dedicated teachers voiced dissatisfaction with their lot. At the other extreme, there are schools that are little better than hovels. The reviewers visited an exemplar of this category that was a mud hut built by the local community with uneven mud floors, no heating, no water or sanitation, no electricity, having holes in the roof and with only the most rudimentary school furniture.

The aforementioned example regarding anomalies between affluent and impoverished schools suggests that principals are required to manage educational change within this unequal and differently functioning system characterised by the apartheid legacy

(Christie, 2010:702). Flowing from these aforementioned factors, the key research questions of this case study relate to: (1) the identification and analysis of processes as well as models in the recruitment of qualified mathematics and science teachers in affluent and impoverished schools (2) establishment of beliefs and experiences of teachers, principals and education officials in both the in affluent and impoverished schools (3) and the suggested strategies for the reduction of management constraints in the recruitment of qualified mathematics and science teachers affluent and impoverished schools. These research questions resonate with Kotter's (1996) Eight-Steps Change Model, which has been successfully applied in large-scale organisations. Kotter's change model is illustrated in the diagram below:



**Figure 2.1: Kotter's Eight-Step Change Model adopted from Google search.mht.**

Step 1: It involves the identification of crises as well as opportunities to prepare employees for the imminent change (Bhola, 2010:22). The step further concentrates on convincing the majority of managers in the organisation about the urgency of change.

Step 2: The step relates to identification of the leaders within the organisation who support the change vision, irrespective of their rank or title. These leaders are used in the formation of a core team that leads or guide the change process. This role of leadership in the development and communication of the vision for change is the key feature of Kotter's model (Rees & Hall, 2013:113).

Step 3: This is the last step of the first three that create a climate for change (Bhola, 2010:23). The step focuses on the creation of a vision in order to guide or direct the change, and strategies for achieving the vision are developed during this stage (Gulbrandsen, 2010:5).



Step 4: Communication is a critical element of the organisational process as it can create uncertainty, ambiguity and affect responses to organisational change (Appelbaum et al. 2012:770). Therefore, this fourth step requires leaders to use every available means to communicate the new vision and strategies to employees and stakeholders (Guldbrandsen, 2010:5).

Step 5: The change model indicates that a small empowering opportunity that is given to employees can have an effect on the employee attitudes as it can provide them with a sense of control over the change process (Von Dran, Kappelman, & Prybutok, 1996:23). Therefore, training is being identified as an effective means of empowering employees to address the four major obstacles in an organisation, namely structures, skills, systems and supervisors (Appelbaum et al. 2012:772).

Step 6: According to Appelbaum et al. (2012:772), small wins or gains need to be celebrated and those who facilitated the wins should be rewarded. This will reassure the employees and management that their efforts are on the right track (Appelbaum et al. 2012:772).

Step 7: This step marks the beginning of efforts that are aimed at ensuring that implementation is sustained. Furthermore, the step cautions leaders against complacency which may result in regress. Therefore, the gains that have been made need consolidation (Appelbaum et al. 2012:773).

Step 8: This step builds from the previous step, and it requires leaders to continually communicate the success that has been achieved, as well as reinforce the new approaches and behaviours of the organisation (Guldbrandsen, 2010:5). In essence, this step supports the sustenance and consolidation of change (Appelbaum et al. 2012:774).

The abovementioned model encourages the use of increased credibility to change systems, structures, and policies that do not fit the vision (Kotter, 1996:61). Unlike emergent change which “occurs when an organisation quickly adopts a change in response to changes in its environment”, the model suggests that change is planned (Wachuku, 2012:23). Additionally, Kotter’s model can be described as a simple model that has a twofold focus: it involves a step-by-step process of implementing change; and it allows individuals the opportunity to accept and prepare for change (Bhola, 2010:22). The model contextualises leadership as the creation of a vision that employees can identify with, and the leader encourages employees to achieve the vision regardless of the challenges that need to be overcome (Sanda & Sraha, 2011:5).

Kotter (2001:9) also acknowledges the importance of recognising the employees’ basic human needs. He mentions that good leaders motivate people in a variety of ways and that motivation as well as inspiration energize people by satisfying basic human needs

for achievement, a sense of belonging, recognition, self-esteem, a feeling of control over one's life, and the ability to live up to one's ideals (Kotter, 2001:9). Therefore, Kotter's change model integrates the behaviours of transformational leaders with the recognition of basic human needs that are advocated by Maslow's Hierarchy of Need and Herzberg's Two-Factor theories. These theories explain the order and sequence on how employees' basic needs should be satisfied. In essence, the Eight-Step Change Model describes the role of leaders as being of critical importance in the development of a vision for change as well as communicating the vision. These features are significant in the change model and critical for transformational leadership in large-scale organisations (Rees & Hall, 2013:113). Failure to effectively communicate with the stakeholders could result in resistance against the intended change. However, Kotter's eight steps are prescriptive and must be followed sequentially even though some of them may be irrelevant in some contexts (Appelbaum et al. 2012:774).

According to Rees and Hall (2013:113), the significant feature of Kotter's model is the role of leadership, particularly with regard to developing the vision for change which is critical to effective transformation leadership.

### **2.2.2. Leadership versus management**

Management is defined as the process of designing and maintaining an environment in which individuals, working together in groups, efficiently accomplish selected aims (Olum, 2004:2). Furthermore, Olum explains that management essentially entails the acquisition of managerial competence and effectiveness in the areas of problem solving, administration, human resource management and organisational leadership. Leadership is thought of as a process by which a person influences others to accomplish an objective and directs the organisation in a way that makes it more coherent (Sharma & Jain, 2013:310). Lunenburg (2011:3) mentions that while there are business executives that lean more heavily toward either leadership or management at various times depending on the situation, most tend to operate primarily in terms of either the leadership or the management profile. However, organisational success is largely attributed to a combination of effective leadership and management (Lunenburg, 2011:3).

Given the on-going debate on the difference between the leadership and management concepts and the terminology of the South African education context, this study uses the concepts of leadership and management interchangeably. Most researchers share the view that leadership plays a significant role in the growth and development of any organisation and that leaders guide employees and closely monitor their performance (Nazarian, 2013:80). Given that the object of this study is the recruitment and

management of qualified mathematics and science teachers, it was deemed necessary to provide an analysis of “management models and theories associated with motivation and leadership” (Public Health Action Support Team (PHAST, 2011:1). The discussion on the theories and models also include transactional and transformational leadership approaches and their influence in the designing of the *Turning vision into practice framework* (TVP). Lai (2011:1) posits that transformational-transactional leadership theory is one way in which the behaviours of leaders can be described and evaluated. Leadership behaviours and the basic needs of humans are seen as interconnected. Therefore, Maslow’s and Herzberg theories were studied in order to have a deeper understanding of the interconnectedness between leadership behaviours and basic human needs in a changing organisation.

### **2.2.3. Transactional leadership**

Theories on transactional leadership are largely based on a relationship between the leader and follower which are determined by exchanges or during which both the leader and follower influence one another reciprocally so that each gains something of value from the relationship (Kuhnert & Lewis, 1987:649). According to Kuhnert and Lewis, the power of a transactional leader is diminished whenever the follower realises that the rewards are not under the leader’s direct control. Riaz and Haider (2010:35) conducted a study which revealed that employees working in the private sector perceive their supervisors as being more inclined towards the use a transactional leadership approach. And that this approach is positively associated with job success than the transformational leadership approach (Riaz & Haider, 2010:35). This positive job success was largely attributed to situations where more positive rewards are given to the employees due to their excellent performance. Therefore, this particular study concluded that in transactional leadership work environments, employees often achieve concrete success in terms of career growth, compensation and the leader’s satisfaction as opposed to transformational leadership (Riaz & Haider, 2010:35).

### **2.2.4. Transformational leadership**

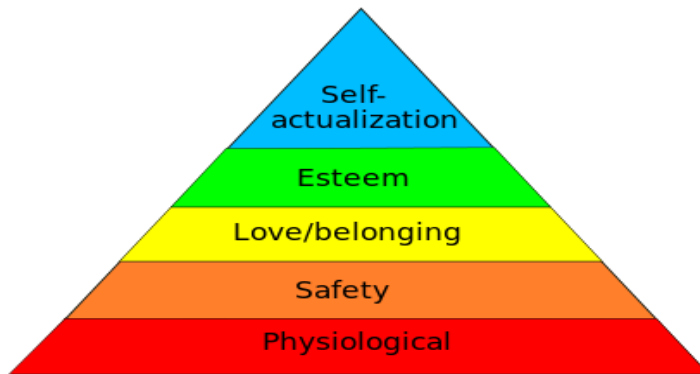
The transformational leadership approach is a direct opposite to the transactional leadership approach which does not involve the exchange of commodities between leaders and employees (Kuhnert & Lewis, 1987:649-650). Transformational leaders display personal value systems that include justice and integrity and which cannot be exchanged between individuals (Kuhnert & Lewis, 1987:649-650). The strength of transformational leaders lies in their ability to elevate the interests of the employees, generate awareness and acceptance among the employees in terms of the purposes and the mission of the group. In turn, employees identify with the leader by embracing the

vision as espoused by their leader (Kuhnert & Lewis, 1987:649-650). The four dimensions that are associated with transformational leadership are: *idealized influence* or *charisma*, *inspirational motivation*, *individualized consideration* and *intellectual stimulation* (Pastor & Mayo, 2006:3). *Idealized influence or charisma* refers to the ability of the leader to exercise influence over employees' beliefs, attitudes and behaviours. The second dimension, *inspirational motivation* refers to the behaviour of the leader regarding the ability to motivate and inspire employees. The third dimension, *individualized consideration*, describes the behaviour leaders who show concern for the employees' welfare while the fourth dimension, *intellectual stimulation*, refers to the behaviours of leaders who help employees to reframe problems and to approach old situations in new ways (Pastor & Mayo, 2006:3). Therefore, transformational leaders stimulate creativity in the team and refrain from criticising individual members' mistakes (Pastor & Mayo, 2006:3).

The direct communication with employees engenders a significant relationship between employees and transformational leaders which has a bearing on career satisfaction (Riaz & Haider, 2010:35). Unlike transactional leaders who tend to forego their influence when they lose direct control on the exchangeable rewards, transformational leaders possess effective communication skills that enable them to persuade employees to commit to higher agreements on the strategic goals of the organisations and to enhance job satisfaction the voluntary help they provide to employees (Riaz & Haider, 2010:31). For instance, a study conducted in Alabama, in the United States, on academic optimism (Rutledge II, 2010:ii) has found a positive relationship between transformational leadership and teacher commitment, job satisfaction, school culture and changed teacher practices, particularly with regard to collective efficacy. However, it should be noted that transformational leadership does not in itself guarantee effective implementation of planned reforms unless the local leadership of an organisation has also been empowered (Mafora, 2013:689).

#### **2.2.5.            *Motivation and job satisfaction***

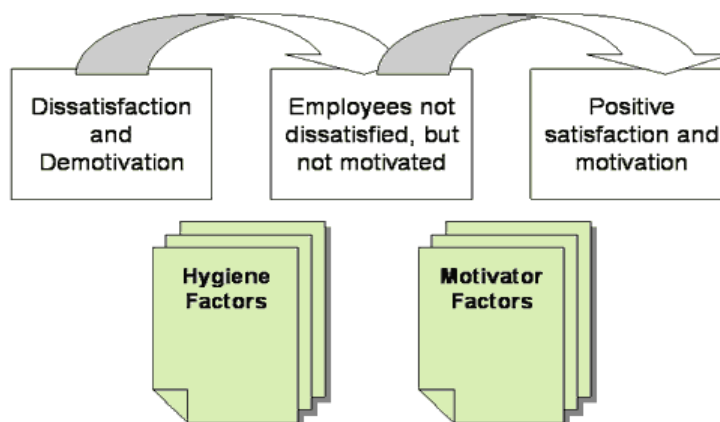
The tasks and responsibilities for leaders and managers largely encompass characteristics that foster the elimination of job dissatisfaction, support and motivation for employees, ensuring job security, recognition of and providing opportunities for achievement, as well as improve job satisfaction and performance level of employees. Evidence from literature associates job satisfaction and motivation of employees with the theories of Abraham Maslow (1943) and Frederick Herzberg (1959).



**Figure 2.2: Hierarchy of Need diagram adopted from Google search.mht**

Maslow's theory suggests that leaders and managers should consider the needs and aspirations of individual employees (PHAST, 2011:9). Maslow's theory arranges the employees' needs in a hierarchy as illustrated in the above diagram (Jerome, 2013:41). This theory suggests that there are four types of needs that must be satisfied before an employee can act unselfishly (Griffin, 2014:125). Accordingly, Maslow's hierarchy identifies the categories of the needs as: physiological (e.g. air, water and sleep), safety (e.g. safe environment, medical insurance, financial resources and job security), social needs (e.g. need to give and receive love), esteem (e.g. self-respect, achievement, attention and recognition) and self-actualisation (e.g. justice, truth, wisdom and meaning).

Griffin (2014:128) explains that the concept of belonging combines the twin urges of *giving* and *receiving* love. Accordingly, giving love is thought of as seeking to fill a void by understanding and accepting selected others while receiving love is a way of staving off the pangs of loneliness and rejection (Griffin, 2014:128). Jerome (2013:42) sees Maslow's hierarchy of needs as being more suitable for organisational culture and human resource management in improving employee performance.



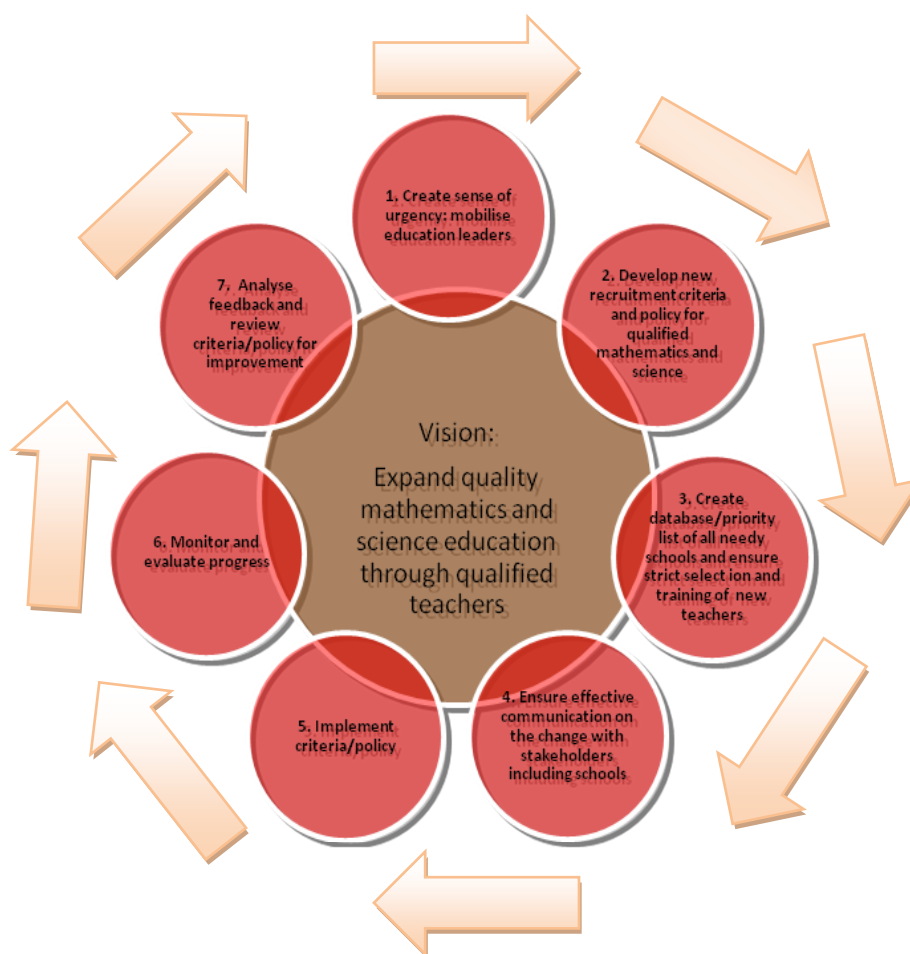
**Figure 2.3: Two-Factor Theory diagram adopted from Google search.mht**

The Two-Factor or Motivation-Hygiene Theory was developed in 1959 when Herzberg, interviewed and reported the feelings of 200 accountants and engineers from over nine companies in the United States of America (US) House & Wigdor, 2006:369). The findings led to the development of a “dual factor” theory of motivation (House & Wigdor, 2006:369). The word “motivation” derives from the Latin word *movere*, which means “to move” (Teck-Hong & Waheed, 2011:75). House and Wigdor (2006:369) further explain that Herzberg found that man has two sets of needs: his need as an animal to avoid pain and his need as a human to grow psychologically. The 200 accountants and engineers were asked to describe their experiences in which they felt either extremely bad or particularly good about their jobs (Teck-Hong & Waheed, 2011:76). Teck-Hong and Waheed further mention that Herzberg sees responses about good feelings as relating to job content (motivators), while responses about bad feelings are associated with job context (hygiene factors).

Motivators are intrinsic to the job itself and their absence does not prove highly dissatisfying, but their presence build strong levels of motivation that result in good job performance, while hygiene or maintenance factors are directly related to the conditions that surround doing the job and their absence dissatisfy employees but their presence does not necessarily build strong motivation (Dartey-Baah & Amoako, 2011:2). Therefore, Herzberg concluded that job satisfaction consisted of two separate independent dimensions: the first dimension was related to job satisfaction, and the second dimension to job dissatisfaction (House & Wigdor, 2006:370). The job characteristics that are important for and lead to job satisfaction but not to job dissatisfaction are grouped as “satisfiers”, while those that are important for and lead to job dissatisfaction are known as “dissatisfiers” (House & Wigdor, 2006:370). According to House and Wigdor, satisfiers are factors that foster the individual’s needs for self-actualization and self-realization in his or her work. In addition, House and Wigdor mention that the work-related or intrinsic satisfiers include achievement, recognition, work itself, responsibility and advancement. However, dissatisfaction (hygiene) factors are extrinsic to the job and include interpersonal relationships, salary, supervision and company policy (Teck-Hong & Waheed, 2011:76).

Although Herzberg’s theory has received widespread attention as having a practical approach toward motivating employees (Teck-Hong & Waheed, 2011:76), there are some criticisms regarding its methodology and for overemphasis on motivation while disregarding productivity (Dartey-Baah & Amoako, 2011:4). However, people such as Kotter see motivation as being of critical importance in the planned change process and that transformational leaders motivate their followers throughout the change. Therefore, this study posits that planned change in the recruitment of qualified mathematics and science teachers is necessary, and that education should lead as well as direct the change

from the initiation to completion phases. The researcher presumes that planned change will ensure effective communication, consider and respect the basic human needs of the affected teachers in order to motivate and inspire qualified mathematics and science teachers toward accepting posting in the impoverished schools. It is in this light that the researcher adopted and modified Kotter's change model in order to develop an alternative conceptual framework relevant to the South African education context. Furthermore, the alternative framework sees the basic human needs identified in Maslow's and Herzberg's theories as being relevant for the recruitment of qualified mathematics and science teachers. Equally, the title of the alternative framework was inspired by Moore and Diamond's (2000:3) *Academic Leadership: Turning vision into reality*. This alternative conceptual framework is illustrated in the following diagram:



**Figure 2.4: Turning vision into practice**

The *turning vision into practice* framework is a result of an intensive literature review regarding the recruitment and deployment of qualified teachers nationally and internationally. The framework defined the parameters within which this study was designed and conducted. It influenced the analysis of data and guided the organisation and reporting of the study's findings. The main pillars that are depicted in the diagram have been identified to reflect and explain the relationship among the research questions and the objectives of the study. The figure also links the first phase of change which deals with the creation of a change environment for the recruitment of qualified mathematics and science teachers. The main aspects of this first pillar relates to Kotter's first step of creating a sense of urgency for change. Considering that Kotter's first step

requires that a crisis should be urgently addressed, the *turning vision into practice* framework, therefore, mobilises education leaders as well as managers and focuses their attention on the crisis of anomalies in the recruitment of qualified teachers mathematics and science teachers in the post-1994 education system.

According to the first pillar, it is the responsibility of national and provincial education leaders to lead and direct change regarding the recruitment and deployment of mathematics and science teachers in order to reduce the anomalies of the apartheid legacy. Therefore, the attention of school principals and other education stakeholders should be drawn to the crisis and the urgent need to address the crisis regarding the recruitment of qualified mathematics and science teachers to the majority of needy schools. Equally, school principals need to embrace the initiation of the change and be prepared to lead the change process from the frontline. The second pillar requires the development of criteria and/or policy for the recruitment as well as deployment of qualified mathematics and science teachers. The development of the criteria suggests the identification of an ideal model and assessing practicalities as well as building in procedures and criteria for recruitment processes. In essence, this fourth pillar includes details on improving service and working conditions for teachers, particularly with regard teachers in rural schools. It is in this pillar that planning takes place and decisions are taken on issues such as the professional development and support, teacher remuneration and incentives. In essence, this pillar looks at strategies that may attract and retain qualified mathematics and science teachers in the post-1994 education system. The aspects that may be considered in this pillar include the allocation of teachers in accordance with the total enrolment of mathematics and science learners in the individual schools, and in accordance with the national norm of 35:1 learner-teacher ratio for secondary schools. The third pillar requires the creation of a database for all the schools that experience a shortage of qualified mathematics and science teachers. The database helps in generating focus on the recruitment challenges of these schools. The fourth pillar recognises the view that change involves emotions and psychological adjustments (Sanda & Sraha, 2011:5; Webster, 2012:15) and that change cannot succeed without a buy-in from the affected education stakeholders. This pillar focuses on communicating the vision of reducing management constraints in the recruitment of qualified mathematics and science teachers, particularly to the teachers.

Effective communication is very important in a change process because it allows education leaders and managers to address the concerns of teachers and to obtain buy-in. The implication is that effective communication with SGBs and teacher unions should feature prominently in this pillar. The fifth pillar suggests that the change should be implemented. Unlike Kotter's step on the formation of a guiding coalition to implement change, the model in this study does not support the formation of a coalition of leaders



because it may imply that the national and provincial Departments of Education departments in South Africa have already employed officials that have been given the responsibility to implement, monitor and evaluate educational change. The area that needs to be strengthened relates to the implementation of the change. This links with the sixth pillar which requires effective monitoring and evaluation or assessment of progress or lack thereof. A continuous assessment process should be conducted to determine strengths and weaknesses of the change. The seventh pillar deals with an analysis of feedback from the preceding pillar in order to adopt and adjust the criteria or policy regarding the recruitment of qualified mathematics and science teachers. This seventh pillar is the last and fit significantly turns the change management model from a being linear into a proactive, cyclical and continuous change management process. This seventh pillar is also in accordance with the view by Rees and Hall (2013:113) that systemic change management models comprising sequential processes such as that of Kotter can be modified through the introduction of an additional process at the end, which provides a feedback step.

### **2.3. PART TWO: LITERATURE REVIEW FROM AN INTERNATIONAL PERSPECTIVE**

This section presents the literature review regarding the demand, supply and recruitment of mathematics and science teachers. This first part of the review deals with the international perspective while the second part focuses on the South African context.

#### **2.3.1. Teacher recruitment processes: Finland and Singapore**

The common feature of the best performing education systems world-wide is the recruitment of teachers (Hobson, Ashby, McIntyre & Malderez, 2010:5). The recruitment restricts the entry to the teaching profession, thus, only the best teachers students are allowed to pursue teaching as a career (Hobson et al. 2010:5). These authors argue that failure to control entry into the pre-service (INSET) affects the quality of teachers and results in oversupply and unemployment for the oversupplied skills (Hobson et al. 2010:5) among the graduates. The control of entry to teaching usually involves different but stringent screening processes (Hobson et al. 2010:5). Finland is cited as one of the countries that have high performing education systems due to the usage of multi-stage teacher selection processes (Hobson et al. 2010:11). The rigor of selection processes has for many years sustained quality in the Finnish education system. The majority of teachers hold Master's degrees obtained after five or six years of tuition (Carnoy, Brodziak, Luschei, Beteille & Loyalka, 2009:80). Education policies are determined by national legislation but local authorities have the latitude to differ in the qualifications they require of teachers.

The recruitment of new teachers is managed through the advertisement of available vacancies in national, regional, local and education specific newspapers and internet, thereby attracting teachers from all over the country and elsewhere (Carnoy et al. 2009: 89). The rapid rise of Finland as a mathematics and science powerhouse has been largely attributed to the changes brought about by the Teacher Education Reform Act of 1979 (Smithers & Robinson, 2013:13). This particular Act removed teacher education from teacher colleges to the universities and set the basic qualification for teaching as a master's degree (Smithers & Robinson, 2013:13). Although the education system of Singapore is also considered as being good, it does not entail all the recruitment elements found in the Finnish system. Singapore is also renowned for its ability to identify and nurture teaching talent (Schleicher, 2012:59). People interested in becoming teachers in government schools must first apply to the ministry for positions as trainee teachers. Thereafter, selection panels that include current principals carefully select prospective teachers from the top-one third of the secondary school graduates based on criteria that include strong academic ability or performance in school leaving examinations and commitment to the teaching profession (Schleicher, 2012:59). Successful candidates are admitted to the National Institute of Education for their pre-service education (Carnoy et al. 2009:141). The ministry of education pays tuition fees and salaries of pre-service trainee teachers (Carnoy et al. 2009:141).

Teachers are also entitled to 100 hours per year for in-service training as well as a small personal budget for materials and personal computers (Smithers & Robinson, 2013:54). The recruitment and appointment of teachers in Singapore are highly centralised because the government is the formal employer of all government school teachers (Carnoy et al. 2009:141). According to Choo and Darling-Hammond (2011:34), the first assignment or deployment for a newly appointed teacher in Singapore is based on the needs of the nation's interests as represented by the schools rather the interest of the individual teacher. However, teachers are allowed to request posting to schools of their choice after serving for two years in the education system subject to the approval by their principals and the receiving principals. Furthermore, the Singapore education authorities have an annual and centralised process of posting teachers who have requested a job rotation. These teachers are posted according to the country's manpower needs (Choo & Darling-Hammond, 2011:34).

### **2.3.2. Teacher demand, supply and shortage**

Research studies on the supply of qualified teachers share the view that the majority of education systems in the developed and developing countries face the problem of qualified mathematics and science teacher shortage (Smithers & Robinson, 2013;

Ronfeldt et al. 2013). However, the extent of the problem varies greatly and the threats it poses to the competitiveness of countries are also viewed differently. In the developed countries, for example, seemingly the problem reduces the global competitive edge that some of these developed countries have enjoyed unchallenged over the years. This is more evident in the address of President Barack Obama of the United States (US) which was delivered at the 146<sup>th</sup> Annual Meeting of the National Academy of Sciences in Washington, DC. He indicated that the lack of qualified mathematics and science teachers may result in the US being “out-competed” and “out-educated” by other nations:

*We know that the nation that out-educates us today will out-compete us tomorrow. And I don't intend to have us out-educated...We know that the quality of math (sic) and science teachers is the most influential single factor in determining whether a student will succeed or fail in these subjects. Yet in high school, more than 20% of students in chemistry and physics are taught by teachers without expertise in these fields (Obama, 2009:3).*

The aforementioned remarks not only highlight the importance of qualified mathematics and science teachers, but also suggest that their scarcity has the potential of reducing a country's competitive edge in the globalised economy. The remarks further indicate that the shortage of qualified teachers leads to the use of teachers that are “without expertise in these fields”. The problem of teacher shortage is many different ways. For instance, Futernick (2007:9–10) views the shortage problem as being twofold: a teacher *supply* problem which is caused by the inability to produce enough new teachers and as a teacher *turnover* problem attributable to the departure of a large number of teachers before their retirement, or when the teachers move away from certain types of schools. However, Ingersoll and Perda (2010:2-3) disagree with the view which suggests that there is a shortage of mathematics and science teachers, particularly in the US. These authors argue that the term, *shortage*, is being used in a generic sense to refer to any school staffing problems, thus suggesting that there was an insufficient production of new teachers. Implicitly, Ingersoll and Perda (2010:35) do not support the mathematics and science shortage thesis and maintain that the supply of new teachers from the pipeline and the reserve pool is barely sufficient.

The apparent concessions Ingersoll and Perda (2010:36) are that teacher turnover is not evenly distributed and the large variations within states and school-to-school turnover which is connected to job satisfaction. In England, for instance, reports indicate that only about a quarter of teachers continue teaching until they retire as the majority of teachers leave at an earlier stage in their careers (Hutchings, 2011:3). According to Hutchings, the trend that exists in England is similar to that of the US but different from that of

Germany and France where teachers tend to stay longer before retirement. Conversely, some of the high performing education systems experience stable and relative loss of teachers. For instance, Finland and Singapore face low teacher turnover problems, particularly Singapore (Carnoy et al. 2009:80). The age distribution of the majority of teachers in Finland is in the range of the 40s and 59s (Carnoy et al. 2009:80). In addition, Carnoy et al. point out that the growth of urban areas in Finland has led to a movement of teachers from rural to urban areas. The result is that the country faces a growing problem of a shortage of teachers in subjects such as mathematics, science and languages. Other problems in the education system of Finland include the global trend of qualified mathematics and science teachers moving out of teaching to take up jobs in industries. Similarly, the traditional image of teaching as a respected and attractive profession is gradually getting eroded due to perceptions about the heavier workload of teachers, multi task responsibility, lack of discipline and occasional violence in schools (Carnoy et al. 2009:80). The inevitable teacher shortage and its related problems threaten the principle of equality upon which the education system of Finland is based (Sahlberg, 2011:16). The gist of this equality principle requires that all learners in Finland should be provided with equal education opportunities (Sahlberg, 2011:16). Although teachers are highly qualified and performing very good, the salaries of teachers in Finland are generally lower than the salaries of other professions in the country's private sector (Carnoy et al. 2009:82).

In Singapore, the rate of teacher turnover is reported as being steady because the number of teachers who resign from the service is estimated between two to three per cent per year, while new teachers who enter the profession each year averages 2,300 (Carnoy et al. 2009:140). Carnoy et al. explain that the high teacher supply and low turnover rates are attributed to a number of professional and personal development programmes as well as financial incentives that the Singapore government has introduced to make teaching attractive. Furthermore, literature shows that there are few teachers that hold high qualifications such as Master's degrees in Singapore as compared to teachers in Finland and elsewhere (Carnoy et al. 2009:141). In terms of remuneration, during 2004/2005 teachers in Singapore were being paid about the same starting salaries as accountants but lower than engineers. However, if teachers in Singapore teach until into the age of 40 and above, they seem to earn better than both accountants and engineers (Carnoy et al. 2009:144). In view of the different interpretations and understanding of the teacher shortage problem, Even and Leslau (2010:2) mention that the problem manifests itself in any or in a combination of the following situations:

- where an education system does not have enough teachers, certified and not certified, and as a result there are classes without teachers;
- a situation that stems from insufficient certified teachers filling the system's needs;
- where there are enough teachers but there is the feeling that many of them do not meet the expectations associated with being a "good teacher", or
- A situation of uneven deployment from the perspectives of geography and subject-matter.

There has been a steady increase in the studies that focus on the shortage of teachers because of their uneven deployment from the perspectives of geography and subject-matter. For instance, Ingersoll and May (2012:446) found that the deployment of qualified teachers in schools was uneven and varying by location. Similarly in England it was established that mathematics and science teachers were “not evenly distributed across schools” (Moor, Jones, Johnson, Martin, Cowell & Bojke, 2006:271). In essence, the inability to distribute qualified teachers equitably and the decline in the supply of new teachers are regarded as one of the contributory factors to the high levels of teacher attrition (Futernick, 2007:9). The major reasons for the insufficient supply and a high turnover of qualified teachers have been cited as job dissatisfaction and retirement (Ingersoll & Perda, 2009:36). Job dissatisfaction aspects include poor salaries and lack of administrative support (Johnson et al. 2012:3). Job dissatisfaction is also caused by the uneven allocation of teachers in the various subjects, something that is more difficult at the secondary school level due to teachers’ specialisation and a multiplicity of optional subjects (Mulkeen, 2010:63).

Unlike their counterparts in the primary sector, many countries expect secondary school teachers to specialise in one or two subjects, while in the primary school sector teachers are often expected to teach all subjects to one class (Mulkeen, 2010:63). Thus, the need for additional teachers was considered to be high in secondary schools than in primary schools (Australian Government, 2012:92). According to Mulkeen (2010:66), the uneven subject allocation to teachers in most secondary schools results in higher workload and large class sizes for mathematics and science teachers. A Californian study suggests that class sizes are the ones that determine teacher recruitment in schools (Futernick, 2007:9). For instance, the study found that policies that were introduced California resulted in the reduction of class sizes, in turn, the reduced class sizes created a shortage of teachers and necessitated the recruitment of additional teachers (Futernick, 2007:9). However, the irony of the situation is that the newly recruited teachers tend to be the first to exit the profession before retirement to various destinations (Ingersoll & May, 2012:446; Johnson et al, 2012:3-5). In the US, for example, a study established that the number of teachers exiting the profession was almost equal to those who

relocated to better-resourced schools (Ingersoll & May, 2012:446). For instance, about 25,000 teachers moved to other schools while about 26,000 left classroom teaching altogether between 2004 and 2005 (Ingersoll & May, 2012:446). These findings are in line with the study conducted in the New York State which found that highly qualified teachers often moved from one district to another or leave the profession altogether and this resulted in high teacher attrition in the impoverished schools (Jacob, 2007:136; Ingersoll & May, 2012:446). The general trend that can be established from the aforementioned studies is that the most qualified teachers tend to stay for shorter periods in the under-resourced and impoverished schools and opt to relocate to well-resourced schools in affluent communities (Murnane & Steele, 2007:15; Ingersoll & May, 2012:446; Johnson et al, 2012:3-5).

Therefore, it is mainly the schools that are situated in poverty-stricken areas that encounter intense difficulties in recruiting and retaining highly qualified and competent teachers (Krispien, 2010:49). The constant movement of qualified mathematics and science teachers or the *dynamic effect* – the potential change of behaviour regarding teachers' life cycle planning – seems to be largely dependent on the general labour market conditions because when alternative employment opportunities are limited, the departure of teachers slows down (Bourdon, Frolich & Michaelowa, 2007:14). In England, for example, it was found that whenever the country experienced an economic crisis, the recruitment of Science, Technology, Engineering and Mathematics (STEM) teachers became easier than during periods when the economy is flourishing (Smithers & Robinson, 2013:33). These observations strengthen Krispien's (2010:49) viewpoint that teachers who are obeying the rules of the labour market will follow a path that contributes to their career goals in terms of monetary and other rewards. The implication of this viewpoint is that a teacher's decision to work in a particular school is often tied to the dictates of the labour market and that the duration of the teacher's contract in that particular school will be determined by what the labour market offers to the teacher.

The overall results of the market-driven movement of qualified mathematics and science teachers include the entry of unqualified teachers in the profession, especially in impoverished schools (Krispien, 2010:27). In addition, Krispien explains that the imbalance of demand and supply results in distinctively different situations for the mathematics and science teachers who are in demand and for the other groups of teachers who are in surplus. The acute shortage allows mathematics and science teachers more choices of location when they apply for jobs because their skills are in demand almost everywhere (Krispien, 2010:27). Equally, Hutchings (2011:2) mentions that career opportunities for teachers also differ according to school phase, secondary subjects taught and location. In England higher vacancy rates exist in London, special schools, for school principals and for teachers who are qualified to teach secondary

mathematics, information technology and science (Hutchings, 2011:2). Hutchings concludes by indicating that the labour market for teachers has to be seen as a number of distinct markets, by school phase, subjects taught and region. This information underscores the viewpoint that teacher turnover rates are high in schools that service more low-performing learners (Ronfeldt, Loeb & Wyckoff, 2013:22).

Literature evidence reveals that developing countries face similar challenges regarding the problem of teacher shortage and its impact on learner attainment (Hutchings, 2011:3; Ingersoll & Perda, 2010:36). In the African context, the rapid expansion of secondary education in the majority of sub-Saharan African countries has led to an escalating demand for teachers (Mulkeen et al. 2007:6). The causes of teacher shortage in most developing countries appear to be similar to those that affect the developed countries. For instance, Moon (2008:6–7) posits that sub-Saharan African countries experience a limited number of teacher candidates and the result is that the countries are unable to produce sufficient qualified teachers. The apparent lack of interest in teaching has been further eroded by factors such as inadequate salaries that are not paid when due (Adedeji & Olaniyan, 2011:58). This implies that people who are attracted to teaching due to lack of alternative employment could end up being further de-motivated by these difficult living and working conditions that characterised most education systems in the developing countries. The continued stay of some teachers who have no alternative employment has apparently delayed the departure of these teachers, thus, minimising the annual attrition rate (Adedeji & Olaniyan, 2011:58).

In essence, it seems several education systems in the developing countries continue to carry teachers who have lost their desire to teach. Such teachers however, remain in the profession because their countries' economic underdevelopment limits their options regarding alternative employment. Economic underdevelopment in most sub-Saharan African countries has made it difficult for impoverished schools to recruit highly qualified and competent teachers. In the remote Micheweni district of Zanzibar in Tanzania, for example, there were only two qualified mathematics teachers in 2006, serving a district with 3,800 secondary school learners (Mulkeen, 2010:43). In many developing countries the shortage of qualified teachers is exacerbated by early retirement due to ill-health. For instance, Evoh (2009:4) mentions that various education systems in sub-Saharan Africa such as that of South Africa, Uganda, Rwanda and Botswana faced the challenge of HIV/AIDS (UNESCO, 2010:15-16). The prevalence of this pandemic continues to weaken the majority of education systems as qualified teachers succumb to the illness (Evoh, 2009:4). In South Africa, for example, a study on the health of teachers revealed a high prevalence of HIV among teachers, particularly among Africans and among those with a teaching experience ranging between 0 to 14 years (OECD, 2008:300).

Monk (2007:164) posits that the failure to attract highly qualified teachers to rural schools can be attributed to the unattractive economic conditions that rural communities face: the lack of quality life in the community, problematic working conditions, limited support services, as well as inadequate support networks. Teachers in rural areas have access to fewer educational and personal amenities, and they can experience greater social isolation (Australian Government, 2012:92). Besides disparities between impoverished rural and affluent urban schools, literature suggests that there is also a gap between primary and secondary schools as well as between school subjects (Australian Government, 2012:89; Mulkeen et al. 2007:11). Secondary schools seem to be mostly affected by the shortage of qualified teachers than the primary schools. An Australian study found a huge surplus of primary qualified teachers in the metropolitan areas and a persistent shortage of qualified teachers in secondary schools, particularly in the subjects of mathematics and science (Australian Government, 2012:89). Essentially, the shortage and the uneven spread of qualified teachers were as a result of inappropriate policy implementation and the lack of policy evaluation regarding the recruitment as well as deployment of qualified teachers.

However, some of the countries that face a serious shortage of qualified mathematics and science teachers tend to employ unqualified teachers in these subjects, or have vacancies that could not be filled because of the unwillingness of qualified teachers to move to undesirable locations (Mulkeen, 2010:41). In the UK, for example, some of the schools have introduced desperate measures that included the usage of teaching assistants, technicians, increasing class sizes, reducing non-contact time for teachers, and increasing the number of teachers who teach outside their subject specialisation (Moor, Jones, Johnson, Martin, Cowell & Bojke, 2006:5). Seemingly, these measures were temporary in their nature and a search for permanent or lasting solutions need to be found in order to address the problem of teacher shortage, as well as the related uneven deployment of qualified mathematics and science teachers in schools. The recommendations include additional financial incentives such as hardship and travel allowance that would enable teachers to work in rural areas (Adedeji & Olaniyan, 2011:74).

### **2.3.3. Teacher deployment in rural schools**

Despite economic-related restrictions, the deployment of qualified teachers in the African continent has been described as being skewed in favour of affluent urban areas based on a variety of reasons (Mulkeen, 2007:17). In Ghana, for example, the reluctance of student teachers' to work in rural areas has been attributed to the fear of the dangers such as disease and unsustainable accommodation (Mulkeen, 2007:18). Equally, in



Tanzania student teachers' reluctance derives the prospects of dealing with poor classrooms, home accommodation, school resources, reduced leisure opportunities and lack of medical facilities in rural communities (Mulkeen, 2007:18). These factors not only contribute to the difficulties of recruiting teachers to rural schools but also facilitate the exit of those teachers that have already been deployed to these areas (Johnson et al. 2012:3–4). In Zimbabwe, for instance, a study on the training of science teachers in the rural schools found that centrally deployed teachers in rural areas were frequently requesting government to move them out from these rural areas to more desirable locations (Mhishi, Bhukuvhani & Sana, 2012:3). These examples suggests that there is a need for a school context that will help in moderating relationships between teachers and their learners (Kraft, Papay, Charner-Laid, Johnson, Ng & Reinhorn, 2012:6). Such a school context is characterised by the fostering of organisational stability, provision of teaching support, monitoring of school activity and shielding staff against distractions from their work (Leithwood, Day, Sammons, Harris & Hopkins, 2006:7).

Attempts to improve staffing in schools are often guided by two major deployment systems, namely the central authority and market systems (Mulkeen et al. 2007:19–20). The central authority system promotes national or provincial planning and the deployment of teachers to schools. In other words, schools are not afforded an opportunity to recruit their own teachers (Mulkeen et al. 2007:19–20). The implication is that many principals were not being afforded a chance to recruit their own teachers and this has apparently contributed to these principals having less influence on the quality of teachers that are sent to their schools (Mpokosa & Ndaruhutse, 2008:25-26). This is an approach that is also applied in developed countries such as the US. Donaldson (2011:37) indicates that some of the school principals in the US have “less latitude to hire and assign, evaluate and dismiss, and develop teachers as they saw fit.” Even after the apparent exclusion of principals from the process of recruitment and appointment of teachers, the teacher deployment systems that most developing countries use seem to be inadequate. For instance, the central authority system in countries such as Mozambique and Malawi was less successful because provinces were unable to raise sufficient funds to recruit all their newly qualified teachers and that several qualified teachers refused to take up rural posting (Mulkeen et al. 2007:19–20). Meanwhile, the use of a market system in countries such as Lesotho has allowed teachers to deploy themselves by searching for jobs, and gave each school more autonomy in selecting their own teachers (Mulkeen et al. 2007:18).

However, this local and often uncontrolled intervention has the potential of rendering the recruitment process ineffective as unqualified people may end up being hired. In Kenya, for example, a study found that local communities demanded that their own people be appointed to the positions of school principal without the necessary

qualifications (Mobegi, Ondingi & Oburu, 2010:408). Another Kenyan study also reveals that local districts in that country were often accused of acts such as nepotism, receiving bribes and keeping selection dates secret (Kipsoi & Anthony, 2008:7). Further evidence suggests that even some of the developed countries face challenges regarding the implementation of a market system. According to a study in Pennsylvania, schools tend to hire candidates with local ties, friends and relatives (Monk, 2007:164).

#### **2.3.4. Strategies of addressing teacher shortage**

Most countries that face teacher shortage and uneven teacher deployment have introduced policies or reforms that are discussed below.

Reforms in mathematics and science education in a country such as the US have focused on both what to teach and how to teach it (Mathews, 2007:3). However, in 2004 the National Centre for Education Statistics reported that most learners in the middle-grades for school year 1999-2000 were being taught by teachers who had no major or certification in the field of mathematics and science (Mathews, 2007:5). The result of this realisation was the enhanced education of the teachers through supplemental teacher training programmes such as Science, Technology, Engineering and Mathematics (STEM) education.

**STEM:** This reform initiative was first introduced in the US with the objective of strengthening the fields of education that the country viewed as important. Thomasian (2011:5) explained that US governors and leaders in policy focused on strengthening Science, Technology, Engineering and Mathematics (STEM) education. The immediate goals of STEM were identified as increasing the proficiency of all learners in STEM and grow the number of learners who pursue STEM careers and advanced studies (Thomasian, 2011:5). In essence, STEM was intended to create a pool of qualified teachers in the fields that were frequently affected by the shortage of relevant skills. Equally, the Australian version of STEM contains similar goals as those of the US. According to the Australian government, their STEM goals include the development of proficient STEM practitioners in suitable numbers, to produce and regularly refresh a STEM skilled workforce as well as to improve support to recruited pre-service and in-service teachers in order to ensure well-versed teachers in STEM disciplines (Office of the Chief Scientist, 2013:13-14).

**Professional/teacher development:** broadly defined teacher development is the growth of a person in his or her professional role and more specifically and more specifically, it is the growth that a teacher achieves due to the gaining of both formal and informal experiences Villegas-Reimers (2003:12). In brief, Villegas-Reimers understands

professional development as a long-term process that includes regular opportunities and experiences planned systematically to promote growth and development in the profession. According to Evans (2002:132), professional development is a process whereby teachers' professionalism may be considered to be enhanced. In addition, the author states that professional development entails the element of attitudinal development, which deals with the modification of teachers' attitudes to their work while functional development addresses the teachers' professional performance. Equally, Mestry, Hendricks and Bischoff (2009:477) understands professional development as a process by which teachers learn to become more effective and efficient and that this type of development focuses on teachers' learning experiences through the enhancement of skills, values and attitudes. In essence, professional development should be regarded as a process by which teachers review, renew and extend their commitment as change agents to the moral purposes of teaching and by which they acquire and develop their knowledge, skills and attitudes (Mestry et al. 2009:477).

It is noteworthy that the common constructs in these authors' viewpoints encompass: growth, attitudes, experience, knowledge and skills. Therefore, professional development can be thought of as a process by which teachers' personal and professional growth is enhanced through the acquisition of new experiences, knowledge and skills as well as the modification of modification of attitudes. However, Villegas-Reimers (2003:11) acknowledges that this broad definition of professional development is a new perspective and researchers still find it difficult to distinguish between professional development and staff development or in-service training (INSET). For example, the European Training Foundation (Jorgenknudse, Hartibekovic-Bubanja, Nielsen, Petkova & Nkolovska, 2013) describes its report on its project in Montenegro as a "*school-based in-service teacher training in Montenegro*" but later in the same report the project is referred to as "*Teacher continuing professional development in school-based communities of practice: the process in Montenegro*" (Jorgenknudse et al. 2013:21).

**In-service training (INSET):** with regard in-service, Villegas-Reimers (2003:11-12) posits that it was the only known form of "development" available to teachers and that it entailed short-term workshops that offered teachers information on a particular aspect of their work. Omar (2014:1) postulates that in-service training programme for teachers as crucial in education reform. Furthermore, an in-service training programme in an organisation is defined as a process whereby people are taught skills and given the necessary knowledge or attitude in order to enable them to carry out their responsibilities to the required standard in the present job and to undertake more demanding roles or effective job performance (Omar, 2014:1). Equally, Janhangir, Saheen and Kazmi (2012:5) argue that it is only teachers who are adequately prepared,

well-trained and have a positive attitude who can shoulder the responsibility of nation building. These authors conducted a study on the impact of in-service training as a contributory factor influencing teachers' performance. They found that training has effects on the behaviour of teachers in terms of personality traits and communication skills (Janhangir et al. 2012:5). Another study on the effectiveness of in-service training found that there is a meaningful difference between teachers' expectations before the training and their views after the in-service training (Yigit, 2008:72).

However, in-service training programmes are generally seen by teachers as not so enticing because the absence of teachers' involvement in decision-making processes regarding the training programme (Yigit, 2008:72). Yigit asserts that teachers get "bored" when then they attend in-service training activities for listening purposes.

**Financial incentives:** Lankford, Loeb & Wyckoff (2002:51) state that "teachers respond to wages in their career choices". As a result, the structure of teacher salaries may affect their deployment in schools. Equally, another study found that the search for better salaries facilitates the exit of teachers from the profession (Ingersoll, 2001:505). Financial incentives are generally used to attract and retain teachers into the teaching profession, especially for rural schools (Mulkeen, 2010:54-55). However, Mulkeen maintains that the success of financial incentives has been limited due to the size of the incentives. The example of Lesotho has been cited as a country where the size of the incentive was less than the overall costs that teachers incurred for living in rural areas (Mulkeen, 2010: 54-55).

**Housing and related allowances:** this form of incentive has been used to attract qualified teachers who often declined posting in rural areas due to lack of accommodation. However, the huge expenses associated with the provision of housing made it impossible for most countries to proceed with the implementation of this incentive (Mulkeen, 2010:53). Another example involves schools in London that faced teacher recruitment and retention challenges due to housing costs (Smithers & Robinson, 2005:6). Government granted these teachers an additional allowance in order to contribute to the extra cost of living in London (Ross & Hutchings, 2003:42).

**Importing expatriate teachers:** several countries with viable economies recruited foreign teachers in order to address their teacher supply challenges. Mathematics and science teachers were mostly recruited from developing countries to the UK, Australasia and other countries in North America (Rudder, 2012:48-49). In recent years, however, there were growing concerns about the recruitment of skills from developing countries that were also experiencing the shortage of educated and trained workers (Ross & Hutchings, 2003:44). Although dependence on expatriate teachers alleviates shortages in

the receiving countries, the emigration of teachers causes skills shortages in low-income countries (Mulkeen, 2010:27). However, further evidence from literature shows that Cuba is among the few countries such as Japan and Korea that do not experience the problem of qualified mathematics and science teachers (Hickling-Hudson, 2004:12; Gasperini, 2000:1). Instead, Cuba has been providing qualified mathematics and science teachers to other independent countries such as Jamaica and Namibia in accordance with the governments' South-South corroboration arrangements (Hickling-Hudson, 2004:12).

Reasons for the recruitment of qualified mathematics and science teachers from Cuba include the desire by the former colonies to address the inadequacies of stratified education systems that these independent countries inherited from their respective imperial European states (Hickling-Hudson, 2004:12). The ability of the Cuban government in producing surplus qualified mathematics and science teachers is attributed to its vast network of universities and colleges that were established more than five decades ago when the government started investing highly on education (Hickling-Hudson, 2004:12; Gasperini, 2000:1). In terms of the South-South collaboration, a two-pronged strategy was being applied (Gasperini, 2000:1). For instance, independent countries such as Zimbabwe have been sending student teachers to Cuba since the 1980s for training in mathematics and science using Cuban scholarships (Zezekwa, Mudau & Nkopoli, 2013:320). However, after 10 years of Zimbabwean student teachers receiving training in Cuba, the programme was relocated to Zimbabwe and in 1996 the Bindura college of Science Education was established under the wing of the University of Zimbabwe (Zezekwa et al. 2013:320). In 2000 Bindura became a fully-fledged university and continued its mandate of training secondary school science teachers. Implicitly, Cuba has successfully laid a mathematics and science foundation for developing countries such as Zimbabwe and Jamaica.

#### **2.4. PART THREE: LITERATURE REVIEW FROM THE SOUTH AFRICAN PERSPECTIVE**

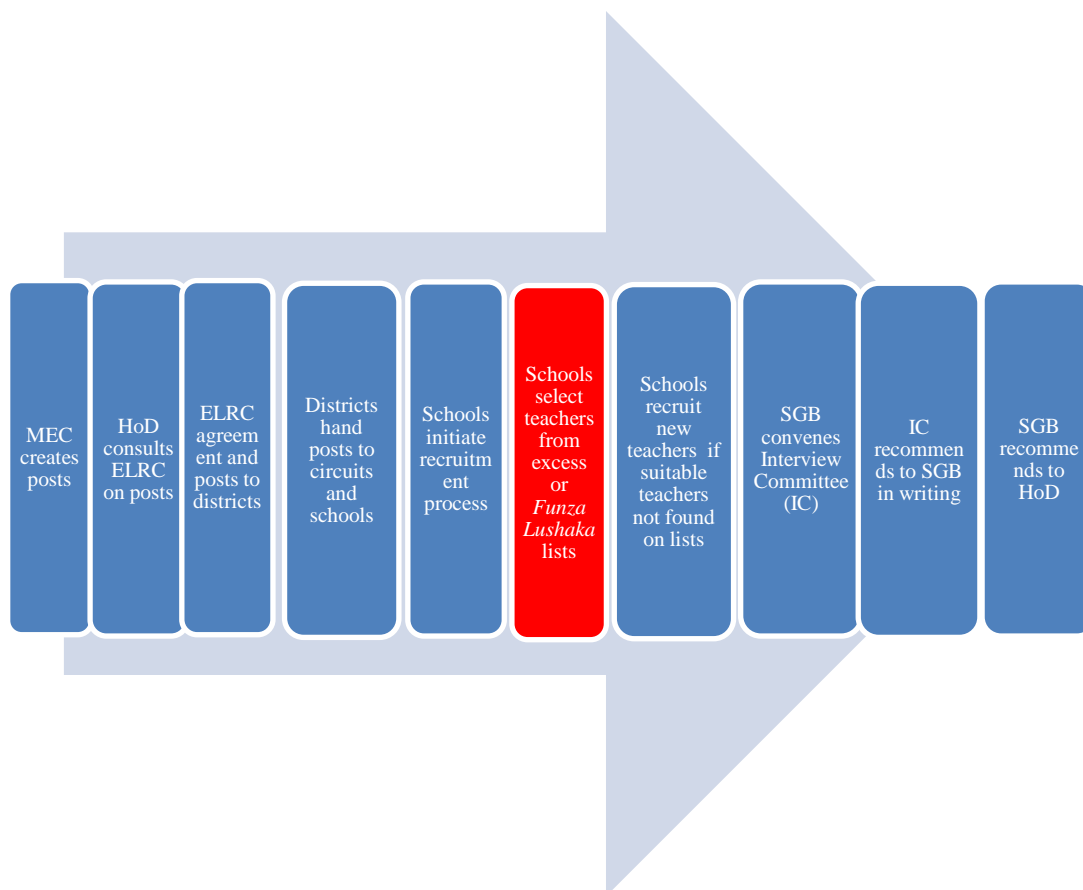
In this section, the literature of South African experiences regarding the recruitment and management of teachers in general is reviewed in order to determine management constraints that specifically relate to the recruitment of qualified mathematics and science teachers. Although the Constitution of the Republic of South Africa (Act No. 108 of 1996) does not have a specific chapter dedicated to education, the location of education under chapter 2 (Bill of Rights) implies that education is viewed as a right rather than a privilege. Therefore, it is imperative for activities such as the recruitment and appointment of teachers to reflect this viewpoint.

### **2.4.1. Recruitment and appointment processes**

The recruitment of teachers in a post-1994 South Africa in schools is the competency of individual provincial Departments of Education (PEDs). The Minister of Education determines policy and sets norms and standards regarding personnel matters. According to section 6(1) of the South African Schools Act (Act No. 84 of 1994), the appointment, transfer or promotion of any person in the Department of Education is the responsibility of the Director-General (DG). However, in the provincial Departments of Education, this responsibility has been assigned to the Head of Department (HoD). Section 6(3) however requires that the DG should take into consideration recommendations from the council of the further education and training institution (FET) before effecting an appointment, transfer or promotion in those institutions. In the case of schools, the section requires the HoD to consider recommendations from the school governing body (SGB) before effecting an appointment, transfer or promotion. Furthermore, the section 6(2) explains the involvement of the Education Labour Relations Council in the matter:

Subject to the provisions of this Chapter, the Labour Relations Act or any collective agreement concluded by the Education Labour Relations Council, appointments in, and promotions or transfers to, posts on any educator [teacher] establishment under this Act shall be made in accordance with such procedure and such requirements as the Minister may determine (RSA, 1998:5).

The abovementioned conditions are suggestive of an education system that anchored on democratic principles that encourage dialogue as well as consultations between parties. However, the incessant problems that have recently characterised the relationship between the Department of Education and school governing bodies have resulted in a review of section 6 of the Employment of Educators Act (EEA) Act No. 76 of 1998) through the Education Laws Amendment Bill (Loock, Grobler & Mestry, 2006:34). Apparently, the amendment is aimed at striking a balance between the responsibilities of government and the rights of the school governing bodies (SGB) with regard to the recruitment and appointment of teachers. In terms of the recruitment of teachers in the Mpumalanga Department of Education, the process can be illustrated as follows:



**Figure 2.5: Teacher recruitment process**

The process in Figure 2.5 above displays the recruitment and appointment process in the Mpumalanga Department of Education (MDE). The process starts when the Member of the Executive Council for Education (MEC) creates posts for the fiscal year based on the budget vote. Thereafter, the administrative process of filling the posts starts when the HoD consults the ELRC on the post establishment for that particular academic year. The collective agreement from the ELRC clears the way for the confirmation or filling of the posts. It is noteworthy that the districts and circuit offices mainly convey the post establishment certificates (Appendix G) to the individual schools. The individual school uses the certificate to determine whether it has to declare teachers in excess or to bring in new recruits from the Departmental lists of excess teachers, bursary beneficiaries or advertise the post(s). The red shade signifies the area with the most disputes between schools and the officials of the provincial Department of Education. If new teachers were to be brought in, the school governing body convenes an interview committee (IC) in terms of the Employment of Educators Act. The Act states that the SGB is responsible for the convening of the interview committee which must appoint a chairperson and secretary from among its members. The Act further prescribes that an interview committee in a school should be constituted as follows:

- One departmental representative (who may be the school principal) as an observer and resource person;
- The principal of the school (if he/she is not the department's representative), except in the case where he/she is the applicant;
- Members of the SGB, excluding teacher members who are applicants to the advertised post/s; and
- One union representative per union that is a party to the provincial chamber of the ELRC. The union representatives shall be observers to the process of short listing, interviews and the drawing up of a preference list (RSA, 1998:77).

According to section 3(g-h), all interviewees must receive equal treatment during the interviews. In addition, the interviews must be conducted in terms of guidelines jointly agreed upon by the parties to the provincial chamber of the ELRC. Most importantly, section 3(i) provides that:

At the conclusion of the interviews the interviewing committee shall rank the candidates in order of preference, together with a brief motivation, and to submit this to the school governing body for their recommendation to the relevant employing department (RSA, 1998:77).

The implication of the above excerpt is that there are two sets of recommendations from one interview session: one from the interview committee to the SGB and another from the SGB to the HoD. In essence, it is the school governing body which recommends to the appointing authority, the HoD. Furthermore, the Employment of Educators Act requires the Head of Department to give due regard to the values of equality, equity and other democratic values and principles that are enshrined under section 195(1) of the constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996). The principles referred to under section 195(1) of the constitution relate to public administration and some of these principles are listed below for the purposes of this study:

- Services must be provided impartially, fairly, equitably and without bias;
- People's needs must be responded to and the public must be encouraged to participate in policy-making;
- Transparency must be fostered by providing the public with timely, accessible and accurate information; and
- Public administration must be broadly representative of the South African people, with employment and personnel management practices based on ability, objectivity, fairness and the need to redress the imbalances of the past to achieve broad representation.



In addition to the above principles, the Employment of Educators Act (EEA (Act No. 76 of 1998) provides the necessary procedures for the filling of existing vacancies or posts. The Head of Department may appoint a person under the sub-sections of section 7. Sub-sections 2(a), 2(b) or 2(c) can be understood as stating that: appointments under sub-section 2(a) are on a permanent status whether on probation or not. However, there is no evidence which suggests that teachers in a post-1994 education system undergo any form of probation. The absence of practical probation mechanisms for marks a great shift from the apartheid education system which required temporary teachers to serve probation before permanent appointment could be confirmed (Naidu, 2011:5). For example, new teachers in the House of Delegates were required to serve a one-year probationary period and 'weak' teachers were not recommended for permanent appointment (Naidu, 2011:5). According to Naidu, services of all teachers whose probationary periods extended to three years were terminated by education authorities under the House of Delegates. Back to the EEA, appointments under sub-section 2(b) are on a temporary status for a fixed period whether in a full-time, in a part-time or shared status while appointments under sub-section 2(c) are on a special contract(s) for a fixed period or for a particular assignment whether in a full-time or in a part-time status. Furthermore, legislation requires that all vacancies must be advertised and be filled in recognition of the previously mentioned principles of the Constitution of the Republic of South Africa. Therefore, sub-section 3.1 of the Personnel Administrative Measures (PAM) states as follows:

All vacancies in public schools are to be advertised in a gazette, bulletin or circular. The existence of which shall be made public by means of an advertisement in the public media both provincially and nationally. The information to be furnished in the latter advertisement shall include offices and addresses where the gazette, bulletin or circular is obtainable. The gazette, bulletin or circular must be circulated to all educational institutions within the province (RSA, 1998:76).

Based on the above excerpts, teachers who wish to apply for advertised posts in the post-1994 education system should first satisfy the requirements of a new policy on the Higher Education Qualifications Sub-Framework which require a Bachelor of Education (Bed) or an Advanced Diploma in Teaching that are an equivalent of the Relative Education Qualification Value (REQV 14) (Keevy, Green & Manik, 2014:29). Keevy et al. explain that teachers who qualified before the new minimum requirements were introduced are deemed professionally qualified if they hold a qualification set at REQV13. However, a professionally under-qualified teacher can possess a qualification set up to REQV15 as an approved and recognised academic qualification but does not qualify for permanent employment without a professional teaching qualification (Keevy

et al. 2014:30). It should be noted that no teacher can teach in South Africa without having registered with the South African Council for Educators (SACE). SACE is a professional council which was established through the South African Council for Educators Act (Act No. 31 of 2000).

However, the aforementioned process of filling vacancies seems unable to ensure the recruitment of a sufficient number of qualified mathematics and science teachers to the impoverished schools. For instance, the Centre for Development Enterprise (CDE, 2011:2) in a report titled, *Value in the classroom*, indicates that the shortage of qualified teachers for mathematics and science was being exacerbated by the practice in schools where qualified mathematics and science teachers are being allocated subjects they are not qualified to teach (CDE, 2011:2).

#### **2.4.2. Teacher demand, supply and shortage**

Reports from the Department of Education reveal that mathematics and science passes have not increased to an envisaged level in a post-apartheid education system (DoE, 2009a:4). Therefore, in 2001 the Cabinet of South Africa adopted the National Strategy for Mathematics, Science and Technology (NMSTE) which aims, among others, to increase the number of learners passing mathematics and science by ensuring that “a qualified and competent teacher is available in every classroom” and that the evaluation as well as the monitoring of mathematics, science and technology in provinces takes place (DoE, 2009a:4). Subsequently, policy reforms were introduced to declare that Grade 10-12 learners have to take either mathematics or mathematics literacy as a compulsory subject (DoE, 2006:31). The expansion of mathematics as a compulsory subject to all secondary schools and the undertaking that “a qualified and competent teacher is available in every classroom” (DoE, 2007:12) it seems, emanates from an assumption or belief which suggests that there is an abundance of qualified mathematics and science teachers for all the classrooms in the country. However, reports from the Department of Education suggest that the problem of a shortage in the subjects of mathematics and science persists in the education system (DoE, 2007:12). The Department of Education has attributed the shortage to the oversupply of teachers in some of the subjects (DoE, 2006:11).

Given that the effects of the lack of qualified mathematics and science teachers in schools are historically felt more by the majority of learners from the predominantly high poverty schools (Schmidt, 2012:1), the Department of Education introduced measures in order to address the anomalies of teacher provision between affluent and impoverished schools (DoE, 2006:11). For instance, the norms on learner-teacher ratio were revised to 40:1 for primary schools and 35:1 for secondary schools (Jansen &

Taylor, 2003:29). This revision resulted in the employment of between 40,000 and 60,000 new teachers countrywide (Jansen & Taylor, 2003:29). The implication of the skewed deployment of qualified teachers between schools was that historically disadvantaged schools had to continue with their reliance on unqualified and under-qualified teachers, particularly in the subjects of mathematics and science. In the province of Gauteng, for example, a study found that several schools had three times as many unqualified teachers that were actually teaching mathematics than teachers with a qualification to teach the subject (Carnoy & Chisholm. 2008:9). Another study in the Eastern Cape established that there were schools in the Buffalo area that were using unqualified teachers to teach mathematics and science (Kopolo, 2009:59). In Limpopo, more than half of the participants in a study admitted that they were teaching mathematics and science with only Grade 12 as their highest qualification (Rakumako & Laugksch, 2010:144).

The aforementioned studies underscore the conclusions drawn by the 2009 Teacher Development Summit (Davids, 2010:4). The Summit reports that a large number of serving teachers was not fully qualified and that most impoverished schools were largely dependent on these teachers. Reliance on unqualified teachers has been identified as a major weakness and that it was increasingly becoming prevalent in the schooling system. For instance, the *Southern and East African Consortium for Monitoring Educational Quality* (SACMEQ, 2000 and 2011) reports that most South African Grade 6 mathematics teachers do not possess desirable levels of mathematics content knowledge (Spaull, 2013:25). The report also highlights the sharp contrast between the quality of mathematics teachers in affluent schools and those that are deployed in impoverished schools. The distinction becomes more apparent when it is reported that quintile five mathematics teachers in South Africa perform at the average level of teachers from the best performing countries in the SACMEQ sample while quintiles one, two and three mathematics teachers in South Africa perform at the average level of the worst performing countries in the SACMEQ sample (Spaull, 2013:27). It is common course that quintile five schools belong to the category of affluent former Model C while the rest of the schools in quintiles one, two and three belong to the category of the historically disadvantaged schools.

With regard to the debate on content knowledge in teaching and how it is being measured or tested, Shulman (1986:9-10) posits that teachers were apparently being criticised for the lack of content knowledge and that the critics often fail to specify the type of content knowledge that teachers were lacking. Shulman explains that content knowledge is divided into three types: subject matter, pedagogical content and curricular. Subject matter refers to the amount and organisation of the knowledge per se in the mind of the teacher and pedagogical content knowledge includes the

understanding of what makes the learning of specific topic easy or difficult while curricular knowledge is represented by a full range of programmes designed for the teaching of particular subjects and topics at a given level (Shulman, 1986:9-10). Implicitly, Shulman suggests that it is imperative for researchers to have an in-depth understanding of what constitutes content knowledge and how teachers acquire, process and impart the acquired content knowledge. Wasserman and Ham (2013:3) agree that “strong content knowledge at many points has been the sole factor in determining qualifications to teach secondary and college level mathematics”. In essence, the authors imply that strong content knowledge in the areas defined by Shulman will give a mathematics teacher confidence that goes beyond formal qualifications.

However, some of the researchers have a viewpoint which suggests that unqualified teachers in the classrooms lacked such content knowledge. Therefore, they also lack this “confidence that goes beyond formal qualifications” as described by Wasserman and Ham (2013:3). The view of these researchers is that unqualified teachers contribute to the production of a new generation of teachers who perpetuate the cycle of mediocrity (Muwanga-Zake, 2011:4–5; Spaul, 2013:25; CDE, 2011:2). In terms of the deployment of unqualified teachers, the learners in rural areas are the hardest hit. The result is that these learners in the under-resourced schools often acquire deficient and rote knowledge of basic concepts (Onwu & Schoole, 2006: 128). The importance of a qualified teacher in a classroom cannot be underestimated. For instance, a study involving impoverished schools in North America established that in addition to challenges such as poor maintenance, overcrowded facilities, out-dated textbooks and a shortage of materials many children in these schools lack the single most important contributor to educational success – a qualified teacher (Futernick, 2002:1).

The Education Trust (1998:1) indicates that those policymakers who intend to boost learner achievement in the classroom should first pay attention to issues of teacher quality and effectiveness. The definition of teacher effectiveness is often stated as the “ability to produce desired changes within the classroom” (National Academy of Sciences, 2001:4). Moreover, there is ample research suggesting that teachers who have a tertiary major course in mathematics and science elicit greater gains from their learners than unqualified teachers (The Free Library 2011:1). Good teaching as well as good learning entails what happens in a classroom and in the communication between the teacher and the learners (Clarke, 2007:206). Quality education and teacher quality, therefore, are linked through teacher qualifications as well as teacher commitment (Lazarus, 2005:56). Teacher quality greatly affects learning because learners learn more from teachers who are skilled, experienced and know what and how to teach (Science & Engineering Indicators, 2008:1).

The implication is that desired changes within the classroom relate positively to the number of education courses taken by teachers, their grades as student teachers and teaching experience (National Academy of Sciences, 2001: 4). These views suggest that teachers that are viewed as effective in the classroom are those that have obtained formal qualifications from credible universities and colleges. In this regard, the Department of Education (2005:46) posits that “qualified teachers are amongst a nation’s most valuable resources as they contribute towards ensuring quality education and a continued flow of skilled young people into the economy”. It is in this context that Boyd, Lankford, Loeb & Wyckooff (2005:2) maintain that the pattern of low achieving learners being taught by teachers with weak academic backgrounds requires solutions. In addition to the challenge of the shortage of qualified teachers, the future prospects of attracting a considerable number of potential teachers appear to be very few. In their study, Maree, Aldous, Hattingh, Swanepoel and Van der Linde (2006:229) imply that the number of Grade 12 graduates with suitable merits in mathematics and science has been decreasing in many schools in spite of the reality of Grade 12 national examination results determining whether a learner will be accepted at tertiary institutions in the fields of mathematics, science and technology.

In a report titled *Doubling for Growth*, the Centre for Development Enterprise (CDE) point out that the levels of enrolment of student and trainee teachers in South Africa were very low, and that only 550 potential mathematics and science teachers graduated from South African universities in 2006 (CDE, 2007:10). The general conclusions that the report draws are that there is a shortage of mathematics and science teachers, some of the current teachers in these subjects were not adequately qualified and that qualified teachers are not evenly deployed in the post-1994 education system (CDE, 2007:10). The issue of the uneven deployment of teachers was more evident in rural areas where schools apparently experience both qualitative and quantitative shortages (DoE, 2005:46). According to Lumadi (2008:37), the deployment patterns could be described as follows:

- most teachers who find employment in urban areas have specialised in mathematics and science;
- teachers who specialised in commerce are mostly employed in peri-urban areas; and
- Teachers who are generalists are most likely hired in rural schools.

It is noticeable that Lumadi’s above findings differ from those of Pitsoe (2013:310) who believes that “teachers who acquire generic human capital are more likely to leave teaching for other jobs, while those who acquire a high level of specific human capital tend to stay in the teaching profession”. Irrespective of the non-convergence of views,

available evidence from literature shows that it is teachers that are posted in rural schools that are most likely to exit those schools even the profession in large numbers (Mhishi et al. 2012:3). However, their departure has not only been attributed to their qualifications but also to bureaucracy, which is “sometimes associated with negative features such as ‘red tape’, unresponsiveness, delay, inflexibility, ineptitude and contrived elitism” (Smit, 2008:78). Research suggests that some of the developing countries have serious systemic challenges regarding the payment of teachers’ salaries. In several sub-Saharan African countries it was found that schools “close for up to a week each month as teachers travel to collect their pay” (Mulkeen, 2010:6).

### **2.4.3. Causes of teacher shortage**

A study conducted by the United Nation Education, Science and Culture Organisation (UNESCO) 2010,11) grouped the causes of teacher attrition into four main categories. First, retirement due to the age profiles of teachers. Second, family or personal factors that include marriage or child care responsibilities. Third, pull of alternative employment opportunities as determined by the economic situation. Finally, work-related factors such as dissatisfaction with working conditions and poor teaching structure, that is, working hours/load/policies (UNESCO) 2010:11). Other researchers have also identified causes of teacher attrition as large class sizes, ambiguous or conflicting role demands, few job rewards deaths, dismissals, resignations and early retirement due to ill-health (Pitsoe, 2013:311; Omwu & Schoole, 2006:127). Research has established that an increasing number of South African teachers were intending to leave the profession. For example, a sample study in KwaZulu-Natal revealed that a significant number of teachers were intending to leave the profession if better career offers come along (DoE, 2005:54). The majority of these teachers were in the fields of technology, natural sciences, economics and management (ELRC, 2005: xvi). The reasons that have been advanced for the intention to quit include workload stress, low salaries, the lack of discipline in schools and the lack of career advancement (Pitsoe & Machaisa, 2012:4).

Overload has become a dominant reason probably because the increased workload has perceptibly not been matched by improvements in the remuneration of teachers and working conditions (DoE, 2005:60). Teachers that are mostly overloaded teach in the predominantly impoverished provinces. Considering that “the effective utilization and development of resources in a school is dependent on the management and leadership skills of education leaders” (Nieuwenhuis, 2007:134), the responsiveness of the South African education system need to be improved in order to ensure that the personal needs of both the teachers and learners are taken care of through management support initiatives. Management support is critical especially in view of the prevalence of

HIV/AIDS among teachers and learners in the education system. Christie (2010:1213) indicates that the pandemic has profound influence on the social and human development objectives of the country as it results in many children becoming heads of households. Thus, they face increased social problems such as hunger and poverty. The effects of teacher attrition have led to calls for the post-1994 education system to produce a new generation of teachers. For instance, the CDE (2011:26) believes that South Africa faces a growing need for greater numbers of younger teachers to replace the departing senior teachers.

However, the concern from SACE (2010:18) is that the high rate of teachers' resignations due to early retirement could result in less experienced teachers remaining in the education system. Pitsoe (2013:315) identifies two conflicting trends that seem to greatly affect quality learning and teaching in the South African schools: increasing learner enrolments and increasing teacher attrition. The risks that emanate from these trends include lower teacher quality and lower educational performance (Pitsoe, 2013:315). In the context of these causes of teacher shortage, the Department of Education acknowledged that the recruitment of qualified teachers for rural schools is a challenge which is exacerbated by low morale and poor working conditions as well as the dire teaching environment in those schools (DoE, 2005:74).

#### **2.4.4. Authority to employ teachers**

Apartheid governance systems were characterized by the over-centralisation of management processes that compromised managerial autonomy as well as quality at the district and school level (Schreuder, 2003:103). Conversely, post-apartheid administration systems are overall characterized by the devolution of decision-making authority that allows for the greater participation of parents, teachers, learners and the community (Ngubane, 2005:6). Reddy (2003:134) explains that under the apartheid government the South African education system was highly centralised and unified. However, the post-apartheid democratic government has attempted to transform the management and administration of schools through the promulgation of the South African Schools Act (Act No. 84 of 1996) Reddy, 2003:134). The Act combined the ANC Education Policy Framework (EPF) of 1994/95 and the National Party's Education Renewal Strategy (ERS). The contrasting ideological positions of these two policies were merged during the multi-party negotiations at the Congress for a Democratic South Africa (CODESA) Samoff, 2008: xi).

According to Samoff, the ERS infused some aspects of the apartheid-designed school governing boards in the South African Schools Act while the EPF introduced practices from the Parents-Teacher-Student Associations (PTSAs) in the operations of the SGBs. The PTSAs were espoused by the National Education Crisis Committee (NECC) which advocated the launch of a “people’s education” as a solution to the deepening education crisis in African communities (Motala & Pampallis, 2005:6). This infusion is evident in section 21 of the South African Schools Act (Act No. 84 of 1996). Under the apartheid government, school governing boards had the authority to employ teachers in accordance with the Education Affairs Act (Act No. 70 of 1988) of the House of Assembly (Beckmann & Prinsloo, 2009:176). There is a striking similarity between the apartheid school governing boards and the post-1994 school governing bodies. For instance, the school governing boards in white schools had the power to appoint their own teachers while those of African communities had such power and they were mainly used for fundraising through the levying of user fees (Chaka, 2008:8). It is noteworthy that parents in white affluent schools did not pay user fees under the National Party government (Chaka, 2008:8). In a post-apartheid South Africa however school governing bodies bear some form of financial responsibility. The preamble of the South African Schools Act (Act No. 84 of 1996) indicates that the school community and government have a cost sharing partnership:

While this country requires a new national system for schools which will redress the past injustices in educational provision, provide an education of progressively high quality for all learners and in so doing lay a strong foundation for the development of all our people’s talents and capabilities, ...contribute to the eradication of poverty and the well-being of society, uphold the rights of learners, parents and educators, *and promote their acceptance of responsibility for the organization, governance and funding of schools in partnership with the State* [own emphasis] (RSA, 1996b:3-4).

The implication is that school governing bodies have a responsibility of supplementing government resources in accordance with the provisions of the South African Schools Act (Act No. 84 of 1996). Furthermore, the composition of school governing boards differed from that of school governing bodies. The former consisted of parents only (Chaka, 2008:8) while the latter is composed of parents, teachers, non-teaching personnel and learners at the secondary school. However, learners in the primary schools are precluded from the school governing body. Most importantly, school governing bodies have more powers than due to the change of the political discourse in the country. The apartheid government adopted a centralized approach while the post-1994 government advocates decentralization (Weber, 2008:19–20). Government believed that the devolution of certain responsibilities to the school community will facilitate the



transformation of the education system at its foundations through the establishment of SGBs and the participation of parents, teachers, learners and non-teaching staff in the decision-making process (Weber, 2008:19–20). In spite of the democratisation of governance structures in a post-apartheid South Africa, there are huge challenges regarding the status and quality of management as well as governance structures at school level (Schreuder, 2003:104). According to the Organisation for Economic Cooperation and Development (OECD) review on South Africa, many poorly-equipped SGBs in the country struggle to fulfil their basic functions mainly due to the lack of skills (OECD, 2008:142). Conversely, the report suggests that in former white schools the SGBs function much better because of their status to recruit governors with good communication and financial skills to deal with complex functions such as preparing and managing school budgets (OECD, 2008:142). Similarly, Chisholm (2004:17) agrees with this view on the varying status of SGBs between affluent and impoverished schools. Implicitly, the devolution of authority to the SGBs amid the socio-economic anomalies has only provided racially and economically defined communities with the legal means to preserve their privileges (Meier & Hartell, 2009:184). Furthermore, Chisholm notes that most SGBs in the impoverished schools are dominated by principals and teachers while those in the affluent former white schools are dominated by white middle-class parents (Chisholm, 2004:17).

The devolution of decision-making has created a partnership between the state and parents regarding the sharing of responsibilities such as the provision of additional resources including the employment of additional teachers. The result of these factors is the adoption of two types of teaching posts in the education system, namely those that are funded by the provincial government (i.e. “funded posts”) and SGB posts. These two types of teaching posts are regulated by the Employment of Educators Act (EEA (Act No. 76 of 1998) and the South African Schools Act (SASA (Act No. 84 of 1996) respectively. Government posts or “funded posts” are created by a Member of the Executive Council for Education (MEC) in a particular province, while SGB posts are created by the respective governing bodies. From 1998, the funded posts have been allocated and distributed to schools on the basis of an affordability-driven post provisioning model (Department of Education (DoE, 2005:72). The model is based on the principle of distributing available posts proportionally among schools in terms of the number of weighted learners (DoE, 2002:2). The model is determined by the Minister of Basic Education, in consultation with Treasury and the MECs (Carnoy & Chisholm, 2008:9). Although the Provincial Head of Department is responsible for the allocation of the posts as the employer of teachers in a province, the salaries and conditions of employment are the responsibility of the Minister of Education (DoE, 2008b:81). However, any appointment, promotion or transfer to any post on the teacher establishment is subject to the recommendation of the SGB (DoE, 2008b:81).

Apparently, the centralisation of the appointment of teachers was aimed at ensuring cohesion and adherence to “the principles that underpin such appointments” (DoE, 2008b:81). Some of these principles indicate that when the Provincial Head of Department (HoD) appoints a teacher, the ability and the need to address the imbalances of the past must be considered (DoE, 2008b:81).

According to these principles, the process regarding the filling of funded posts derives from the annual surveys that PEDs conduct in schools regarding the submission of school data to provincial offices in the last quarter of the school year (Carnoy & Chisholm, 2008:9). In an event where school data show a decrease in learner enrolment at the start of the school year, the affected school will have excess teachers whose details are then written in an excess list that contains the profiles of the teachers that will be redeployed to other schools that face a shortage (Carnoy & Chisholm, 2008:9). The redeployment of excess teachers to the former Model C schools was more difficult. Several affluent schools were apparently unwilling to receive excess teachers that were redeployed by PEDs, maintaining that redeployment violated the rights of SGBs to recommend teachers in accordance with the South African Schools Act (Act No. 84 of 1996 (Jansen & Taylor, 2003:31). However, the devolution of responsibilities to the SGB has also led to a raging debate regarding the post-1994 government’s commitment to the eradication of apartheid inequities in the provision of quality education. There are those who were opposed to the devolution of functions on the grounds that decentralisation will stifle the post-1994 education transformation in the country. Prew, Msimango and Chaka (2011:7) refer to this process of devolution as decentralization and that it works better in an education environment that is characterized by the absence of inequalities. Similarly, decentralisation can create uncertainty as to which level of government or which decision-maker is responsible for what (USAID, 2005:1). Therefore, the *“key to decentralization is to identify exactly what the government’s role in decision-making should be”* (World Bank, 2007:5). The challenges that government faced during the rationalisation process of 1996 serve as examples of uncertainty in decision-making processes due to decentralization of authority. Jansen and Taylor (2003:31) cite challenges related to the implementation of the redeployment policy and mention that several affluent SGBs were reluctant to select teachers from the excess list that was provided by PEDs. These schools believed that compelling them to hire teachers from the PEDs’ excess list was a violation of their right to recommend teachers as per the provisions of the South African Schools Act (Act No. 84 of 1996 (Jansen & Taylor, 2003:31). This apparent uncertainty in decision-making has often led to tensions and legal disputes between provincial Departments of Education and school governing bodies, particularly with regard to the recruitment, appointment and promotion of teachers. For instance, some of the SGBs in former Model C schools tend to believe that the provincial Departments of Education are unwilling to promote linguistic diversity

and mother tongue instruction as enshrined in the Constitution of the Republic of South Africa (Smit & Oostuizen, 2011:65). Some of the disputes between SGBs and PEDs have already been adjudicated by the courts of law. Examples of disputes that have been resolved in the courts of law include the following:

- *Settlers Agricultural High School v, Head of Department of Education, Limpopo Province, 2002*. The SGB at this school had recommended a candidate as principal but the Head of Department rejected the recommendation and appointed another candidate to the post in accordance with section 3(f) of the EEA of 1998. the SGB referred the matter to the court of law where they succeeded in overturning the decision of the Head of Department (Beckmann & Fussel, 2011:567);
- *Head of Western Cape Education Department v Governing Body of Point High School*. Similar to the Settlers dispute above, the Head of Department in the Western Cape had declined the school governing body recommendations for the appointment of a principal and deputy principal respectively. The school governing body approached the court of law and the judge ruled in favour of the school. The judge argued that the reasons of the Head of Department regarding equity were not relevant because all the candidates recommended by the SGB and those appointed by the Head of Department were all white. In such a case, the judge explained: “[o]n the broad ground of unreasonableness as contemplated in s 6(2)(h) [of the EEA], in my view the HoD proceeded without a proper understanding of the discretion which he was called upon to exercise” (Beckmann & Fussel, 2011:567); and
- *Ermelo Hoerskool v Departementhoof, Mpumalanga Departement van Onderwys, 2009*. This court case was a result of a dispute over the language and admission policies of the school governing body. These policies were seemingly contrary to the requirements of both the national and provincial Departments of Education. The provincial Department of Education withdrew the functions of the governing body in accordance with section 25 of the South African Schools Act (Act No. 84 of 1996) Smit & Oostuizen, 2011:68).

Disputes such as the above were being exacerbated by what appears to be a confrontational relationship and disputes between teacher unions and school principals as well as SGBs. These persistent disputes are mainly related to the appointment of teachers, seemingly the active participation and influence of principals and representatives of teacher unions in the interview committees contribute to tensions in the process of filling vacancies in the schools. Most of the disputes can be attributed to

efforts that are aimed at swaying SGB recommendations towards the interests of principals or teacher unions. The EEA clearly prescribes against the undue influence in the appointment of teachers. Sub-section 3(a) of section 6 in Chapter 3 of the EEA proscribes that the Head of Department has the authority to decline a recommendation of the SGB if “sufficient proof exists that the recommendation of the said governing body...was based on undue influence”. In spite of the above prescripts, Zengele (2013:605) posits that the teacher component of the SGB which is made of teachers manipulate the selection process due to the insignificant role that parents play in SGBs, particularly with regard to those in impoverished communities.

The dominant and most influential teacher union in the country, SADTU, is being accused of manipulating SGBs in order to implement its cadre deployment policy. According to Smit and Oosthuizen, SADTU uses its dominance to disrupt schools and to “unlawfully” interfere with the recommendations of SGBs to appoint teachers. Similarly, Pattillo (2012:59) asserts that local SADTU leaders allegedly tamper or throw away applications in the district office or solicit bribes in exchange of posts, especially leadership posts. The result of these concerns and accusations against teacher unions is an increasing pressure on teacher unions to abstain from what critics see as unnecessary disruption and political actions and focus on labour issues (Smit & Oosthuizen, 2011:64). In addition, Zengele (2013:88) posits that on 8 June 2008 district 12 of the Gauteng Department of Education faced a two week strike by SADTU affiliated teachers. The strike was apparently caused by the refusal of the District Director to endorse the appointment of two candidate principals who were preferred by the union (Zengele, 2013:88). Zengele further argues that there are scores of SADTU officials who were undeservedly promoted to management positions such as those of principals despite having lower academic qualifications.

Zengele concludes that the inappropriate involvement of unions by ignoring their observer status (i.e. as stated in the EEA) leads to the infringement of the rights of teachers and result in poor performance by disgruntled teachers who may feel discriminated against during the filling of promotional posts, particularly if this infringement goes unchecked by the department of education (Zengele, 2013:89). Pattillo (2012:58) argues that the main way that SADTU affects school leaders is through its unwritten policy of patronage-based political appointments called cadre deployment. This cadre deployment apparently allows the union to deploy its members to school leadership positions irrespective of qualifications. According to Pattillo, SADTU learnt this cadre deployment from its close association with the ANC which made possible for SADTU leaders to move up into positions of power in the government (Pattillo, 2012:71–72). However, Chisholm (2003:6) explains that teacher unions play a powerful role in South African society. With regard to the influence of SADTU in

education, Chisholm asserts that the union has close personal and political ties with the new department officials because many of its members were catapulted into leadership positions in the new national and provincial Departments after 1994, the union however often finds itself at odds with these department officials over policy.

Chisholm, however, postulates that the close relationship between SADTU and government originates from the union's years of anti-apartheid struggle. Bascia and Osmond (2013:20) explain how the historical relationship of the struggle against apartheid was consolidated through legislation. The National Education Policy Act (NEPA) Act No. 27 of 1996) makes provision for the government to formally consult with teacher unions and other educational stakeholders as a prerequisite to passing any education legislation. In addition, the Labour Relations Act (Act No 66 of 1995) states that all employees including teachers have the right to collective bargaining and to strike (Bascia & Osmond, 2013:20). Mahlangu and Pitsoe (2011:366) expand on this debate and explain that legal frameworks determine whether collective bargaining is permitted and on what terms will it be carried out. These authors also argue that:

Teacher unions increasingly work strategically with others in the educational system to not only initiate but also to sustain coherent and comprehensive reform. Beyond their capacity for daily practice, teacher unions appear to serve as test-beds for certain kinds of innovations that might take years of planning and strategic work to come to fruition (Mahlangu & Pitsoe, 2011:366).

The aforementioned remark suggests that there is nothing untoward when teacher unions partner with education authorities to advance a particular reform programme within the parameters of the legislation. Similarly, Bascia and Osmond (2013:6) mention that teacher union-government relationships occur in a reform context focused on improving educational outcomes at a time of increased competition among countries as well as economic austerity. Given that teachers are the objects of these reforms, teacher unions are pressed to advocate on their behalf (Bascia & Osmond, 2013:6). These previously mentioned authors further indicate that South Africa is not immune to types of reform that emphasise new forms of management and teacher accountability. In response to this reform initiatives, teacher unions defend their members' interests while they are encouraged to work with government in developing policy and to uphold standards of "professionalism", particularly with regard to the need to address issues of productivity and efficiency, mechanisms for performance management, discipline and dealing with incompetence (Bascia & Osmond, 2013:6).

Despite the apparent positive role that teacher unions play in the education reform process in South Africa, the balance of power seems to have slightly shifted from government and tilted towards teacher unions, particularly on issues of teacher recruitment and appointment. This assertion is supported by evidence from the government's 2030 vision as reflected in the National Development Plan (NDP). The NDP reveals that the intent of government is to reclaim authority the appointment, discipline of teachers as well as general leadership and management in education. In this context, the National Development Plan states the following:

The administration of education (including appointment and disciplining of teachers) is the preserve of the government, with unions ensuring that proper procedures are followed (RSA, 2011:266).

The remark above is suggestive of a standoff between government and teacher unions regarding the issues mentioned in the excerpt. Similarly, the SADTU 2030 vision (SADTU, 2010:8) suggests that the union is reluctant to forego its influence in the education reform process including its apparent active participation in the process of filling vacancies in a post-1994 education system. These intentions are evident in the union's 2030 vision envisages, for the next 20 years. The vision envisages a SADTU that "wields, through cadre deployment and influence, the established instruments of the state in line with the strategic objectives of SADTU" (SADTU, 2010:8).

#### **2.4.5. Effects of user fees on teacher recruitment**

The South African Schools Act (Act No. 84 of 1996) also grants SGBs to levy user fees after a majority vote at a general meeting of parents (Harber & Mncube, 2011:236). The levying of user fees can either be seen as an acceptance that government has insufficient resources or an embrace of the World Bank economic structural adjustment programmes that have been imposed on developing countries to shift the balance of education funding from the public to the private sphere (Reddy, 2003:136; Harber & Mncube, 2011:236). According to Sayed (2008:10), the levying of user fees introduced a market mechanism that encourages the generation of additional resources based on the principle of self-interest. User fees potentially perpetuate inequality because schools that are serving affluent communities can afford to levy high user fees and utilise them to maintain their world-class facilities and employ more teachers while schools in impoverished communities will not be able to do so (Harber & Mncube, 2011:236; OECD, 2008:155). Thus, the practice gives rise to a picture of a two-tiered schooling system - one serving the rich and another serving the poor (Whittle, 2007:157).

When affluent SGBs utilise user fees in order to attract additional teachers, they seem to recruit only qualified teachers that are then deployed in ways that lower class sizes. Class size is defined as the number of learners in a class for whom a teacher is primarily responsible over a period of a year (Kornfeld, 2010:10). Large class sizes influence schools to reproduce the very inequalities that education is meant to tackle (Mpokosa & Ndaruhutse, 2008:29). According to the International Labour Organisation/United Nations Education, Science and Culture Organisation (ILO/UNESCO (1966:45), class sizes should be kept low in order to allow teachers to provide individual attention to learners because this is a characteristic of quality education. The OECD (2008:155) reports that the South African education system has performed very well with regard to equity in non-personnel funding through its pro-poor policies.

However, with regard to personnel funding the report indicates that government seems to emphasise equality while equity remains elusive. The result is that children from impoverished backgrounds who need more individual attention are taught in classes of between 30 and 50 learners and this makes it difficult for teachers to pay special attention to individual children (OECD, 2008:155). The *Emerging Voices* report of the Nelson Mandela Foundation (2005:49) indicates that class sizes do not only vary between schools but even between the predominantly rural provinces. In the provinces of Limpopo and the Eastern Cape teachers taught larger classes than the official norm and this situation differed from that of other rural provinces such as KwaZulu-Natal (Nelson Mandela Foundation, 2005:49). Despite the raging criticism on the devolved functions to the SGBs and the associated effects, Clarke (2007:114) posits that the SGB posts are an advantage for schools because these posts are practically simpler to fill than the funded posts. According to Clarke, the filling of SGB posts is not subjected to the protracted Education Labour Relations Council (ELRC) negotiated procedures that make the filling of funded posts more complex.

#### **2.4.6. School leadership and performance management**

The inequalities of the post-1994 education system are exacerbated by varying levels of commitment and competency in the leadership and management of both affluent and impoverished schools. Poor management of the South African education institutions and personnel is frequently attributed to the apartheid legacy. Steyn (2002:252) maintains that poor management is a result of the lack of legitimacy created by apartheid policies. Similarly, Moloji (2007:463) states that the majority of the current African teachers and school leaders began their careers under the apartheid regime where they were required to practice in racially prescribed settings. The irony is that during its twilight, the apartheid government contributed to the legislative framework within which African teachers and school leaders have to be confined albeit in a democracy. The contribution

was initiated and implemented between 1991 and 1992 when the Minister of Education in the white only House of Assembly, Piet Claase, declared that white state schools were to convert to the following models (Whittle: 2007:77):

- Model A: the model allowed state schools to convert to private schools;
- Model B: the model permitted white schools to open admission to learners from other racial groups but not in excess of 50 per cent of the learner population;
- Model C: this model allowed the 100 per cent white schools to open admission to learners from other racial groups but not in excess of 50 per cent. The state subsidy was to be reduced from 100 per cent to 75 per cent; and
- Model D: these white schools were allowed to recruit an unlimited number of learners from other racial groups in order to ensure the financial revival of these dwindling schools due to declining enrolment from white learners.

The introduction of decentralisation on the eve of the collapse of apartheid rule was interpreted as a move intended to protect white parents' privileges (Christie, 2010:701). Nonetheless, these models were eventually catapulted into the South African Schools Act (Act No. 84 of 1996). This Act integrates two conflicting ideologies from divergent community backgrounds with regard to the interpretation of community participation. Therefore, the meaning of the devolution of responsibility to the lower levels has come to represent two schools of thought. Apparently, to the white school community the devolution means full control of the schools while the African community view devolution as being involved in decision-making. Therefore, the introduction of school-based management (SBM) principles through the South African Schools Act implies two varying approaches in the South African schools. The World Bank (2007:2) defines SBM in a manner that creates a better understanding of the South African schooling discourse. According to the World Bank (2007:2), school-based management (SBM) refers to the decentralization of authority from the central government to the school level, that is, to teachers, principals and parents.

However, decentralization takes place within an understanding that school-based role-players operate within policies determined by central government (World Bank (2007:2). According to (Christie, 2010:700) this constitutes a “countervailing or contradicting trend, whereby the state takes on new centralist functions” such as: putting in place national curriculum, formulating strategic objectives for the education system including schools, setting standards of practice, monitoring quality and establishing accountability measures. The report of the World Bank explains that the application of SBM in developed countries ensures that schools have full control of the management of



everything in the school while developing countries only focus on the involvement of the school community in the decision-making process but without full control (World Bank, 2007:2). It is, however, the practical application of the SBM principles that reveals the effects of SBM on the developing countries. These principles relate to choice and competition, school autonomy and school accountability.

*Choice and competition:* the belief is that parents who are interested in maximizing their children's learning outcomes are able to choose to send their children to the most productive school (in terms of academic results) that they can find. The principle suggests that the demand-side pressure will improve performance of all schools if they want to compete for learners. In the case of South Africa, the application of this *choice and competition* principle is already evident in the increasing number of children from middle class African households in the Model C schools that previously served white affluent communities but there has been no movement by white learners into the predominantly African schools (Chisholm, 2004: 11). It is in this context that Chisholm (2004:7) argues that education development and the emerging systems in a post-apartheid South Africa have favoured an expanding racially-mixed middle class.

According to Ndimande (2012:18), the major reason for parents to send their children to former Model C schools is the abundance of the schools' resources. Add the ability of these schools to compete for the highly qualified mathematics and science teachers. However, Ndimande states that most of the parents are conflicted in their choice because some of them are concerned about the racial biases of some of the white principals considering that there are no principals of African descent in these former Model C schools (Ndimande, 2012:18).

*School autonomy:* the assumption is that the devolution of decision-making and financial authority can have positive effects on school outcomes by holding schools accountable for the output or results they produce. In terms of the South African Schools Act (Act No. 84 of 1996), only school governing bodies that have the requisite skills in the management of finances can have such functions devolved to them in accordance with section 21 of the Act. School governing bodies that do not have capacity to manage finances remain under section 20 and the functions are not devolved to them (RSA, 1996:13). The implication is that only section 21 schools can be viewed as ready for the application of SBM principles as interpreted in the developed countries. Most of the former Model C have section 21 functions while the bulk of the historically disadvantaged schools remain under section 21. Despite these preconditions all schools in Mpumalanga were granted section 21 functions in 2004 in spite of their varying capacity in the management of finances (Thwala, 2010:27).

*School accountability*: this principle compares schools to private firms or industry. Parents and learners are seen as “clients” while schools are viewed as service providers that should be held accountable for good quality and timely service (World Bank (2007:2). Christie mentions that the tendency to view schools as service providers, parents and learners as clients derives from business and industry where teachers are seen as “human resources”. The aforementioned belief that the SBM principle of *choice and competition* leads to a demand-side pressure that may result in the improvement of performance in all schools if they want to compete for learners does not necessarily represent the South African school reality. For instance, most impoverished schools experience a continuous loss of learners to former Model C schools but there has been little evidence suggesting that these schools were determined to compete for learners through performance. Instead, a study on the culture of learning and teaching found that some of these schools were collapsing (Christie, 1998:290). According to Christie, absenteeism, low morale and violence are the characteristics that are peculiar to these schools that are thought of as dysfunctional (Christie, 1998:290). These characteristics were also identified by Mpokosa and Ndaruhutse (2008:35) who assert that poor teacher management may lead to three major knock-on effects: teacher emigration and attrition, teacher absenteeism, and irregular learner attendance. Taylor (2009:26) adds that the loose approach to teaching and learning time in most South African schools manifests itself through a loosely framed school day that allows both learners and teachers to come and go as they please, non-adherence to the timetable and very slow pacing in the classrooms. All these features are symptoms of a collapsing organisation.

Christie further explains that when a school breaks down teaching and learning become subordinated to unconscious group activity whereby social relations and office politics get more attention than substantive work. The Centre for Development Enterprise (CDE (2011:6) agrees with suggestion regarding teacher absenteeism and further argues that the country will not succeed in reforming the education system if teachers who are present only for three days a week continue to receive salaries like anyone else. The proposed solution from the CDE is that the powers of principals to hire and fire teachers should be enforced. However, government regulations indicate that the authority to hire and fire teachers resides with the provincial Head of Department and not with the principals. Section 18 of the Education Laws Amendment Act (Act No. 53 of 2000) only allows principals to institute disciplinary measures on less serious misconduct cases such as absenteeism.

The aforementioned situation however does not occur in urban-based schools that fall into the former Model C group which still seem to enjoy some of the advantages from the days of segregated schooling (Schuster, 2011:49). The apparent lack of qualified teachers in the majority of impoverished communities has resulted in the emigration of

many African children from better socio-economic backgrounds to former Model C schools (Schuster, 2011:50). In the light of this discussion, it is apparent that the apartheid culture of neglecting the education of the African communities has resulted in a huge backlog not only in terms of infrastructure programmes but also with regard to education leadership as well as the development of management capacity. Although the post-apartheid government seems to have realised the anomalies in the two sub-systems of education as derived from the apartheid legacy, the NDP provides a broad framework which spells out the opposite of what is currently happening. For example, the NDP strives towards achieving a schooling system that is characterised by, among others, learners and teachers who are highly motivated, principals who are effective managers that provide administrative and curriculum leadership, committed and professional teachers that have good knowledge of the subjects they teach as well as schools and teachers that are supported by knowledgeable district officials by the year 2030 (RSA, 2011:266).

The major challenge that government faces is to turn this broad vision into practice. Sayed (2008:8) asserts that the continuing exodus of African learners to former Model C schools as well as performance management deficits in most impoverished schools, government faces a challenge of striking an acceptable political balance between the commitment to strong forms of citizen participation and the need for a strong state intervention (Sayed, 2008:8). Any inability to turn all schools into vibrant learning institutions poses the threat of education in the post-apartheid South Africa to *reproduction* (Harber & Mncube, 2011:234). According to Harber and Mncube, education as reproduction happens when an education system seems to be opening up opportunity for all and contributing to the development of an economic and social system based on open competition, achievement and merit. An analysis of such an education system tends to reveal that the system merely serves to reproduce things as they are because children from impoverished backgrounds go to poor schools and then into poorly paid jobs, low status jobs or unemployment while only a small number of children from poor backgrounds succeed. This provides an appearance of a meritocratic system while in reality it perpetuates and reproduces inequality (Harber & Mncube, 2011:234).

Already there is growing criticism which sees the political shift from apartheid rule as the creation of a democratic state committed to reliance on the market and fiscal austerity enabled political incorporation, but little respite from poverty and unemployment (Chisholm, 2004:11). School principals and education managers in the country are generally expected to ensure that education transformation does take place irrespective of these socio-economic contradictions (Moloi, 2007:464). It is under these circumstances that the appointment of a new principal in a post-1994 education system

can make or break a school (Nelson Mandela Foundation, 2005:109). A school requires an effective principal in order to achieve its goals that include facilitating the eradication of poverty and unemployment through classroom effectiveness. A school that is without an effective leader or principal is unlikely to have a culture of high expectations or continuous improvement (Schleicher, 2007:41). Leithwood et al. (2007:13) suggest that principals play a very important role in the creation of a positive school culture (Leithwood et al. 2007:13). South African schools are expected to adjust to the challenge of the quick and incessant production of new policies, as well as the restructuring and redefining of the whole education system in order to achieve quality education (DoE, 2008b:72). In this context of these post-apartheid educational changes, school principals are required to “assume greater responsibility under difficult circumstances for the management of all those who work in their schools” (Thurlow, 2002:15).

Further research suggests that without appropriate training in teacher management, most principals tend to manage according to the way they were managed during their time as classroom teachers, which could replicate bad management practices of the previously untrained managers (Mpokosa & Ndaruhutse, 2008:26). The problem of incapacity at the school level has also been noted by the national Department of Education (DBE, n.d.), especially in the monitoring and evaluation of the implementation of mathematics and science strategies. The department suggests that there were problems in the implementation of policy at the lower levels of the system (DBE, n.d.). Equally, the OECD (2008b:146) review team reports that in the course of its field visits it could see and hear that some reforms did not reach schools and classrooms. According to the team’s observations, the capacity of some provincial departments and of school leaders to manage change and introduce reforms should be improved. The NDP is also an attempt to enable school principals to effectively manage change and provide administrative as well as curriculum leadership. The implication is that principals are required to lead processes such as classroom observation for the purposes of developing the teachers. The most crucial feature of classroom observation is the requirement that principals should create time and provide regular feedback to teachers (Mashaba, 2012:96). Feedback from well organised classroom observations usually allows teachers to integrate their knowledge about the curriculum and about how to teach effectively (Timperly, 2008:11). In addition, classroom observation enables school principals to identify and appreciate deficiencies as well as challenges in the teaching and learning process (DoE, 2008:70). A previous study found that teachers view in-service programmes as being helpful in achieving high standards, keeping teachers updated, increasing teacher self-worth and enables teachers to react appropriately to the challenges brought about by advancement in science and technology (Komba &

Nkumbi, 2008:75). According to Glickman (1990:4–5), classroom observation remains a critical aspect of any education system:

Supervision is the glue that holds a successful school together... a process by which some person or group of people is responsible for providing a link between individual teacher needs and organizational goals so that individuals within the school can work in harmony towards their vision of what the school should be (Glickman, 1990:4–5).

Despite the aforementioned positive factors regarding teacher management and staff development, there is research evidence which suggests that schools in several developing countries are unable to foster an ideal working environment that improves quality teaching and learning (Kubberud, Helland & Smith, 1999:10). Some of these countries school principals tend to leave classroom observation to external education officials (Mpokosa & Ndaruhutse, 2008:27). In Kenya, for example, it was established that the majority of principals did not employ teacher appraisal, either because they lacked experience or that teachers felt victimized and intimidated by their principals (Mobegi et al. 2010:411). Equally, Bush, Joubert, Kiggundu & Van Rooyen (2009:4) also conclude that most principals in the provinces of Limpopo and Mpumalanga have a weak grasp of teaching and learning as well as the lack of awareness of the new National Curriculum Statements (NCS). The authors understood these as indication that the management of teaching and learning does not appear as central to these principals. However, it is important to note that the NDP is a sequel to earlier policies that were intended to promote good management and accountability within the 82 district offices in the country and among school principals as the national department of education pledged to improve organisational efficiency (DoE, 2005:23):

We will also focus on our administrative support internally to the Department and education support to provinces, schools and parents. We will focus on effective strategies for the provisioning, procurement and accountability.

The preceding excerpt indicates that the post-1994 education system faces quality issues in respect of teaching and learning as well as management. Therefore, the introduction of the NDP is apparently a broad strategy which is aimed at a holistic solution that will guide the country to the year 2030.

#### 2.4.7 Strategies of addressing the shortage

Education authorities in South Africa introduced several policy reforms with the aim of mitigating causes of the shortage of qualified teachers and skewed deployment in mathematics and science. Some of the initiatives are discussed below.

***Dinaledi schools:*** In 2001 government introduced the *National Strategy for Mathematics, Science and Technology Education*, which led to the identification of about 500 dedicated *Dinaledi* (Stars) schools (DoE, 2001:12). Government premised the idea of dedicated schools on the understanding that good mathematics and science teaching is expensive and that related resources such as well-resourced laboratories, libraries, and qualified and competent teachers are scarce (DoE, 2001:15). The national Department of Education (2009b:6) reports that the programme was initially intended to focus on improving the performance of African learners and their schools. Therefore, secondary schools that achieved 35 passes by African learners in mathematics during the then Senior Certificate examinations were to be included in the programme (DoE, 2009b:6). The identified schools were provided with additional posts beyond those that are allocated in terms of the post establishment (DoE, 2009b:6).

Presumably, this initiative was intended to enable teachers to pay individual attention to all learners. The goals of the *Dinaledi* schools are similar to the STEM which was introduced in the US (Thomasian, 2011:5). Although the policy focused on few selected schools, it did not preclude other schools from offering basic mathematics, science and technology to their learners (DoE, 2001:15). However, on June 2013 the provincial and national Departments of Basic Education reported to the parliamentary committee that the project was experiencing challenges. These challenges suggest that on average the results of the *Dinaledi* school programme were “nowhere near commensurate with the amount of money spent on the Grant” (RSA, 2013:2772). In addition, the teacher training that the national Department of Basic Education provides in the provinces has no reliable pre- and post-training assessment to determine whether the training was value for money or not (RSA, 2013:2772). More importantly, the DBE mentioned that some of the *Dinaledi* schools were losing mathematics and science teachers who were taking up promotional posts elsewhere. These challenges imply that the supply of mathematical and scientific skills will be further delayed.

***Funza Lushaka programme:*** government introduced the *Funza Lushaka* (Educate the Nation) bursary scheme in 2007 in order to encourage university candidates to pursue teaching as a career, particularly in the fields of scarce subjects such as mathematics, science, technology and languages (DoE, 2009:8). This bursary scheme provides for the deployment of its graduates to needy schools for the number of years they had received

the financial assistance (Mda, 2009:51). Although the *Funza Lushaka* programme includes beneficiaries for the teaching of languages, *Funza Lushaka* graduates in this study strictly refers to those in the fields of mathematics and science. The introduction of the bursary scheme gave hope to the education authorities who anticipated an increase in the number of qualified mathematics and science teachers (DoE, 2006:11-12). Despite the huge financial investment that government makes in the *Funza Lushaka* programme, various studies show that the education system has not been able to take up all the *Funza Lushaka* graduates (DBE, 2011:40). Despite systemic shortcomings that affect the placement of the *Funza Lushaka* graduates in schools, the NDP intends to produce about 450 000 learners that are eligible for bachelors programme with mathematics and science by the year 2030 (RSA, 2011:289). Meanwhile, education authorities report that some of the *Funza Lushaka* graduates decline posting in rural schools (DBE, 2011:40). The reluctance of these graduates to accept posting in rural schools can be attributed to the reality that South African teaching vacancies not being filled by assignment but by a competitive recruitment and appointment process organised by individual schools (DoE, 2005:72).

**Financial incentives:** despite the similarities in qualifications, teachers that were employed prior to 1994 in certain homeland administrations were paid less than teachers employed by other departments such the House of Assembly (former-white education department (Jansen & Taylor, 2003:29). These disparities were subsequently reduced in the 1996/97 financial year when the salary structures for teachers were merged into a single salary scale which adjusted all salaries upward (Jansen & Taylor, 2003:29). Literature indicates that between 1988 and 1992, the basic salaries of teachers drastically increased but the increases were not uniform because white male teachers received less, while African female teachers received the biggest increases (Armstrong, 2009:3-4). Conditions of service are continually adjusted to respond to challenges of recruitment, especially for teachers in rural areas (DoE, 2006:13). Despite salary increases, Van der Berg and Burger (2010:11) explain that South African teachers feel that they are being underpaid when compared to people in other professions. This situation has been aggravated by the suspension of the experience-based increments in 1995 (Gustafson & Patel, 2006:71). As a result, wage increases for experienced and highly qualified teachers in South Africa stagnated and became lower than those of young and less qualified teachers (Van der Berg & Burger, 2010:11; SACE, 2010:8). However, on the 3<sup>rd</sup> of April 2008 teacher unions and the Department of Education signed the Collective Agreement No 1 and 2 on the Framework for the Establishment of an Occupational Specific Dispensation (OSD) for teachers (ELRC, 2008:1). This OSD agreement sought to introduce:

A proper career pathing [sic] model that does not entail automatic increases but a forward looking plan to systematically increase salaries after pre-determined periods based on specific criteria such as performance, qualifications, competences, scope of work and experience will be put in place (ELRC, 2008:1).

According to Mahlangu and Pitsoe (2013:71-72), the OSD has a number of aims that encompass improved conditions of service for employees and addresses the challenges of attracting and retaining teachers in the profession. These authors further explain that the OSD is underpinned by key features such as salary progression which is linked to the performance of teachers, a teacher who performs at a satisfactory level progresses by one notch every two years, a teacher who performs at a good level progresses by two salary notches every two years and a teacher who performs at an excellent level progresses by three salary notches every two years. Although the OSD allows good teachers to remain in the classroom and receive salaries that are equivalent to those earned by school principals, the disadvantages are that there is no recognition of experience and of academic qualifications that were obtained before 27 April 1994 (Mahlangu & Pitsoe, 2014:74). Research reveals that the OSD targets teachers in all the school subjects while the National Policy for Teachers Education and Development encourages PEDs to focus on the improvement of salaries and incentives for mathematics and science teachers.

**Recruitment of expatriate teachers:** very little research has been conducted on the movement of expatriate teachers into South Africa (SACE, 2011:9). However, evidence suggests that the perception of a surplus of teachers in the country has delayed the employment of expatriate teachers in the schools (Appelton, Morgan & Sives, 2006:776). According to Johnston and Bernstein (2007:34-36), the entry of foreign teachers in the country was made more difficult by inflexible immigration policies. These authors view the annual numerical quotas in the Immigration Amendment Bill as protectionist. The quotas require foreign applicants to have five years' experience so that they do not compete with newly qualified South Africans. Equally, the quotas seem to be restricting and discouraging efforts aimed at the recruitment of skilled foreign skills (Johnston & Bernstein, 2007:34-36). However, the National Planning Commission (RSA, 2011:289) supports the relaxation of the country's immigration requirements in order to attract highly skilled foreign teachers in the fields of mathematics and science from across the East and Southern African Community region.

Although research indicates that qualified mathematics and science teachers emigrated during the rationalisation process of 1996, Appleton et al. (2006:139) argue that the emigration of these teachers had little effect on the schooling system because most of



those teachers were from affluent former white schools and were successfully replaced through SGB funding. A successful recruitment process involving foreign teachers has to satisfy four requirements: evaluation of the international teaching qualifications by South African Qualifications Authority (SAQA), application for a work permit issued by the Department of Home Affairs (DHA), registration to the South African Council for Educators (SACE) and meet employment requirements (Keevy, Green & Manik, 2014:22-25). With regard to service conditions of the foreign teachers employed in South African schools, the initial uncertainty that existed before 1997 was cleared by the Constitutional court judgment delivered on 27 May 1997. The judgment annulled section 2(2) of the previous Educators Employment Act (EEA) Act No. 138 of 1994). This Act was declared unconstitutional because it stated that:

No person shall be appointed as an educator in a permanent capacity, unless he or she is a South African citizen and meets the requirements of section 212(4) of the Constitution of the Republic of South Africa.

The court found the above phrasing discriminatory to foreign teachers that have obtained permanent residence permits in South Africa. In essence, the judgment implies that foreign teachers in possession of permanent residence permits should be afforded equal treatment to that offered to South African citizens in terms of service conditions. The judgment strengthened the policy of the Department of Home Affairs which differentiates between foreigners that have been granted temporary residence and work permits as well as foreigners that have obtained permanent residence permits. During the court proceedings, Judge Mokgoro made reference to the policy which reads: “*an expatriate lawfully in possession of a South African Permanent Residence permit be granted the same privileges as South African citizens...*” Mokgoro, 1997:26). Presumably, the expectation of the court is that provincial and national Departments of Education will adjust service conditions for expatriate teachers accordingly.

***Professional development:*** given that the second part of the literature review dealt with the definitions of in-service and professional development, this section discusses the professional development of South African teachers within the context and philosophy in which the professional development policies were designed. According to Mestry et al. (2009:477), suggest that the Department of Education regards in-service training as an on-going process of professional development. Therefore, it was imperative for this study to analyse teacher development in relation to the in-service training programmes of the Department of Education, particularly with the view of determining their effects on the professional growth of mathematics and science teachers. The adoption of new teacher development was necessary considering that South African teachers who qualified through teacher training colleges were trained not to be critical and their

content knowledge was restricted to the standards expected from learners (Douglas, 2005:18-19).

Mestry et al. (2009:477) posits that in a post-apartheid South Africa the professional development of teachers should enable them to review and renew their commitment as change agents to the morale purposes of teaching. The introduction of the National Policy Framework for Teacher Education and Development in South Africa in 2007 was aimed at developing a coherent teacher education system and to guide processes that address qualitative shortages in the teaching profession (DoE, 2005:48). This national framework further sought to establish a dedicated Continuing Professional Teacher Development (CPTD) project which was to ensure that resources are effectively used and contribute to the improvement of the quality of teaching (DoE, 2005:48). These national initiatives were extended to individual provincial Departments of Education. During 1999 in the province of Mpumalanga, for example, the MDE, the Japan International Cooperation Agency (JICA) and the University of Pretoria (UP) collectively launched the Mpumalanga Secondary School Initiative (MSSI) which focused on the establishment of a school-based in-service system in the province and on improving the quality of teaching in the subjects of mathematics and science (Ono & Ferreira, 2010:68). The project was terminated in 2006 due to new policy initiatives that included continuous assessment and the whole school development policies such as the Developmental Appraisal System (DAS), the Performance Management System (PMS) and the Whole School Evaluation (WSE) Ono & Ferreira, 2010:68). These new policies were compressed to form the Integrated Quality Management System (IQMS) which is currently being implemented (DBE, 2014:18).

Given the inter-relatedness of the professional development of teachers and the context of the classroom as well as the school community (Timperly, 2008:6), the DBE introduced the Action Plan 2014 in order to improve the quantity and quality of the NSC pass rates through activities that include: ensuring school functionality through leadership capacity building, teacher recruitment and retention (DBE, 2010:46). While developed countries attract expert teachers who display leadership potential and develop them as future school principals (Mulford, 2003:30), in South Africa, anyone who has obtained a qualification in teaching can become a principal because principals are appointed by virtue of their academic qualifications and teaching experience. Therefore, the Education Department introduced a programme called the Students and Youth in Science, Technology and Mathematics (SYSTEM) (CDE, 2004:93). The dual aim of SYSTEM was to serve as a recovery programme for learners who had failed mathematics and science and to increase the pool of well qualified mathematics and science teachers that would be placed in schools more quickly (CDE, 2004: 93). The SYSTEM programme was eventually abandoned when the Policy Framework for

Education Leadership and Management Development (PFELMD) was introduced (Moloi, 2007:470). This particular policy included the Advanced Certificate in Education (ACE) which was aimed at the skilling of aspiring school principals and the upgrading of skills for principals that are already occupying leadership positions in schools (Moloi, 2007:470).

In essence, the ACE programme encouraged its graduates to focus more on teaching and learning (DoE, 2008b:70). Furthermore, the long-term goal about ACE was to create a pool of future principals and turning the programme to a prerequisite for the future appointment of principals in the country (Moloi, 2007:471). Mathibe (2007:530) asserts that the country's capacity building programmes have been less successful because they are often fragmented, not well-coordinated and sometimes irrelevant to the needs of the schooling system.

## **2.5. CHAPTER SUMMARY**

This chapter dealt with an intensive literature review that relates to possible causes of the suggested problem of teacher shortage and the strategies that were being applied in most countries that have experienced the problem. The review brought forth a myriad of challenges that permeate through the majority of education systems, especially with regard to the recruitment and deployment of qualified teachers in general. Some of the challenges indicate that the labour market is structured in a way that permits qualified mathematics, science and technology teachers to follow the lure of monetary rewards because their skills were always in demand. Other researchers have mentioned that poor working conditions were the major factors that contribute to the early departure of qualified teachers from the profession. The literature review identified the uneven spread of qualified teachers as an outcome of the movement by teachers from impoverished schools to well-resourced and well maintained schools. Another outcome that was attributed to the transfer of qualified teachers out of impoverished schools was the large class sizes in these schools. In addition, the literature review revealed that the usage of qualified teachers in subjects they were not qualified to teach was a result of high attrition rates in the key subjects of mathematics, science, technology and special education. Implicitly, the skewed deployment of qualified teachers has widened the achievement gap between learners that attended affluent schools and those that were in the impoverished schools.

The majority of the studies that were reviewed confirmed the view that qualified and competent teachers enhance the classroom performance of their learners while unqualified teachers the prospects of achievement for their learners. Finally, the literature evaluated the strategies that were used to ensure the retention of qualified

teachers in the profession. The noticeable strategies included the hiring of unqualified people as teachers, the introduction of monetary incentives, housing allowances, teacher development programmes as well as the recruitment of foreign teachers. However, literature suggests that there is a gap in the knowledge that the post-apartheid government needs to address regarding the capacity of officials and school management in the Department of Education to manage change and to introduce reforms in order to reduce management of constraints, particularly with regard to the recruitment of qualified mathematics and science teachers. Based on the literature review and the conceptual framework of this study, the next chapter describes and discusses the research approach, the design of the study, data collection instruments, ethical considerations, validity and reliability as well as data analysis.

## CHAPTER THREE

### RESEARCH PARADIGM AND DESIGN

#### 3.1. INTRODUCTION

The earlier chapter dealt with literature review on international and South African perspectives. This chapter builds on the information presented in the previous chapter in order to develop a research approach, design the study, develop data collection instruments and address ethical considerations as well as validity and reliability.

#### 3.2. RESEARCH PARADIGM

A paradigm is thought of as a way of looking at the world, and the world-view of constructivists rejects the control of phenomena (Guba & Lincoln, 1994:113). Unlike the stance of positivists which maintains that reality can be measured and manipulated, constructivists see “knowledge as a process of making meaning through communication” (Mhlolo, 2011:48) with participants in order to understand the meaning they attach to their cultural and historical context (Mills, Bonner & Francis, 2006:2). The general objective of this study was to gain an in-depth understanding of management constraints in the recruitment of qualified mathematics and science teachers from the perspectives of teachers, principals and education officials and in their own settings. Given that the constructivist paradigm resonates with the objective of this study, the researcher adopted this particular paradigm. The adoption of the paradigm signified the importance of establishing relationships between the participants and the researcher in order to facilitate purposeful conversations. It is this type of purposeful conversations that allowed participants to construct meaning out of their own situations regarding an in-depth understanding of management constraints in the recruitment of qualified mathematics and science teachers in a post-1994 South Africa.

The constructivist paradigm also offers the researcher an opportunity to define the relationship between the developed conceptual framework of “*Turning vision into practice*” and the theoretical foundations of change management as well as those from the realms of psychology (Iqbal, 2007:17). The “*Turning vision into practice*” framework links the analysis of management constraints in the recruitment of qualified mathematics and science teachers to existing knowledge as discussed in Chapter 2. For instance, this case study adopted and modified Kotter’s Eight-Step Change Model (1996) which states, among others, that leaders and managers carry the keys to unlock the benefits of transformational change and these entail: communicating the vision, signalling support for change, modelling new behaviours and rewarding employees for

innovation and improvisation (Stragalas, 2010:35). Despite the positive aspects of Kotter's model, the requirement that all the eight steps must be sequentially makes the model prescriptive and linear. Thus, the model does not address the reality that change is a continuous process rather than an event (Stragalas, 2010:35).

Furthermore, the prescriptive nature of the model disregards the fact that some of the steps may not be relevant in other contexts. In the light of these weaknesses, the researcher adopted but modified the eight-step change model and developed the "Turning vision into practice" (TVP) conceptual framework. Unlike Kotter's Eight-Step Change Model which focuses on the process of change, the TVP is essentially an implementation framework which supports the vision of prioritising greater access to mathematics and science education through the recruitment of qualified teachers in these subjects. Therefore, the framework provides a link or relationship between advocacy for change, development of recruitment systems and policy, effective communication, implementation, needs of individual teachers, monitoring and evaluation, feedback and review of the effectiveness of systems and policy implementation in the recruitment of qualified mathematics and science teachers in a post-1994 South Africa.

### **3.3. RESEARCH DESIGN**

A qualitative approach differs from quantitative approach in the sense that the former does not provide the researcher with a step-by-step plan (Fouche, 2007:268). Essentially, qualitative research is largely based on a constructivist ontological assumption that sees reality as a social construction (McMillan & Schumacher, 2006:315). Furthermore, qualitative approach is primarily concerned with understanding social phenomena from the perspectives of the participants (McMillan & Schumacher, 2006:315). Finally, a qualitative approach also helps to explicate the ways participants come to understand, account for, take action and manage their day-to-day situations in their particular settings (Miles & Huberman, 1994:56). Shifting from the debate on the differences between quantitative and qualitative research, Bryman (2012:45) posits that researchers also tend to confuse the concepts: research design and research method. According to Bryman, *research design* is a framework for the collection and analysis of data and notes that a *research method* is a technique for collecting data. The apparent confusion whether a design is a method or not has affected the case design (Bryman, 2012:45).

A case study involves the study of one organisation, community, administrator, programme, process, policy implementation, or one concept (McMillan & Schumacher, 2006:316). In essence, the characteristics of a case study include delimiting the object of study: the case (Merriam, 1998:27). According to Merriam, if the phenomenon one is interested in studying is not bounded, then it is not a case. A case is studied for an

identified particular or peculiar reason (Hyett, Kenny & Dickson-Swift, 2014:2). However, the debate is whether the bounded case should be understood as design which is not necessarily a method or that it is a design which suggests a method of research. While Bryman (2012:46) posits that a case design is a plan and not a method, Yin (2009: 47) understands a case design as a method. Notwithstanding the different perspectives regarding the case study design, Creswell sums up the different views and states that “I choose to view it as a methodology, a type of design in qualitative research, or an object of study, as well as the product of the inquiry” (Creswell, 2007:73). The researcher in this current study shares the aforementioned view as espoused by Creswell.

According to Yin (2009:47-48), there are four types of case study designs: single case (holistic) designs, single-case (embedded) designs, multiple-case (holistic) designs and multiple-case (embedded) designs as illustrated below.

**Table 3.1: Case study designs**

| Type of case study design        | Focus of the case study design  |
|----------------------------------|---|
| Single case (holistic) designs   | It represents the critical case in testing a well-formulated theory which has specified set of propositions. This type of case design can contribute to knowledge and theory building.  |
| Single-case (embedded) designs   | May involve more than one unit of analysis. Irrespective of how the units are selected, the resulting design would be known as an embedded case study design.   |
| Multiple-case (holistic) designs | The same study can contain more than a single case. When this occurs, the study has used a multiple-case design. Each case must be carefully selected so that it either produces similar results or predicts contrasting results but for anticipated reasons. The logic of using multiple-case studies. |
| Multiple-case (embedded) designs | A multiple case study may consist of multiple holistic cases or multiple embedded cases. The difference between the two variants depends upon the type of phenomenon being studied and the research questions.  |

Source: Yin, R.K. (2009:47-48).

An interpretation of the abovementioned designs is that Yin suggests that a case study is a process which entails both the phenomenon and the method(s) of investigation such as the collection of data using a single source (holistic) or multiple (embedded) sources of data. Therefore, Yin holds a different viewpoint than that of Bryman (2012:46) which separates a design from investigation methods. There are however, case studies that are distinguished in terms of the intent of the analysis (Creswell, 2007:74). These types of case studies include the single *instrumental* case study, the *collective* or multiple case studies as well as the *intrinsic* case study (Creswell, 2007:74). Creswell explains the differences of the case studies as follows:

- In a single *instrumental* case study the researcher focuses on an issue or concern and then selects one bounded case to illustrate the issue;
- In a *collective or multiple* case study the researcher also focuses on an issue or concern but selects multiple case studies to illustrate the issue; and
- The *intrinsic* case study focuses on a unique or unusual situation.

Based on the abovementioned discussion, the present study belongs to the collective or multiple case studies. In terms of Yin's grouping, the study can be classified under the category of multiple-case (holistic) designs because it deals with a single (holistic) process: management constraints in the recruitment of qualified mathematics and science teachers in a post-1994 education system of South Africa. Furthermore, the study shows the different perspectives while displaying the following characteristics of qualitative case studies:

- The study is bounded by time and activity (Merriam, 1998:27): the study is confined to a historical period which is after the collapse of apartheid. In addition, the study is bounded within four secondary schools and a single province (Mpumalanga); and
- The study investigates contemporary phenomena within its real life context and multiple sources of evidence are used (Yin, 2009:53), namely, current recruitment process in affluent and impoverished schools and 14 (multiple) sources of information are used and the

### **3.3.1. Population of the study**

A population is thought of as the total collection of participants that meet certain criteria for inclusion in a study, and about which the researcher makes some inferences (Burns & Grove, 2003:43; Cooper & Schindler, 2003:69). The population for this study



consisted of education officials whose responsibilities entailed the allocation and distribution of teaching posts to schools in the province of Mpumalanga, Grade 12 mathematics and science teachers as well as principals of secondary schools in the Ehlanzeni and Nkangala districts. The secondary schools selected for this study in the two districts service communities that have different combinations of socio-economic levels of development (Bryman, 2012:417). School A and C are situated in the affluent communities and they are both former Model C schools. Conversely, Schools B and D are situated in the historically disadvantaged communities and School B belonged to the former homeland of KaNgwane while School D was administered by the former Department of Education and Training.

### **3.3.2. Sampling**

Hancock, Ocleford and Windridge (2009:21) maintain that sampling in qualitative research differs from sampling in a quantitative study. These authors attribute the difference to a belief which suggests that qualitative researchers are less concerned with being able to generalise at a statistical level as they focus on purposive or strategic sampling. Morrow (2005:254-255) also shares the view that sampling procedures in qualitative research serve a different purpose from those that are being used in quantitative research. Morrow adds that qualitative sampling is always purposeful because participants are deliberately selected to provide rich information. According to the same author, purposive sampling is always criterion-based (i.e. it uses specific criteria). Bryman (2012:418) expands on this issue of criteria and indicates that in a purposive sample the researcher samples with the research goals in mind. In addition, Bryman cautions that although purposive samples select people in organisations based on their relevance to the research questions, researchers need to be clear about criteria that will be relevant to the inclusion or exclusion of units of analysis.

In summary, the aforementioned discussion indicates that qualitative sampling differs from quantitative sampling in that: qualitative research, sampling in qualitative studies is guided by research questions and that qualitative studies largely employ purposive sampling criteria. Most importantly, sampling in qualitative research needs to be based on criteria for selection. In view of these factors, the researcher employed a maximum variation tactic of purposive sampling. This tactic for purposive or purposeful sampling captures and describes central themes or major findings that cut across a great deal of participant or programme variation (Patton, 1990:172). The rationale for the selection of this sampling strategy is that it attaches particular interest and value in any common pattern that emerges from great variation, particularly with regard to capturing the core experiences and central shared aspects or impacts of the programme (Patton, 1990:172).

Based on the already mentioned maximum variation sampling tactic, the researcher took a decision to first identify information-rich participants from within the education system and at the level of management. However, these participants were identified from sections that are responsible for the management or provision of mathematics and science education in the district and provincial structures of the Mpumalanga Department of Education (MDE). The researcher studied the organisational structure of the MDE and identified the participants from the following relevant sections at the provincial level: Education Management Information System (EMIS), Teacher Development Directorate, Mathematics and Science Directorate, as well as the Human Resource Management Directorate (HRM). In the education districts, participants were identified from the sections of HRM.

According to the South African Schools Act (Act No 84 of 1994), the selection and recommendations for the appointment of new teachers is the responsibility of schools. Therefore, the researcher felt it necessary to identify school principals for participation in the study. Equally, principals were also responsible for the day-to-day management of appointed mathematics and science teachers. Thirdly, the researcher decided to identify mathematics and science teachers for the study in view of their position in the schools which derives from the recruitment process they went through. Contact with these teachers was established through the help of the respective principals who also play the role of being gatekeepers in the schools. Principals are responsible for overseeing all activities taking place in their schools. Therefore, the researcher requested access to the teachers from the principals. The decision to include Grade 12 teachers was based on the general belief that Grade 12 teachers set a benchmark through which the overall functionality of the post-1994 education is judged.

Furthermore, the researcher had to take two critical decisions regarding the sampling process in relation to the selection of the schools and the geographical location of the study. The geographical location was a challenge because the researcher had to balance costs of the study and the principle of multiple sources of data with regard to district positions. Eventually, the researcher abandoned the idea of involving officials from the four districts in the province due to high cost implications. Instead, the study was to be carried out in two districts that are within the proximity of the researcher. Subsequently, eight (6) invitations were dispatched to the identified district and provincial officials. The requests were accompanied by informed consent forms that were to be returned to the researcher. In view of the large number of principals, mathematics and science teachers in secondary schools of Mpumalanga, the researcher decided to access the National Senior Certificate (NSC) schedules of results for the period of 2011 until 2013.

The schedules were obtained from the websites of both the MDE and DBE respectively. From these schedules, the researcher identified 10 schools from the top performing 20 and another 10 from those that performed averagely. The top 20 schools were defined as those that have been consistently achieving pass rates that ranged between 80 and 100 per cent over the three years period (i.e. from 2011 until 2013). Schools that were seen as average performers are those that fell outside the top 20 bracket and have been consistently obtaining a pass rate of between 0.00 and 80 per cent from 2011 until 2013. Therefore, a combined list of 20 former Model C and historically disadvantaged schools was compiled. The researcher requested permission to conduct a pilot study at two (2) schools from the list of 20.

However, only one school from the two granted permission for the pilot study to be conducted. Subsequently, principals of the 18 remaining schools from the list were sent requests for participation. In addition, the researcher requested the same principals for permission to access the Grade 12 mathematics and science teachers. The researcher identified Grade 12 teachers as information-rich participants considering that the grade is used in benchmarking the functionality of the post-1994 education system. From the 26 requests that were dispatched to the different schools and education officials, 14 identified participants agreed to participate. Their participation was indicated through the return of signed informed consent forms which the researcher also confirmed with the participants telephonically. Only one identified participant from the provincial division of Human Resource Management (HRM) declined participation in writing. The rest of the identified participants did not respond even after telephonic prompts from the researcher. Therefore, the final picture of the participants that were interviewed is illustrated below.

**Table 3.2: Sample size and sites**

| Affluent schools | Impoverished schools | Mathematics Teachers | Science Teacher | Principals | Education Officials |           |
|------------------|----------------------|----------------------|-----------------|------------|---------------------|-----------|
| 2                | 2                    | 4                    | 4               | 4          | Province            | Districts |
|                  |                      |                      |                 |            | 1                   | 1         |
| Total            |                      | Total                |                 | Total      | Total               |           |
| 4                |                      | 8                    |                 | 4          | 2                   |           |

Table 3.2 above shows that four principals and eight teachers for mathematics and science were selected from four secondary schools. Two of these schools are situated in affluent communities while the other two (2) are found in historically disadvantaged areas. The NSC schedules of results suggest that schools in the top 10 are situated in affluent communities. Conversely, the average performing schools outside the top 20 bracket are found in the impoverished communities of Mpumalanga.

### **3.3.3. Data collection strategies**

Data for this study was collected through interviews that were supplemented through the examination of relevant documents. The semi-structured interviews were conducted after a pilot study which validated the interview schedules. The interviews were conducted in November 2013, while document analysis was done after the completion of transcribing.

#### **3.3.3.1. Pilot study**

Prior the main research, a pilot study involving 3 participants in a single school was conducted in order to validate the interview schedules, particularly to ensure whether the interview questions will solicit the required information. In addition, the pilot was intended to assist the researcher in estimating the time and costs that may be involved as well as pre-empt possible problems during the actual interviews (Strydom & Delpont, 2007:327). According to Strydom and Delpont (2007:327), a pilot study in qualitative research is seen as being beneficial because it allows the researcher to obtain clarity on specific areas that may have been unclear or to test the nature of questions in an interviewing schedule in order to enable the researcher to make modifications (Strydom & Delpont, 2007:327). Considering that the main research question in this current study required the perspective of participants on constraints in the recruitment and redeployment of qualified mathematics and science teachers, the researcher validated the interview questions through a pilot study. It involved three (3) participants – one mathematics teacher and one science teacher and their principal—from a secondary school with characteristics that are similar to those identified for the main study. These participants were interviewed at their school. Subsequently, the responses and feedback from the three participants were used in order to analyse and revise specific aspects in the design of the study. For example, information from the pilot study indicated that Curriculum Implementers (CIs) were not necessarily involved in the supply, recruitment and redeployment of mathematics and science teachers in schools. Therefore, the original decision of including the CIs in the study was reviewed and they were eventually excluded from participation.

### 3.3.3.2. Interviews

In this study, face-to-face interviews were organised with each of the four (4) principals, eight teachers (8) and two (2) education officials. Therefore, 14 interview sessions were conducted and tape-recorded using two audio-tape recorders to guard against technical failures. Interview questions were contained in three separate interview schedules and according to the participants' level of responsibility in the Mpumalanga Department of Education (MDE). The interview questions were arranged in a way which allows for the spontaneous wording of questions, and also enabled the researcher to establish a conversational style which created room for the interviewer to explore, probe, and ask clarity-seeking questions in particular subject areas (Patton, 2002:343). As a result, the researcher was able to gain access to participants' accounts and articulations or to analyse the participants' use of language and construction of discourse (Mason, 2002:63-64). Although the interviewing strategy has the aforementioned advantages, the strategy has its disadvantages as well. For instance, interviewed participants may be unwilling or uncomfortable sharing all information the interviewer wishes to explore (Marshall & Rossman, 1995:81). In the current study, the researcher's experience and skill in interviewing minimised the disadvantages. Having occupied the position of a principal in a high school and currently occupying a senior management position in the MDE, the researcher has developed adequate interviewing skills.

Gay and Airasian (2003:209) define an interview as a purposeful communication between two or more people focused on one person trying to obtain information from the other person. Furthermore, an interview is thought of as "a form of conversation in which the purpose is to allow the researcher to gather data that addresses the study's goals and questions" (Savenye & Robinson, 1996:105). During interviews the "conversation" oral questions and the participants' oral responses are the main features (Gall, Borg & Gall, 1996:289). Qualitative interviews have several noticeable advantages that include the corroboration of evidence from interview sessions, assisting in understanding the philosophy of an organization and allowing the researcher to prompt and probe the issues deeper for clarity (Kruger, 1994:34-35).

Additionally, interviews allow the researcher to understand the meanings people hold for their everyday activities, and assist with the gathering of a variety of information across a large number of participants (Marshall & Rossman, 1995:81). For the researcher, the overarching purpose of qualitative interviewing is to describe how the participants view their world, to learn their terminology and judgments, as well as to capture the complexities of their individual perceptions and experiences (Patton, 2002:348). Therefore, good interviews are those in which the participants are at ease and talk freely

about their points of view because such interviews produce rich data filled with words that reveal the respondents' perspectives (Bogdan & Biklen, 2007:104).

#### *Semi-structured interviews*

This study employed in-depth semi-structured interviewing for all the sessions and they were tape-recorded, as the primary data collection strategy, while the researcher chose a research role of an interviewer. A research role is defined as “a relationship acquired by and ascribed to the researcher in interactive data collection appropriate for the purpose of the study” (McMillan & Schumacher, 2006:344). The interviews were conducted according to three (3) different interview schedules or protocols that entailed pre-formulated questions that were specifically designed to suit each group of participants, namely: eight (8) teachers, four (4) principals and two (2) education officials. During interviewing, the participants were allowed sufficient freedom to express their beliefs and experiences on constraints in the recruitment and deployment of mathematics and science teachers to their respective affluent and impoverished schools in a post-1994 education system of South Africa. In addition, the researcher ensured that the participants were at ease by overcoming apprehension through the maintenance of a relaxed and informal atmosphere. Before the commencement of each interview session, the researcher reminded participants of the aim and importance of the study, as well as their right to withdraw their voluntary participation whenever they deemed it necessary. During each interview session, which lasted over 60 minutes, the researcher asked questions using words that were familiar to the participants. Furthermore, the participants were assured that the information they divulged would be treated with utmost confidentiality.

#### 3.3.3.3. Document analysis

Advantages of document analysis include not only what can be learnt directly from the selected documents but also as stimuli for paths of inquiry that can be pursued only through direct observation and interviewing (Patton, 2002:294). Formal documents are important because they provide an internal perspective on an organisation and describe its functions and the values in terms of which various people define it. These documents further assist in the identification of the chain of command and provide clues about the organisation's leadership style and values (McMillan & Schumacher, 2006:357). For the purpose of this study, relevant documents were analysed in order to establish an in-depth understanding of patterns, values, experiences, beliefs, leadership styles as well as the chain of command regarding the recruitment and deployment of mathematics and science teachers in both affluent and impoverished schools in a post-1994 education system of South Africa. The documents that were analysed include the National

Education Policy Act, (Act No. 27 of 1996) and the Employment of Educators Act, (Act No. 76 of 1998), the Further Education and Training Act (Act No. 98 of 1998), the South African Council of Educators Act (Act No. 31 of 1998), school records and government circulars.

Although the examination of documents may assist in the reconstruction of events and the provision of information about social relationships, the risk of their incompleteness and failure to provide an objective truth might compromise the trustworthiness of the study. There is always a possibility that some of the documents may contain the author's prejudices and the effects of the time lag between the occurrence of the event and the writing of the document (Fouche, 2007:317). In this study, the researcher ensured the authenticity or credibility of the documents through the scrutiny of their history, their completeness and their original purpose. In addition, salient and relevant information from the formal documents was highlighted, analysed in terms its relevance to the research question. The information that linked with the main research question was placed in the respective themes were formed to group information from the transcripts (Appendixes G-J).

#### 3.3.3.4. Role of the researcher

Qualitative researchers sometimes do not agree on the role that the researchers play during interviewing. Some are of the view that researchers, as normal human beings "can experience a kaleidoscope of feelings: of euphoria where they feel jubilant and happy that they are doing something important and worthwhile, as well as guilt, anger and frustration in response to participants' stories or when they feel they may be exposing their participants to emotional distress" (Johnson, 2009:28). Henning (2010:66) concurs that emotions play a significant role in the communication between researchers and participants. However, she argues that interviewing is an unequal relationship because the ownership of the interview is the privilege of the interviewer and that a possibility exists that the interviewer could be tempted to treat interviewees as vessels of information rather than partners in the research. Henning (2010:70) states that "the strength in the constructivist and discursive view of interviewing lies in the attitude of the researcher and the preparation for working with the captured data in the analysis process". Based on this discussion and the understanding that the researcher in this present study holds a senior official in the MDE management structures, it was imperative therefore for the researcher to adopt a reflexive approach during the process of data analysis. Reflexivity is thought of as an "awareness of the ways in which the researcher as an individual with a particular social identity and background has an impact on the research process" (Dunne, 2011:118). According to Shaw (2010:2), the focus of qualitative researchers is on data gathering which involves engaging with other

people's language, their stories and experiences. Therefore, this task of the qualitative researchers comes with reflexivity responsibilities (Shaw, 2010:2). The choices researchers make with regard to ontological and epistemological positioning are bound up not only with their personal or academic biographies but also to their interpersonal, political and institutional contexts (Mauthner & Doucet, 2003:421). With regard to this study, the researcher analysed data within a context of being a member of the senior management team in the MDE. This senior position exposed the researcher to a vast knowledge in respect of internal decision-making processes at a very high level of the institution to which the participating schools belong. Therefore, the researcher may have relied on this knowledge when making choice on the extracting of texts from transcripts that guided this study. This interpersonal and institutional exposure put the researcher in a position which allowed him to "go beyond the participants' words to understand" (Mauthner & Doucet, 2003:421) their institutions' or organisational culture and the educational significance of participants' words. The researcher balanced out this possible bias through the adoption of the constructivist ontology which allowed the researcher to capture and reflect the participants' exact words verbatim. However, the position of the researcher in the MDE structures, in part, could have enabled the researcher to draw from his work-related knowledge and experience to indirectly "shape the theoretical and ontological contours of the thesis" (Mauthner & Doucet, 2003:422). In essence, the study may have been affected by what Mauthner and Doucet call the "school of thought, interpersonal, political and institutional context" of the researcher in spite of "the bracketing of such personal views" (Chediel, 2009:79).

### **3.4. ETHICAL CONSIDERATIONS**

In research, the researcher's interpersonal skills are often couched in terms of building trust, maintaining good relations, respecting norms of reciprocity and sensitively considering ethical issues (Marshall & Rossman, 1995:64). The researcher respects the rights and integrity of all those who are involved in or affected by the research (Connolly, 2003:25). Furthermore, the researcher has to do what is good and prevent harm through the application of appropriate basic ethical principles in an environment where qualitative research is designed to probe in-depth understanding of the phenomenon (Orb, Eisenhauer & Wynaden, 2001:93). Although this study has no anticipated physical risks to the participants, the researcher ensured the protection of participants against any possible emotional harm owing to qualitative data collection strategies that potentially provoke anxiety and distress because of the unpredictability of research questions during interviews (Richards & Schwartz, 2002:3). Seeing that the success of qualitative studies depends primarily on the interpersonal skills of the researcher, basic ethical principles were observed in this study. For instance, the researcher requested an ethical clearance from the University of South Africa Ethics



Committee before embarking on the research and the certificate of approval was granted. In addition, the researcher obtained permission from the MDE to conduct the research in schools and districts before issuing invitations to all potential participants.

#### **3.4.1. Informed consent**

Informed consent has become a prerequisite for all research that involves identifiable participants (Richards & Schwartz, 2002:5). The process of gaining informed consent in quantitative research is described as “a procedure for ensuring that research subjects understand what is being done to them, the limits to their participation and awareness of any potential risks they may incur” (Social Research Association, 2003:28). While in qualitative studies informed consent entails a process that requires researchers to communicate accurate and complete information to the participants in order to enable them to fully comprehend the investigation and to make voluntary decisions about their participation in the study (Strydom, 2007:59). Given the qualitative nature of this study, the latter definition by Strydom guides the researcher when seeking informed consent from the identified participants. All identified participants were informed about the voluntary participation. The aim of the study was communicated through the invitation letters as well as at the start of each interview session. The invitations were accompanied by informed consent forms that allowed identified participants to confirm or decline participation. The researcher also adhered to the principles of anonymity and confidentiality.

#### **3.4.2. Anonymity and confidentiality**

The disadvantage of interviewing as a data collection strategy is that it does not provide anonymity because participants are expected to reveal their identity to the interviewer (Gall, Borg & Gall, 1996:290). Several researchers differentiate between anonymity and confidentiality. Confidentiality suggests that only the researcher and few members of his staff should be aware of the identity of participants (Dane, 1990:51; Babbie, 2001:472) while anonymity means that no one, including the researcher should be able to identify the participants after the completion of the research (Babbie, 1990:342). Based on this definition, the researcher treated the information on the identity of participants as a secret known only by him (World Book Dictionary, 2003:435). Adherence to confidentiality was ensured through the usage of pseudonyms to conceal the identity of participants from others except the researcher who is ethically expected not to disclose these names to other people (Schulze, 2002:18; World Book Dictionary, 2003:85). Interview audio-tapes and transcripts were safely kept. All clues that could lead to the identification of participants were reduced from the text and other narratives of the study to ensure the protection of the participants’ privacy (Richards & Schwartz, 2002:7).

### 3.5. DATA ANALYSIS

Hatch (2002:148) defines data analysis in qualitative research as “a systematic search for meaning. It means organising and interrogating data in ways that allow the researcher to see patterns, identify themes, discover relationships, develop explanations, make interpretations, mount critiques, or generate theories” (Baxter & Jack, 2008:550). In this study, a constant analysis was commenced with immediately after the first interview session in School A on 18 April 2013. The researcher reflected on the field notes taken during interviewing and after the completion of the interviewing session the researcher replayed the audio-tape, thus, reflecting further on the data. Halcomb and Davidson (2006:41) posits that reflective journalising should be done immediately after an interview to ensure that reflections remain fresh and that researchers should review their field notes as well as expand on their impressions of the communication with more considered comments and perceptions.

Although the reflective process in this study gave the researcher a glimpse on the possible direction of the study, a systematic linkage of the collected data to the research question during the reflective stage was not performed. However, after the interviews of the 14 participants the researcher personally transcribed the audio-taped information by repeatedly playing back the audio-tapes while typing into the computer using Microsoft Windows. The personal involvement of the researcher in transcribing was intended to keep the researcher close to the data. The process of transcribing audible data into written form is an interpretive process which involves making judgments in the analysis of such data (Bailey, 2008:130). The transcripts enabled the researcher to work through the texts line by line linking raw data in the text to the research question by identifying relevant data that helps in answering the research question (Glaser & Laudel, 2013:6). The identified data were indexed (i.e. attaching codes to the text). A code in qualitative research is defined as a descriptive name for the subject matter or topic (McMillan & Schumacher, 2006:368). Coding entails reviewing transcripts and giving labels (names) to component parts that seem particularly salient within the social worlds of those being studied (Bryman, 2012:568).

After the indexing or coding of raw data, the researcher defined the selection criteria by determining the themes or categories to which the coded information belongs. The themes or categories were to be used in the classification of coded data. Thereafter, the coded data was further analysed to identify similar codes that were also indexed (i.e. codes were placed next to the already coded data). Then similar codes were then grouped in order to form themes or categories. These themes were used as the major tools for the structuring of data. Glaser and Laudel identify three ways in which a link between collected data and categories can be achieved:

- *Indexing themes*: data are indexed by attaching codes to the part of the text containing the information. The result is an indexed text (text with attached codes that list the relevant themes addressed in each part of the text);
- *Indexing content*: data are converted into the analytic language of the investigation (i.e. into statements that describe states of categories) these descriptions are attached to the text; and
- *Extracting content*: data are converted into the analytic language of states of categories and moved into a database that collects raw data according to the categories for which they are relevant.

In this study, the *indexing content* technique was applied, that is, data were indexed by attaching codes to the part of the text containing the information. The completion of the indexing process was followed by a similar process of analysing information from the documents. Salient data from the documents was constantly compared to that from the transcripts and included in the relevant theme. Thereafter, all the themes were checked if they fit the research question and those that did not fit were revised to ensure that they link to the research question. At the conclusion of indexing documented information, descriptive paragraphs about the themes were written down as the researcher looked for patterns (relationships) between themes. The search for relationships helped to link similar themes and to form major ones. Thereafter, plausible explanations were sought while data were evaluated and interpreted for their usefulness, particularly with regard the illumination of the research question.

The findings are presented below through the use of thick descriptors. The usefulness of thick descriptors is described by Ponterotto (2006:543) who posits that thick descriptors capture the thoughts and feelings of participants and leads to thick interpretation, which in turn leads to thick meaning of the research findings for the researchers and participants themselves as well as the report's intended readership. In addition, the four schools and 14 participants were assigned pseudonyms to ensure confidentiality (Appendix M). These pseudonyms are applied throughout the presentation and discussion of the findings in the subsequent chapters.

### **3.6. VALIDITY AND RELIABILITY**

In qualitative research, the debate on the concepts of reliability and validity has been raging for some time now and no uniformity has been reached regarding their meaning. For example, Ali and Yusof (2011:31) posit that experts themselves have failed to be consistent on what validity is. The differences among researchers on the definition of validity and reliability have resulted in some qualitative studies adopting the concept of

trustworthiness while some studies continue to use the concepts of validity and reliability. However, Morse, Barret, Mayan, Olson and Spiers (2002:13-14) state that the concepts of validity and reliability are “overarching constructs that can be appropriately used in all scientific paradigms”. Therefore, Morse et al. suggest that the terms of reliability and validity should be maintained for their pertinence in qualitative research (Morse et al. 2002:8).

It is in context as described by Morse et al. that the researcher used validity and reliability in this case study. An important aspect of validity in qualitative research lies in the use of rich, thick descriptors. Ponterotto (2006:543) sees thick description as an accurate description and interpretation of a social action within the appropriate context in which it took place. A good description of the context and specifics of a social action results in the reader experiencing a sense of *verisimilitude*. That is, truth-like statements that produce the feeling for readers that they have experienced or could experience the events being described (Ponterotto, 2006: 542-ibid).

### 3.6.1. *Validity and reliability in this study*

This is a collective or a holistic (embedded) case study (Creswell, 2007:74; Yin, 2009:48) because it uses multiple sources of information. Validity was ensured through the a pilot study which validated the interview schedules in terms of the relevance of the pre-formulated questions. The use of multiple sources of evidence (14 different participants) provided rich information for the researcher to look for convergence. Participants were separately interviewed and they were not afforded time to discuss what happened during an individual’s interview while interviewing was continuing at the site. Therefore, convergence of information validated the responses. Furthermore, the researcher used the purposive sampling’s maximum variation tactic in order to intentionally include a variety of participants from different education management levels in the study. The inclusion of four (4) principals, eight (8) teachers and two (2) education officials as multiple sources of data enabled the researcher to confirm the outcomes of the study and increased validity and reliability of the study. In addition, the researcher applied the constant comparison analysis to corroborate collected data and emergent themes (categories). Constant comparison analysis allowed the researcher to take one piece of data and compare it to all other pieces of data (Leong, Joseph & Boulay, 2010:14).

With regard to reliability, the researcher ensured that rich, thick descriptors were used. These entailed verbatim quotations from participants. The lengthy quotations were further strengthened by the insertion of interview details at the end of each quotation. Furthermore, examples of full transcripts were included as appendixes in the study. This

usage of verbatim quotations represents an adequate “voice” of participants (Ponterotto, 2006:543). In addition, the rich, thick descriptors allow the readership and researchers to independently decide about the analytic generalization of the findings.

### **3.7. CHAPTER SUMMARY**

This chapter presented and discussed the research paradigm, research approach, the case study design, data collection instruments, ethical considerations, explained validity and reliability. Participants were selected by means of purposive sampling while semi-structured interviews were used for the collection of data. In addition, the chapter explained how confidentiality and anonymity were ensured. In the next chapter, data analysis is discussed and the findings are presented.

## CHAPTER FOUR

### PRESENTATION OF FINDINGS

#### 4.1. INTRODUCTION

Chapter Three discussed the research approach and case design. This chapter focuses on the strategies that were applied during the organisation of collected data, the linking of data to the research question, the analysis of data, its coding and the identification of themes or categories in order to enable the search for patterns. In this chapter, the findings are presented under the themes that emerged during data analysis.

#### 4.2. PRESENTATION OF FINDINGS

The data analysis in the previous chapter yielded findings that were grouped into themes. These themes and their sub-themes are presented below.

##### **Theme 1: Bureaucracy and delegation of authority**

***Red-tape and lack of cohesion:*** during the interviews two teachers as well as two principals were concerned about bureaucratic delays in the appointment of teachers. In School A one of the teachers indicated that the Department's procedures in processing teachers' documents such applications was protracted and de-motivating new teachers: "*I know that we lost a good teacher and it was basically because of the frustrations with the Department, the red-tape, the paperwork...*" [Teacher-A1, Interview 2, 15/05/2013]. This assertion was supported by the principal at the same school principal who described how they incessantly made follow up on the circuit and district offices to ensure that their documents are processed in time: "*...that is the process but time consuming. I can't have kids sitting without a teacher for a month while I go through these processes*" [Principal-A, Interview 1, 18/04/2013]. The information from the interviews indicates that bureaucratic delays were negatively affecting learning and teaching programmes in the schools. The principal of School B also pointed out that learners were being left without teachers for long periods: "*I recommend that so and so...be appointed...and then wait. The problem is, as you wait the learners are without a teacher*" [Principal-B, Interview 7, 03/10/2013].

The finding confirms the assertion by Clarke (2007:114) that the school governing body posts were an advantage for schools because these posts are practically simpler to fill than government posts that are subjected to protracted ELRC processes. Clarke's assertion was confirmed in School C where the principal described how the school resorted to another strategy in order to offset the red tape in the recruitment of teachers

and the filling funded posts: *“at our school it works like this...if you find teachers they are first appointed by the SGB. Then they are already in the school system and should there be a vacancy, a state vacancy then will recommend these teachers to the Department to be appointed as state-paid teachers”* [Principal-C, Interview 10, 21/10/2013]. From an analysis of the interview information, it is apparent that most schools were also affected by the protracted procedures that make it difficult for the schools to recruit and to retain good teachers. School governing posts mainly serve as a relief for the former Model C because they can hold on to the teachers until a government post becomes available. However, for the learners in impoverished schools there seems to be no relief and they had to wait for the conclusion of protracted bureaucratic processes. These on experiences on bureaucracy supports the view by Smit (2008:78) that bureaucracy can sometimes be a major organisational problem because of its negative features such as ‘red tape’, unresponsiveness, delay, inflexibility, ineptitude and contrived elitism.

This study found that some of the schools were trying various strategies to offset policies they viewed as cumbersome. For instance, one of the policies requires schools to prioritise the placement of excess teachers and *Funza Lushaka* graduates. However, an interview with the district official revealed that principals were disregarding this particular policy: *“principals of schools will close one eye and say ‘no, no, no, we don’t want a Funza Lushaka, we don’t want a teacher in addition, we want this foreign teacher because he is good’. That’s the practice in the schools”* [Official- ED2, Interview 14, 15/11/2013].

The practice was not homogenous in the two districts in which the four schools are situated. For instance, in Ehlanzeni district the school principals felt that the district officials were infringing on the right of the school in respect of recruiting the best teachers for their learners. The principal of School B explained further: *“you don’t have an option with Funza Lushaka because they are given, they have to be taken and you don’t have to take an expatriate or any person if the Funza Lushaka is still there”* [Principal-B, Interview 7, 03/10/2013]. This sentiment was also expressed by the principal of School A in the following words: *“we can’t be told as high schools: ‘You must take them!’ It should be ‘if you have a post suitable”* [Principal-A, Interview 1, 18/04/2013]. Conversely, in the Nkangala district the experiences of the schools were different from those of principals in the Ehlanzeni district. For instance, the response of the School C principal on the implementation of the *Funza Lushaka* list was that *“they (education officials) never enforce it on us: ‘here is a list, make use of it, phone the people”* [Principal-C, Interview 10, 21/10/2013]. The apparent different approaches by the districts on a similar issue suggest a lack of uniformity and cohesion in the implementation of policy. This is contrary to the assertion by Sanda and Sraha (2011:5)

in respect of managing change in an organisation: *“In the change process all management practices should be complementary and convey the same message. Leadership, rewards, empowerment, structure, training and systems should interrelate in such a way as to create a common focus or a mind-set with a guiding sense of unity both within and outside the organisation”* (Sanda & Sraha, 2011:5).

**Delegation of authority:** evidence from this study indicates that the HoD of the MDE has delegated the authority to appoint new teachers to circuit managers and district directors respectively. However, the delegated authority only allows circuit managers and district directors to appoint teachers on temporary status. According to the interviewed officials, the delegations have considerably shortened the once protracted cycle of appointing teachers: *“SGB can quickly get a number of CVs and say ‘no, let’s check them,’ just an impromptu interview you know, where we say just come and work tomorrow;’ If the teacher is qualifying”* [Official-ED2, Interview 14, 15/11/2013]. In terms of the delegations, circuit managers can only appoint indigenous teachers based on the recommendations of the SGB.

## **Theme 2: Post establishment and redeployment**

Information gathered from literature indicates that in 1998 the national Department of Education introduced a model known as the post establishment or post provision (DoE, 2005:72). The model is a tool through which the provincial Member of the Executive Council for Education (MEC) creates teachers’ posts for a particular fiscal year. Therefore, the post establishment model guides the provincial Department of Education (MDE) in the allocation of teaching posts to the individual schools. Criteria of the formulation of the post establishment model include, among others, the weighting of individual subjects, and the total number or enrolments of learners in the schools. The function of distributing teachers’ posts is being performed by a division called the Education Management Information System (EMIS). An interview with a provincial official revealed that the recruitment of teachers is initiated by an annual survey which the Department conducts to verify current learner enrolments in schools in order to determine the number of teaching posts for the following academic year. The official explained as follows: *“...we then print the post, the post-provision certificate for each school...the policy says it must reach the school by the end of September of that year...so that (certificates) will indicate how many posts they (schools) will have for next year and they can start recruiting, if they get extra posts or then they can start identifying educators for redeployment if they are over-staffed”* [Official-ED1, Interview 4, 30/05/2013]. This explanation suggests that the purpose of the post establishment certificate twofold: teacher recruitment and redeployment. The principal of School D confirmed that the fluctuation of learner numbers affect their teacher



allocation: *“You may find that now it is October we are having a post for mathematics, but come 2014 because of the enrolment of learners they affect the establishment of the school to an extent that the post may not be existing”* [Principal D, Interview 11, 23/10/2013]. The effects of the post establishment were being felt by the teachers. One of the teachers in School D was concerned about the manner in which the implementation of the post establishment affects the field of mathematics: *“mathematics as scarce as it is, schools or the department don’t take it serious as a scarce subject because the weighting...is there but its application generally is not there...the recruitment of the educators will not be to say that mathematics weight this, therefore mathematics will have more”* [Teacher D2, Interview 13, 23/10/2013]. In another related finding, the study found that the post establishment certificates of the four schools included principals as part of the teaching personnel. The provincial official explained the rationale for the inclusion of principals saying: *“...because if you have two educators at the school, one is principal, if we say the principal is not going to teach, then and that school does not have an office, what is the principal going to do besides doing administration? The other educator must then take the workload”* [Official-ED1, Interview 4, 30/05/2013]. According to the principal of School A, the post establishment model was inflexible because it could not be adjusted to accommodate unexpected changes in the enrolment of learners: *“...somehow the post-provisioning needs to project forward...where you can say in January we have admitted more learners than we anticipated, and the Department can be flexible enough to say ‘ok we accept that, we increase your post-provisioning”* [Principal-A, Interview 1, 18/04/2013].

However, the provincial official (**Appendix G**) suggested that about 200 teaching posts (ad-hoc) were being retained from the pool that the MEC had created. The reason for the retention of these posts was that the posts were allocated to schools whenever there were emergency cases of overcrowding. These *ad-hoc* posts were held centrally at the provincial office but this study established that there was no strategy put in place for the allocation of the posts to schools. In their responses the provincial and district officials stated that the allocation of ad-hoc posts was being done on a *“first come, first served basis”* [Official-ED1, Interview 4, 30/05/2013 & Official-ED2, Interview 14, 15/11/2013]. According to the provincial official, only schools that *“are quick and send their requests are assisted...now the schools that are late like in March, April and May...cannot be assisted because the 200 posts are already exhausted”* [Official-ED1, Interview 4, 30/05/2013]. The belief of the district official was that there were anomalies in the allocation of these ad-hoc posts to schools: *“There is really no policy that is in place to say how they should be allocated...you can go and check at head office, the people who get most of the ad-hoc posts are the former Model C schools”* [Official-ED2, Interview 14, 15/11/2013]. This assertion implies that historically disadvantaged schools were being continuously disadvantaged even after the collapse of apartheid rule.

Another implication is that these impoverished schools have to recruit teachers from the redeployment list of excess teachers or from the placement list of bursary beneficiaries because of policies that confine schools to these lists. The principal of school B indicated that it was difficult for schools to obtain approval for the appointment of post level 1 teachers because of the redeployment of excess teachers: *“...they’ll tell the circuit manager to deploy the excess teachers that have a shortage before we can even talk about recruiting new teachers. the process of redeployment must be the first one...and that must happen somewhere after we’ve received the post establishment...so that you don’t even get a chance to motivate for a teacher you want to recruit”* [Principal-B, Interview 7, 03/10/2013]. This principal not only mentioned that the redeployment process deprived schools of an opportunity to recruit and recommend best mathematics and science teachers they may identify but also described how the school curriculum was being determined by the type of teachers that the school has managed to secure: *“this practice by the Department has caused instability at the school...somewhere in 2010, 2011 our school was able to meet one of the requirements of the department of having 50 per cent of learners doing mathematics and science, but because of this practice science and mathematics learners are no longer 50 per cent, they have gone down because...you have to streamline based on the resource that is available...if I have more teachers that can offer history then I must have more classes that are doing history”* [Principal-B, Interview 7, 03/10/2013]. The aforementioned remark also identifies one of the causes of the shortage of qualified teachers in the country. It implies that if the school has history teachers, all the learners will have to take history as their subject. This practice is certainly not in the interest of the learners nor of the country because it is not informed by the needs of the country. This also indicates that there were efforts from some district officials to facilitate the redeployment of excess teachers although their efforts seem to be outside the parameters of legislation. Section 2.4 of PAM requires that the vacancies must be advertised in a closed vacancy list in order to accommodate serving teachers displaced as a result of operational requirements (RSA, 1998:75). Therefore, any form of redeployment that transgresses legislation constitutes an illegal activity.

### **Theme 3: Transgression of legislation**

It is noticeable that the aforementioned apparent lack of cohesion happens in the context of a decision of the MDE and schools not to advertise vacancies for entry-level teaching posts (P1) in an open vacancy bulletin in spite of the provisions of the EEA. The Act and the related PAM provisions state that the vacancies must be advertised. Sub-section 3.1 of the Personnel Administrative Measures (PAM) states that *“all vacancies in public schools are to be advertised in a gazette, bulletin or circular. The existence of which shall be made public by means of an advertisement in the public media both provincially*

and nationally. The information to be furnished in the latter advertisement shall include offices and addresses where the gazette, bulletin or circular is obtainable. The gazette, bulletin or circular must be circulated to all educational institutions within the province,” (RSA, 1998:76). The study found that despite this provision, the provisions of the Act were being transgressed by both the provincial Department of Education and schools. The interviewed district official said: *“We don’t advertise post level one posts in a vacancy list in this province. We don’t do that”* [Official-ED2, Interview 14, 15/11/2013].

In addition, it was confirmed by the principal of School C who also revealed that the practice of not advertising these vacancies started in 1994: *“there are no vacancy lists to advertise teaching posts...only promotional posts are being advertised...I think not one vacancy list has appeared for post level 1 teachers...then you have to go and recruit your own teachers”* [Principal-C, Interview 10, 21/10/2013]. However, some of the participants supported the non-advertisement of the vacancies because they believed that it d red-tape in the process of appointing teachers: *“Should the principal advertise the post...they must put it in gazette for advertisement, it takes a long time...no for a post level 1 you go there when you are stranded because it takes a long process,”* [Teacher-B1, Interview 5, 03/10/2013]. The non-advertisement of the posts has apparently added the responsibility of recruiting new teachers to the increasing workload of teachers. These teachers individually and collectively headhunt new teachers whenever there is a vacancy in their schools. However, the study found that the search also leads to poaching from other schools: *“...so when the SMT is looking for educators who can be found immediately... there was another one who wanted to come. He wanted to come before we even wanted a teacher. We contacted him...then he must serve notice the other side and we can’t have a period where we must stay without a teacher...so this one came...it is an educator from the school who found this one for us...he was ready to transfer”* [Teacher-B1, Interview 5, 03/10/2013].

It is noteworthy that while impoverished schools were recruiting qualified teachers through informal networks, qualified teachers were reportedly submitting their profiles to affluent schools. A teacher at School C referred to this tendency as “luck”: *“...we’ve been lucky. We’ve had many teachers for many years. We have a constant flow of people handing their CVs...If we advertise, we have people already who will apply for the job. We have their CVs”* [Teacher-C1, Interview 8, 21/10/2013]. Seemingly, the non-advertisement of vacancies only served to narrow the base from which schools can attract qualified mathematics and science teachers. This finding that is contrary to the practice of some of the top performing education systems such as Finland and Singapore where recruitment focuses on the best candidates. In Finland, for example, the recruitment of new teachers is managed through the advertisement of available

vacancies in national, regional, local and education specific newspapers as well as on internet, thereby attracting teachers from all over the country and elsewhere (Carnoy et al. 2009: 89).

**Theme 4: Quality and management of teachers**

*Unqualified and under-qualified teachers:* the study found that the four schools varied in terms of teacher qualifications. In School A, it was found all their Grade 12 mathematics and science teachers were qualified. Younger teachers were reported as having obtained advanced academic qualifications when compared to some of the older teachers. The principal at this particular school commented: “...*some of the older ones, my age you know, some of them have that Higher Diploma in Education with mathematics as the major subject... but the younger ones, they all got degrees*” [Principal-A, Interview 1, 18/04/2013]. However, information from interviews with the two education officials shows that some of the schools in the province still rely on unqualified teachers, particularly for the teaching of mathematics and science. The provincial official said: “*there are schools that have educators that are not qualified but they teach mathematics*” [Official-ED1, Interview 4, 30/05/2013]. The provincial official was requested evidence for this particular assertion to support the claim. In response the official provided the information as generated from the annual survey involving only Grade 10-12 schools in the MDE [Official-ED1, Interview 4, 30/05/2013].

**Table 4.1: Statistics on secondary school mathematics and science teachers**

| <b>MATHEMATICS</b>                 |      |                                    |      |                                      |      |  |      |  |
|------------------------------------|------|------------------------------------|------|--------------------------------------|------|--|------|--|
| All qualified mathematics teachers |      | Qualified and teaching mathematics |      | Unqualified and teaching mathematics |      | Qualified and not teaching mathematics |      |  |
| Female                             | Male | Female                             | Male | Female                               | Male | Female                                 | Male |  |
| 796                                | 1298 | 599                                | 998  | 32                                   | 47   | 197                                    | 300  |  |
| <b>TOTAL: 2094</b>                 |      | <b>1594</b>                        |      | <b>79</b>                            |      | <b>497</b>                             |      |  |
| <b>PHYSICAL SCIENCE</b>            |      |                                    |      |                                      |      |  |      |  |
| All qualified Science teachers     |      | Qualified and teaching Science     |      | Unqualified and teaching Science     |      | Qualified and not teaching Science     |      |  |
| Female                             | Male | Female                             | Male | Female                               | Male | Female                                 | Male |  |
| 439                                | 886  | 289                                | 577  | 11                                   | 24   | 150                                    | 309  |  |
| <b>TOTAL: 1325</b>                 |      | <b>866</b>                         |      | <b>39</b>                            |      | <b>459</b>                             |      |  |

The above table shows that between 2013 and 2014, there were about 956 qualified teachers in the MDE who were not teaching mathematics and science. Furthermore, the table reveals that 118 unqualified teachers in mathematics and science were actually teaching these subjects. In addition, the information highlights the inappropriate usage of qualified mathematics and science teachers in the system. The finding was further confirmed by a district official who stated that there were unqualified South African teachers as well as under-qualified foreign teachers that were teaching mathematics and science: “we also have unqualified teachers in our district...although we also have under-qualified foreigners...but it is better for us to employ an unqualified South African than to employ an under-qualified foreign teacher... that is the principle we are following at this stage...Why should we employ an under-qualified foreign teacher?” [Official-ED2, Interview 14, 15/11/2013]. This view was supported by one of the interviewed teachers who is also a foreigner. The teacher believed that under-qualified foreign teachers should not be appointed: “...when you appoint expatriate teachers...the quality, their ability must be a factor, instead of: ‘there is none then we appoint one for

*the namesake'. That is not going to benefit the country and the learners”* [Official-ED2, Interview 14, 15/11/2013]. This finding confirms that of the Centre for Development Enterprise (CDE, 2011:2) which indicates that the shortage of qualified teachers for mathematics and science was being exacerbated by the practice in schools where qualified mathematics and science teachers are being allocated subjects they were not qualified to teach (CDE, 2011:2).

***Preference of foreign teachers:*** according to the policy of the Department of Home Affairs, foreign teachers that have obtained Permanent Residence permits in the country should be afforded treatment equal to that given to South African citizens in terms of employment opportunities and service conditions (Mokgoro, 1997:26). Furthermore, documentary evidence from the national ELRC chamber indicates that Resolution No 4 of 2001 converted temporary but under-qualified teachers who had been in service for a period of least five years before 31<sup>st</sup> December 2000 to permanent employment (ELRC, 2001:1). The study also established that perceptions on the quality of South African and foreign teachers tend to influence decisions of SGBs in respect of the appointment of new teachers. Information from interviews suggests that there are several schools that prefer to appoint foreign teachers in spite of the policy of the Department. The policy requires schools to firstly appoint excess teachers in accordance with the provisions of the EEA.

Secondly, *Funza Lushaka* graduates should be placed before any other teacher could be considered for appointment. The district official explained that the policy requires that *“When a Funza Lushaka bursary holder qualifies and comes, he must kick out the foreign teacher”* [Official- ED2, Interview 14, 15/11/2013]. However, district offices were providing schools with the database of foreign teachers. An interview with one of the principals in Ehlanzeni district suggests that schools have to conduct a thorough verification of the information from district offices on foreign teachers: *“I communicated with the HR district office so that they should check in their database and then, based on that I was given a number of a teacher then when the teacher arrives here I must check the work permit. I must check the SACE and his qualification should have been evaluated by the department, not SAQA only. It should be SAQA and the Department of Education”* [Principal-B, Interview 7, 03/10/2013]. The finding is in line with evidence from literature which points out that a successful recruitment process involving foreign teachers has to satisfy four requirements: evaluation of the international teaching qualifications by South African Qualifications Authority (SAQA), application for a work permit issued by the Department of Home Affairs (DHA), registration to the South African Council for Educators (SACE) and meet employment requirements (Keevy et al. 2014:22-25).

The study found cohesion in the two districts of Ehlanzeni and Nkangala regarding the verification of the qualifications of foreign teachers. The district official stated that it was necessary for them to verify the qualifications of foreign teachers because of variances in the academic requirements. Furthermore, the official made an illustrated how foreign qualifications compare with those of South Africa. The official cited an example about the different qualifications of teachers from Zimbabwe: “...it is said that the teacher who comes from a college in Zimbabwe is less qualified than a teacher who comes from a college in South Africa...If you take a Zimbabwean teacher it must be a teacher with a degree because part of their study at college, especially the physical science ones, part of their study does not cover the entire physical science. There is a part that is not there... so if you take a teacher with a diploma from Zimbabwe in fact you are taking an under-qualified teacher in South Africa” [Official-ED2, Interview 14, 15/11/2013]. It was apparent during the interviews that the recruitment of foreign teachers was intensifying. According to the principal of School B, most schools seem to rely on foreign teachers to fill mathematics and science vacancies: “Whenever you receive a post establishment you will want to recruit teachers that can teach mathematics and science; and it is not very easy because we don’t have many in the country; so most educators that will present themselves as the ones that can teach mathematics and science will be the expatriates” [Principal-B, Interview 7, 03/10/2013]. The majority of the participating schools had foreign teachers as members of staff, especially in the subjects of mathematics and science. Most South African teachers, principals as well as education officials view the presence of foreign teachers in the schools as a positive development for education in the country. The provincial official indicated that most of the foreign teachers were from Zimbabwe and that, “feedback from districts says they are good” A teacher from School C concurred with this particular perception: “The teachers from Zimbabwe are very good” [Teacher-D1, Interview 12, 23/10/2013].

However, there were also those participants who did not agree with the view that expatriate teachers were better than indigenous teachers. These participating teachers believed that their skills are on the par with those of the foreign teachers: “I worked with them, yeah. We are on par with them” [Teacher D2, Interview 13, 23/10/2013]. Another South African teacher shared this view and stated: “I know some of them, they are good... but I’m not saying they are better than us. No, we are very much good” [Teacher-D1, Interview 12, 23/10/2013]. The general belief from participants was that foreign teachers sometimes display better work ethics than South African teachers: “You see, one thing with them (foreigners) they go all out ...when you come to a country and you are a foreigner; you won’t be like myself who is here (sic). Myself I know my job is secured... I’m in a comfort zone...I may not go to class, things like that” [Teacher-D2, Interview 13, 23/10/2013]. This official believed that schools preferred foreign teachers

because of the suggested dedication to their work: *“One other advantage of foreign teachers is that...they come and stay in the country for the whole year. They teach on Saturdays, they teach on Sundays, on holidays...They’ll only go home in December. So they have all the time with learners”* [Official- ED2, Interview 14, 15/11/2013].

The presumption of the aforementioned official was that the reasons why governing bodies preferred foreign teachers included their passivity regarding teacher unionism and that this was indicative of teachers who are only interested in teaching learners instead of focusing on their labour rights such as working hours and fringe benefits: *“...they are not unionised...they are not so much on benefits as compared to our teachers. So they will really dedicate their time to their learners”* [Official-ED2, Interview 14, 15/11/2013]. According to literature, South African schools are not the only ones that have benefited from the recruitment of foreign teachers. Cuba, for instance has been involved in sending highly qualified teachers to independent countries such as Jamaica and Namibia in order to assist them in their efforts of addressing the inadequacies of stratified education systems inherited from imperial countries (Hickling-Hudson, 2004:12). In turn, the Cuban teachers access employment opportunities in the countries they are sent to assist. The ability of the Cuban government in producing surplus qualified mathematics and science teachers has been attributed to its vast network of universities and colleges (Hickling-Hudson, 2004:12; Gasperini, 2000:1).

### **Theme 5: Placement of *Funza Lushaka* graduates**

The study found that *Funza Lushaka* graduates enter the education system as permanent employees or public servants. These graduates were instantly being appointed in permanent status without probation. One of the interviewed principals stated that the placement of the graduates was compulsory, *“You don’t have an option with Funza Lushaka because they are given, they have to be taken and you don’t have to take an expatriate or any person if the Funza Lushaka is still there”* [Principal-B, Interview 7, 03/10/2013]. The district official pointed out that the *Funza Lushaka* bursary scheme was coordinated by the national Department of Education: *“national compiles the list...because they know who is about to complete...national gives it to the province. Our province then forwards that information to the districts. We are the ones who must then place them in terms of that list...immediately when they qualify you must employ them permanently the first day. They don’t serve probation”* [Official-ED2, Interview 14, 15/11/2013]. However, the study established that the placement of *Funza Lushaka* graduates in schools has been slowed down by administrative hiccups. Schools complained that they were frustrated by the instruction from the Department of Education which requires them to contact at least five graduates from the placement list. The principal of School B explained how the process unfolded: *“...you must be in a*



*position to at least mention five people you have phoned...I recommend that so and so ...be appointed ...and then wait. The problem is, as you wait the learners are without a teacher”* [Principal-B, Interview 7, 03/10/2013].

The frustrations of principals affected circuits and district offices as well. An interview with one of the district officials confirmed the challenges regarding the placement of *Funza Lushaka* graduates: *“the school will refer this thing to the circuit and say: ‘please help us,’ the circuit also gets frustrated”* [Official-ED2, Interview 14, 15/11/2013]. Reliance on the telecommunication strategy to interact with the graduates aggravated the constraints in the placement of the graduates because the list apparently includes all graduates from across the country. When asked about the effectiveness of this telecommunication strategy, the district official stated that the entire process of placement was tedious: *“you’ll phone a person...you will say this one is nearer, but you’ll find that he has already been taken or the phone is not working. It is a very tedious process”*, [Official-ED2, Interview 14, 15/11/2013]. This view was expressed by the principal of School C who revealed that the placement list contained errors: *“This list is not complete as well. You phone a number it says wrong number. It is wrong information that appears on the list. But I like the principle that it makes teachers available for certain subjects”* [Principal-C, Interview 10, 21/10/2013]. In addition to the ineffectiveness telecommunication strategy, the study found that several schools supported the placement in principle. However, the schools were less keen to receive the graduates. The origin of this apparent reluctance from schools is the belief that the Department of Education was foisting the placement of the graduates on the schools. This belief became more evident during an interview with one of the principals who stated that *“we can’t be told as high schools: ‘You must take them!’ It should be ‘if you have a post suitable”* [Principal-A, Interview 1, 18/04/2013]. A similar view was expressed in School B where the principal felt that the externally enforced placement of the graduates was restrictive in terms of quality: *“you know with expatriates you have an option to get the best because you recommend. With Funza Lushaka you don’t have an option because you don’t recommend. They give”* [Principal-B, Interview 7, 03/10/2013]. The implication is that schools were unable to conduct interviews and select the most appropriate teacher from the graduates. The assumption is that these principals were concerned about the quality of the teachers that they were being provided with.

The assumption is based on the views that emanated from the interviews. During an interview at School B the principal stated that *“Funza Lushaka...are not up to standard but we’ve been grooming them”* [Principal-B, Interview 7, 03/10/2013]. Equally, the interview with one of the education officials confirmed these perceptions of the principals. The district official asserted that *“schools are complaining. That is a fact.*

*They are saying they (Funza Lushaka) are not properly being trained, particularly on content...They've got challenge on content... I think their training does have a challenge*" [Official-ED2, Interview 14, 15/11/2013]. The principal of School A indicated that the challenge for some of these graduates is often the medium of instruction: "Now most of the Funza Lushaka bursary holders, it says their language of teaching and learning is English, but when you engage with them, the level, standard of English often, not always...but often. Often the standard of English is not of a high enough standard" [Principal-A, Interview 1, 18/04/2013]. This principal added that the placement of Funza Lushaka graduates was not equally enforced between English-medium and Afrikaans-medium schools because, "if you look at the list, the language of teaching and learning of all the bursary holders is English. So they (Afrikaans-medium schools) are not under any pressure to take these young and inexperienced teachers" [Principal-A, Interview 1, 18/04/2013]. The reference to the Afrikaans-medium schools suggests that the Funza Lushaka programme was not targeted at these schools or that the graduates were not interested in working in such schools.

The principal of School D hinted that the graduates were also responsible for the slow placement process because they seem to be interested in specific schools: "...so they (education officials) ultimately give us a pool so that we can check and get mathematics and science teachers, but as I said..., even those candidates they are aware that there is a shortage, then they end up perhaps preferring certain areas" [Principal-D, Interview 11, 23/10/ 2013]. This view was confirmed in School C where one of the teachers pointed out that the graduates they had identified from the placement list have declined their job offer: "There has never been one who wants to come to [name of area]; that teaches the subjects that we needed" [Teacher-C1, Interview 8, 21/10/2013]. Responding to the reluctance of the graduates to take up posting in certain needy schools, the district official indicated that Funza Lushaka graduates have entered into an agreement called the Memorandum of Understanding (MoU). The district official pointed out that the graduates, through the MoU, have committed themselves to teach "wherever a vacancy exists in the Republic." Therefore, the district official believed that a "teacher qualified under Funza Lushaka can teach anywhere in the country" [Official- ED2, Interview 14, 15/11/2013]. Documentary evidence on this aspect reveals that Funza Lushaka graduates are required to fill in an agreement form which partly states:

Bursars cannot choose where they will be placed; bursars cannot apply directly to a school for a teaching post. Bursars can be placed anywhere in the province, or in the country (**Appendix L**).

According to the Employment of Educators Act (Act No. 76 of 1998), the graduates should be consulted. Section 8 (7) of the Act states that *“in the case of an educator who has been awarded a bursary by the employer to follow a course approved by the employer, the employer may transfer such an educator with his or her consent to any suitable post on the educator establishment of a public school...”* (RSA, 1998:7). In essence, the Act allows the graduates to consent to their placement to schools. It is apparent that the national department of education only provides training for the graduates but the placement is determined by the availability of vacancies in the provinces. This was revealed in an interview with the district official who stated that *“people apply directly to national...what we do we assist them by giving them the application forms...you can stay in Ermelo and say you want to go and teach in Cape Town they will allow you to go there but you must teach for four years or you must pay back the National Department...so we are not really so much involved in that one”* [Official- ED2, Interview 14, 15/11/2013]. Therefore, provincial Departments of Education are expected to plan for the intake of these graduates in accordance with the requirements of the National Policy Framework for Teacher Education and Development in South Africa. Evidence from literature indicates that the deployment of teachers either prioritises the needs of the country or those of the individual teacher. In Singapore, for instance, both the interests of the country were being accommodated. New teachers work wherever government decides to post them; thereafter their requests of being deployed to the schools of their choice are considered through an annual and centralised process of posting teachers according to the country’s manpower needs (Choo & Darling-Hammond, 2011:34).

#### **Theme 6: Role and influence of teacher unions**

The study found that teacher union representatives often participated actively in the selection (short-listing) and interviewing of new teachers. The participants responded differently with regard to this form of participation. The principal of School C mentioned that he had an unpleasant experience communicating with some of the union representatives: *“I have nasty experiences of involvement with the unions. Maybe...I never experienced it before 1994...and as principal you’ve got a plan for the school because a good principal always thinks ahead...and for you to start short-listing, interviewing and for a union member to object! I can’t understand this”* [Principal-C, Interview 10, 21/10/2013]. According to the EEA (Act No. 76 of 1998) which guides the process of filling funded vacancies provides for the inclusion of the principal of the school in the interview committee either as a representative of the department or in his/her capacity as principal of the school. During this interview the principal further indicated that guidelines of the criteria for interviews were discussed and finalised by members of the interview committee. The representatives of the unions are also involved

in these discussions: *“the principal and his SGB know what they want...why suddenly in the presence of a union member start discussing criteria... and when it comes to the interview, how come you can’t formulate and discuss your questions with your SGB before time?”* [Principal-C, Interview 10, 21/10/2013]. The interviewed district official confirmed that union representatives seldom observe proceedings during the filling of vacancies. It was apparent that their influence was felt in the interview committee: *“although unions are supposed to come and observe the process but they end up participating you know...even the SGB will say ‘let us get the opinion of the union on this one’ and then they will fully participate. Yeah we really don’t bar them”* [Official-ED2, Interview 14, 15/11/2013].

Moreover, the interview with this particular district official revealed ineffectiveness of the Department’s resource persons in the interview committee. According to the EEA the Department is required to have a representative in the interview committee. However, the district official suggested that committee members tend to rely on the input of union representatives and that even SGB members were not impartial in the interview committee: *“sometimes they [unions] become handy to the SGB but obviously some will push their own agenda to say there is someone, They will earmark somebody who is a member of course...and if there is no problem the process will run up to the end...even the governing body does have interest sometimes to say this person has been acting for a long time and did well for us...they will want that one”* [Official-ED2, Interview 14, 15/11/2013]. Apparently the interests of both the unions and SGB emanate from the school’s staff members who are often familiar with the events in the school. For instance, this study found that principals tend to pursue their interests through SGB members. During one of the interviews a principal stated:

*Remember SGB members are not educators, are not principals...They are from the community so they rely on you as the principal to inform them, to guide them, to recommend to them and you have to motivate them or convince them. This is the route to follow and if the SGB buys-in then fantastic* [Principal-C, Interview 10, 21/10/2013].

With regard to the aforementioned conflicting interests, the district official stated that the department has been able to balance and manage the interests of both the unions and SGBs. The official mentioned that the representative of the department was the resource person responsible for the management of processes in the interview committee: *“to say I don’t think this one will make the grade...”* [Official-ED2, Interview 14, 15/11/2013]. The district official added that in case the interview committee fails to conclude its work due to irreconcilable differences the district director may intervene and appoint another interview committee if necessary: *“the director will take a decision to say ‘I am*

*appointing a new panel there...that will conduct the interviews*” [Official-ED2, Interview 14, 15/11/2013]. However, sub-section 3.3 of the EEA does not specify who is supposed to appoint the interview committee. The Act only states that *“the school governing body is responsible for the convening of the Interview Committee...”* (RSA, 1998:7).

#### **Theme 7: Service and working conditions**

***Permanent and temporary status:*** the delegated authority of the circuit managers and district directors only allows them to appoint teachers in temporary status for a specified period. According to information from most interviewed principals, temporary teachers are appointed for a period of 12 months. The principal of School B mentioned that district officials require schools to submit written requests for the extension of temporary contracts: *“they [Department officials] tell you it is 12 months. That is what is contained in EDU1. Otherwise if you indicate something more than a year, they won’t approve”* [Principal-B, Interview 7, 03/10/2013]. The principal further stated that the request to renew contracts was subject to the post-establishment model and the related redeployment process. The principal added that *“somewhere in November, October-November, you have to complete EDU 8 to renew a contract of a temporary educator....and you cannot renew contracts of such teachers if you have to redeploy”* [Principal-B, Interview 7, 03/10/2013]. The principal of School C supported the view that the 12 months contracts were often renewed subject to written requests from schools. He added that schools may also submit request to the MDE to convert the temporary status of teachers to permanent: *“...Then you request the Department for them to be appointed in a permanent capacity after a year or two”* [Principal-C, Interview 10, 21/10/2013]. These assertions were confirmed through document analysis. According to a collective agreement of the Mpumalanga ELRC chamber (ELRC, 2013:5), a post level one teacher who *“meets the minimum requirements for permanent appointment shall be appointed permanently in vacant substantive posts in their current schools of employment”*. Some of the principals confirmed during interviews that they were being guided by the post-establishment model and the ELRC resolutions regarding the employment status of their teachers.

In relation to the preceding information, the principal of School D remarked: *“...you keep them temporary until we verify the (post) establishment of the school. If the (post) establishment allows it then we check against the resolution, if the resolution says now the teacher has been temporary for a year then according to the agreement this teacher must be permanented (sic) then it will be like that...So that resolution is guiding as to when are these (temporary) teachers absorbed into the system”* [Principal-D, Interview 11, 23/10/2013]. In terms of section 6B of the EEA, the authority to convert a temporary

appointment to a permanent appointment lies with the Head of Department after consultation with the school governing body but not necessarily with the recommendation of the governing body. The role of the ELRC process was only confirmed through the analysis of documents of the Collective Agreement Number 1 of 1994 of the Mpumalanga ELRC Chamber. This agreement indicates that temporary teachers who have occupied a vacant substantive post for a continuous period of at least 12 months will qualify for permanent appointment (ELRC, 2014:5). The agreement of the year 2014 further states that the conversion of temporary status employment into permanent status employment shall be preceded by the placement of excess teachers as well as that of the bursary holders.

**Remuneration and incentives:** the majority of interviewed teachers felt that the introduction of incentives may contribute to the retention of qualified teachers for mathematics and science. However, the participants differed with regard to the types of incentives. Some believed that only monetary incentives were worth their efforts. In School A one teacher stated: *“Money is definitely an issue because being a mathematics and science teacher...you can use the degree in a private sector as well”* [Teacher-A1, Interview 2, 15/05/2013]. This view was shared by another teacher in School C who indicated that mathematics and science teachers were not appreciated because *“You know you get this small salary. We do a lot of work ...To receive an award, to receive a certificate, that means nothing to me because I know this is just a piece of paper I can print off my printer...What has lasting impact? Money! because everything is about money”* [Teacher-C2, Interview 9, 21/10/2013]. Despite their beliefs regarding monetary incentives, the participants were showed willingness to consider other forms of incentives. The teacher from School D commented that, *“incentives cannot be money sometimes. It can be vouchers ... for lap-tops, holidays...”* [Teacher-D2, Interview 13, 23/10/2013]. Another participant added: *“The Department must make more bursaries available for educators to develop themselves”* [Teacher-D1, Interview 12, 23/10/2013].

The idea for the introduction of incentives for was supported by one of the education officials who said: *“I’m trying to express that teaching as a profession is not attractive. There must be ways of marketing teaching, and obviously one of them is to incentivise these teachers more than what they are getting now ...”* [Official-ED2, Interview 14, 15/11/2013]. In response to a probing question on the cost implications of such incentives, the official pointed out the following:

*I don’t think we really have a problem of finances in our country, but there is a lot of wastage in our country’s budget...look we are talking about physical science and mathematics here. We are not talking about all the teachers...and therefore I believe that our Department can sustain it for a certain period of*

*time because we are addressing this problem* [Official-ED2, Interview 14, 15/11/2013].

Despite the abovementioned general support for incentives, several participants felt that incentives would be meaningless if working conditions were not improved: *“Sometimes money alone is not enough. I think to a large extent – working conditions”* [Teacher-A1, Interview 2, 15/05/2013]. This view was closer to the belief of other participants who were not convinced that incentives were necessary: *“I don’t believe in incentives...If anybody ever did it (teaching) for money, they were not meant to be in it”* [Teacher-C1, Interview 8, 21/10/2013]. Similarly, the principal of School D agreed that incentives may not guarantee that teachers will stay and the principal suggested a philanthropic approach with regard to the retention of teachers: *“...what we do we try and make teachers aware that the society we are servicing is poverty-stricken ...so if a person is only motivated through material, that person you can’t hold back, will definitely leave”* [Principal-D, Interview 11, 23/10/2013]. With regard to the findings of the current study, an interviewed MDE official indicated that an incentive known as “rural allowance” has been introduced in the Mpumalanga Province for mathematics teachers. However, the official added that the incentive was never implemented, *“...but we have not yet implemented it. ...Yeah, I don’t know why. The budget was there. There was a time last year when we did all the calculations and don’t know really what Head Office did because the budget was there”* [Official-ED2, Interview 14, 15/11/2013]. Interviewed mathematics teachers confirmed that they have not received any incentive: *“Every year we get forms so that we must fill in all the Mathematics and Science people. Then they (Department officials) promise they will try and see if they can budget...if there is money left at the end of the financial year, we will get some money; but it never happened; never!”* [Teacher-A2, Interview 3, 15/05/2013]. Another teacher from School C concurred with the preceding remark: *“I don’t have experience on incentives because we are given no incentives...”* [Teacher-C2, Interview 9, 21/10/2013].

***Teacher management and lack of support:*** in most participating schools, the common trend was that the principals delegated subject allocation to heads of department. Some of the interviewed principals mentioned that their criteria for subject allocation take into consideration factors such as experience and qualifications or a combination of these factors. The study further found that the majority of schools were guided by the NSC examination results when it comes to subject allocation. In some instances qualifications were less considered. In School C, for instance, an interviewed teacher revealed her teaching experience as 31 years and further mentioned that *“a teacher cannot start teaching Mathematics in Grade 12, so new teachers go to grade 8. They first have to prove themselves because everybody who has mathematics on the CV doesn’t mean is a mathematics teacher...”* [Teacher-C1, Interview 8, 21/10/2013]. The criterion of

experience for Grade 12 teachers was also applied in School A, where the principal emphasised that “...if you are looking for someone who is going to teach a grade 12 mathematics class, you can't take a bursary holder. You've to get someone with experience” [Principal-A, Interview 1, 18/04/2013]. Similarly, the principal of School B explained how their school value performance in Grade 12: “...I monitor your performance and I develop you. If you can't be developed you are retained in grade 10 so that you don't go to grade 11 until you are O.K. I want the best in Grade 12” [Principal-B, Interview 7, 03/10/2013].

Conversely, the principal of School D indicated that their school uses experienced teachers in the lower grades in order to lay a good foundation: “usually we prefer giving those [teachers] that are experienced the lower grades to lay the foundation, a solid foundation” [Principal D, Interview 11, 23/10/ 2013]. However, the principal's view was not corroborated by the information gathered from the teachers at the same school. One of the interviewed teachers at this school stated that “...if you are privileged as results in grade 12 were good, they'll say 'no, just continue with the learners” [Teacher D2, Interview 13, 23/10/2013]. The study further found that teachers in School D were afforded an opportunity to choose subjects they wanted to teach regardless of learner performance in these subjects. This practice of allowing teachers to choose their own subjects has apparently affected the morale of the other teachers that have been allocated certain specific subjects for many years. Similarly, a School D teacher was frustrated by being allocated to teach the same subject for many years:

*...not to say we are not having teachers who can teach mathematics and science... but the other one [teacher] once you say she must teach science, she'll say: 'I am quitting right now!'; And the other one says she doesn't like to teach science...I taught mathematics maybe when I was still new, then it has been science...So that nearly made me to quit to another school [Teacher-D1, Interview 12, 23/10/2013].*

The aforementioned view was confirmed during an interview with another teacher in School C. Although this teacher has been teaching physical science for many years, his academic qualifications are in both mathematics and science. However, the teacher now considers himself a specialist in science: “I no longer teach mathematics. I actually lost the ability, obviously” [Teacher-C2, Interview 9, 21/10/2013]. The issue of subject allocation appears as a serious managerial problem that also affects the morale of some of the teachers. For instance, the principal of School B indicated that although the school applies a staff rotation policy in respect of allocating teachers to classes, some of the qualified teachers at the school were unwilling to move with their learners to the senior classes due to low self-esteem and morale: “they say they are not comfortable to go and



*teach in the FET. They only teach in Grades 8 and 9. They say the syllabus has changed*” [Principal-B, Interview 7, 03/10/2013]. Research points out that the performance of employees cannot be divorced from their physiological and psychological needs. Hence, leadership and management theories emphasise the importance of leadership behaviours that are considerate to the employees’ needs (Moujaes et al. 2012:2). Transformational leadership behaviours are often viewed as suitable for more complex education systems because of their ability to advance the goal of reform while ensuring buy-in and participation from multiple stakeholders (Moujaes et al. 2012:2). In addition, transformational leadership as being capable of inspiring and motivating followers throughout the change process (Moujaes et al. 2012:2). Most importantly, transformational leaders are renowned as being able to inspire followers towards a common vision.

However, the study found what seems to be one of the sources of low inspiration due to inappropriate use of qualified mathematics and science teachers. One of the interviewed teachers in School B revealed that even foreign teachers that were recruited to teach mathematics and science were being allocated other subjects except those they were recruited to teach: *“I know some of the teachers, expatriate teachers who are teaching in many schools Life Orientation and some other subjects... but they are appointed as mathematics and science teachers”* [Teacher-B2, Interview 6, 03/10/2013]. The usage of qualified mathematics and science teachers in other subjects has become prevalent in the schools under the MDE. According to a provincial official, there were about 250 schools that have 511 qualified mathematics teachers that are currently not teaching the subject. The official revealed that results of their survey show that *“...we have 511 educators that are qualified to teach mathematics but they are not teaching mathematics... this is only covering grade 10 to 12”* [Official-ED1, Interview 4, 30/05/2013]. While several schools were apparently hoarding qualified mathematics and science teachers, the other schools were facing difficulties in attracting such qualified teachers for these subjects. In School D it was indicated that attempts to attract qualified mathematics and science teachers were unsuccessful. This resulted in the school employing an unqualified teachers *“...because we are running short of mathematics teachers...and learners cannot stay without a teacher”* [Principal-D, Interview 11, 23/10/2013].

According to the provincial official, unqualified teachers would be dispatched to the schools that have a surplus of mathematics and science teachers *“so that we can identify them in person, so we can start dealing with them through the ELRC”* [Official-ED1, Interview 4, 30/05/2013]. However, there was no clarity as to the reasons for the matter to be referred to the ELRC provincial chamber in view of the continuing redeployment policy. The majority of interviewed education officials and principals confirmed that

schools that were hoarding qualified mathematics and science teachers will always ensure that these teachers are not on the redeployment list. The district official indicated that “*it is obvious... you know, teachers in addition, you’ll never find a mathematics and science teacher who is in addition...you’ll find history, geography, biblical studies and languages. You’ll find those*” [Official-ED2, Interview 14, 15/11/2013]. This view was supported by several principals including that of School B who stated:

*I’ve never seen it happening...like I’m saying, we are having shortage in that area...sometimes you’ll want a mathematics teacher, mathematics and science teacher; but because the department wants to redeploy, they’ll redeploy for you a teacher who majored in Biblical Studies and English...and you’ll get teachers that will not add value to your school* [Principal-B, Interview 7, 03/10/2013].

Unlike in the abovementioned schools, SGBs in affluent schools managed to ensure a constant flow of qualified mathematics and science. These SGBs first recruited qualified teachers into their payroll and later transferred them to government posts. This practice was confirmed during an interview with one of the affected teachers who stated that when his current school recruited him to an SGB post accepted the offer on condition that he will be transferred to a government post when it becomes available: “*...it was on condition that the first Department post that will be available, it will be mine*” [Teacher-C2, Interview 9, 21/10/2013]. During the interview it became apparent that the transfer of SGB-paid teachers to government posts benefited both the teacher and the school. These benefits for the teacher include pension, medical aid and housing allowance. Fringe benefits from government posts were seemingly better than those of the SGB posts. According to this interviewed teacher, being an SGB post was not an advantage:

*The SGB post is no advantage, the Department’s post is that you get pension, you get medical aid...and the longer you stay in an SGB post, the less pension you are making...As soon as you move from an SGB post to a government post you begin as a first year teacher, so you take a salary drop* [Teacher-C2, Interview 9, 21/10/2013].

However, the study established that in the Ehlanzeni district the practice of transferring SGB-paid teachers to funded posts has become more difficult because of the mandatory placement of *Funza Lushaka* graduates. The compulsory placement of the graduates has resulted disagreement between district offices and their schools. For instance, the principal of School A indicated how their school was disappointed by the district’s halting of the transfer of teachers to funded posts: “*I’ve been doing that for the past five years, moving SGB employed educators into state posts by just completing EDU 1 and attaching copies...I’m sitting in a case this term where I lost two senior teachers; now*

*they are trying to force me to take two of these bursary holders* [Principal-A, Interview 1, 18/04/2013]. This finding highlights the problems of a semi-decentralised education system which encourages community participation while ensuring cohesion through central control. This approach was noted by Gaynor (1998:31) who indicated that there was a need for governments and communities to establish seamless partnerships and collaboration regarding education reform, particularly with regard to the recruitment and retention of good teachers:

Reforms in teacher management should allow community participation to flourish without losing the underlying values of a cohesive system. And that “the wider system must ensure nationwide equity in the distribution of teachers, build a career structure for teachers that attracts and keeps good teachers, and safeguard the rights of teachers, no matter who pays them (Gaynor, 1998:31).

***Overcrowding and teacher morale:*** this study established that majority of mathematics and science teachers believed that their working conditions were worsening rather than improving, particularly with regard to workload, overcrowding, learner underperformance and discipline. With regard to workload most teachers believed that schools and the department of education were not prioritising mathematics in schools. A teacher in School D remarked: *“I think management in schools, they generally don’t take mathematics as that scarce subject because...they’ll just concentrate on the allocation of duties; to say teachers in mathematics and science they (sic) are overloaded that one they overlook”* [Teacher D2, Interview 13, 23/10/2013]. Similarly, a School C teacher revealed his feelings about the work involved in mathematics and science, *“I think people don’t appreciate the amount of work we do...”* [Teacher-D2, Interview 13, 23/10/2013]. The workload was viewed as being more cumbersome for mathematics and science teachers who are also members of SMTs and have administrative responsibilities. The administrative workload for these SMT members encompasses responsibilities such as the supervision of teachers, the filling in of IQMS forms, in-service training and classroom teaching. A teacher from School A remarked: *“The big challenge is all the paperwork. Every year it is getting too much... big headache is IQMS because as HoD it is not only the forms I have to fill in but I have to make sure that all staff fill in and I have 15 people in my department...it’s just a number of forms we have to fill in. It is just unbelievable you can’t just focus on teaching...there is a lot of other administrative work that needs to be done...”* [Teacher-A1, Interview 2, 15/05/2013].

Teachers further mentioned that their increasing workload was exacerbated by overcrowding due to an influx of learners to schools that have resources and better teachers. This influx has been attributed to the exodus of learners from schools that were

viewed as underperforming or dysfunctional with regard to Grade 12 examination results. It is a trend which was noted during an interview with the principal of School B who indicated that *“a school markets itself...if you do well your enrolment does not drop, it goes up... and it gives you an allowance to get more teachers...”* [Principal-B, Interview 7, 03/10/2013]. The allowance for additional teachers implies a reduction in class sizes. However, the study found that impoverished schools were unable to their class sizes due to their financial capacity to recruit additional teachers and the shortage of classrooms. Conversely, it was established that affluent schools managed to maintain low class sizes due to the financial ability of their SGBs to employ additional teachers. These schools have d and managed to maintain class sizes of about 30 learners or below. One of the interviewed principals explained: *“...most of my classes are 30 or below. Thirty learners or below...We’ve got one class which is 34 learners because some learners do this subject change”* [Principal-A, Interview 1, 18/04/2013]. A similar situation was happening in another affluent school where the principal stated that *“our SGB wants more teachers and smaller classes”* [Principal-C, Interview 10, 21/10/2013]. Responding to a probe on the possibility that the SGB may decide to withdraw its financial assistance in respect of hiring additional teachers, the principal exclaimed: *“It will be a disaster. Some classes will be huge some classes will be smaller, but the average will be 1:40...No, no teacher will cope with that...it is a losing battle to teach more than 30 learners in a class. Thirty is a maximum in a class”* [Principal-C, Interview 10, 21/10/2013].

The aforementioned principal further described the importance of the SGB intervention regarding the employment of additional teachers: *“the intervention of the SGB helps tremendously...and it comes a long period of time (sic). I really would not know what to do if SGB says ‘no more SGB teachers’ or if the state should say one day ‘listen we don’t want SGB teachers at school anymore only teachers employed by the state must teach at state schools’. That will be oh! Oh! ...That will be a huge problem”* [Principal-C, Interview 10, 21/10/2013]. Conversely, an interview with a teacher from an impoverished school revealed that there are huge challenges in respect of class sizes: *“the thing of having more learners in a classroom, overcrowding is a problem. If we can have more teachers the problem may be less”* [Teacher-B1, Interview 5, 03/10/2013]. Teachers from the majority of participating schools articulated a similar view: *“learners are many in a class and the educators are unable to look at each child and find out individual problems”* [Teacher-B1, Interview 5, 03/10/2013]. The class sizes in impoverished schools were large because of the SGBs were unable to levy high user fees in order to employ additional teachers. The result is that the teacher-learner ratio in these impoverished schools exceeded the norms of 1:35. In one of these schools the principal revealed that *“the ratio goes as high as 1:60, it depends on the phase”* [Principal-D, Interview 11, 23/10/2013].

It is noticeable that the government's infrastructure on the building of classrooms programme was not commensurate with the influx of learners to the schools that are viewed as performing in both affluent and impoverished communities. The principal of School A mentioned that in spite of an increasing intake of learners in the cities and towns this has not converted into any construction of new schools: "... *but it's the same number of schools now as they were in 1994, but it is three times as many children. They (Department) always in January put pressure on us (English-medium schools) to accept more learners*" [Principal A, Interview 1, 18/04/2013]. The lack of classrooms and the resultant overcrowding as well as increasing class sizes tend to contribute to poor learner outcomes and low teacher morale. During the interviews most teachers in both affluent and impoverished schools pointed out that they were being frustrated by the sub-standard performance of learners and the apparent lack of support from some parents and members of the public. With regard to the lack of public support, a teacher from School A stated the following:

*I think teachers in general are frustrated and de-motivated...and you know what the big de-motivator is for mathematics and science? At the end of the year or next year January when the results come out then you see on the news Professor J... [name of professor] saying 'the results are a joke...mathematics and science results are a joke'...it is small things like that that have an effect on us...I get to my sister and she says what are you doing teaching? It means nothing did you hear what Professor J... [name of professor] said? ...even parents pick up on that and they tell their kids 'mathematics and science is a joke (sic). It is what concerns me [Teacher-A1, Interview 2, 15/05/2013].*

The previously mentioned remark relates to frustrations of teachers that derive from the sub-standard academic performance of their learners. Interviewed teachers believed that the departmental policy on learner progression encouraged this under-performance in mathematics and science. The policy apparently allows learners to progress to senior classes in spite of their incompetency in either mathematics or science. A teacher in School D commented: "*I can say the department...they have this law which says a learner must not repeat one grade three times. You find that a learner is now passed to another grade even if he doesn't qualify. And these learners become a problem when they go to Grade 12 because we are judged by the Grade 12 results*" [Teacher-D1, Interview 12, 23/10/2013].

In response to questions on the role that parents play in supporting teachers and learners, several teachers mentioned that some of the parents exacerbate the working conditions under which teachers serve. The teachers pointed out that some of the parents were forcing their children to take mathematics and science despite their cognitive inabilities

in these fields subjects. Thus parents were seen as contributors to the frustrations that teachers experience. One of the teachers in School A believed that most of the learners that are currently taking the subjects of mathematics and science are doing so reluctantly: *“The problem is, especially in science, there are a lot of learners that are taking the subject but the parents are forcing them to take science. They feel so terrified in taking the subject but the parents are forcing them to take science”* [Teacher-A2, Interview 3, 18/04/2013]. Another teacher in School B stated the same opinion: *“...even if you try to advise a struggling learner in science to choose another stream you find that at home they want the learner to do science...because it is a democracy you cannot channel him to do the stream you think he can fit in”* [Teacher-B1, Interview 5, 03/10/2013].

Some of the interviewed teachers appeared to be downhearted because they felt powerless regarding the career choices of learners. According to the teachers, it is the prerogative of the parents to decide the future of their children: *“This school does give them guidance but ultimately it is up to the child and their parents. You can’t say this child is going to become XYZ”* [Teacher-C2, Interview 9, 21/10/2013]. This view became more apparent during an interview with a mathematics teacher in School A. This teacher described how one of the parents ignored their advice:

*There was a grade 11 child, I think mathematics, science and life sciences ... she failed all three and we said to the mother: ‘please, she can’t cope, at least move her to mathematics lit., or you know, change subjects.’ The mother said: ‘No! she is becoming a doctor. So you know there is no realistic dream for some parents and for some children* (Teacher-A1, Interview 2, 15/05/2013).

From the interviews, it was clear that teachers and schools have no authority regarding career decisions of their learners. Their role is limited to providing advice to both the learner and the parents. Decision-making is the responsibility of the learner and parents. However, the finding suggests that parents took decisions on behalf of their children with regard to career selection. In addition, they identified learner discipline as another source of the teachers’ frustrations. While some of the participants identified the lack of discipline among learners, there were those teachers who felt that the negative attitude of learners was a cause for concern. An interview conducted in School A with one of the teachers provided information on the concerns of teachers regarding the lack of effective strategies in maintaining learner discipline in a post-1994 education system: *“really, how do you discipline a child who is horrible? ...You get the parents in, and the child comes back and does the same thing; then you start the same process. So yeah, I think discipline-wise the teachers are frustrated because we don’t really have a means of disciplining”* [Teacher-A1, Interview 2, 18/04/2013]. Equally, the principal of School C

described how the negative attitude of learners cost the school a mathematics and science teacher: *“the learners told me: ‘sir we don’t want him as a teacher. The teacher was so disillusioned and I was also disillusioned about the attitude of our learners”* [Principal-C, Interview 10, 21/10/2013].

However, the district official believed that learner discipline depends on the management of the schools and the conduct of their teachers: *“... So I do believe that ill-discipline of learners is as a result of the management of the school. How teachers themselves of the school are carrying themselves...you know a school that is not well looked after it will never give you good results...so it goes with the school management and the legacy that teachers put...learners will do what their teachers and management are saying they should do”* [Official-ED2, Interview 14, 15/11/2013]. The interview with one of the principals revealed a view that was in agreement with the assertions of the district official. However, this view attributed ill-discipline in schools to the inability of principals and education officials to manage change due to the continuous policy reform in the post-1994 education system: *“it is a difficult situation to manage...as managers here at our schools we are seen as the Department...we represent the Department. The change on change that is happening we are the mirrors of the change on change...it becomes difficult to run the schools. Then you will have ill-discipline among educators. As a result there will be ill-discipline among learners also,”* [Principal-B, Interview 7, 03/10/2013]. The findings confirm that teachers’ behaviour are shaped by the fulfilment of their physiological, safety and social needs that apparently boost their esteem and self-actualisation in accordance with Maslow’s Hierarchy of Need (Griffin, 2014:128), though not necessarily according to Maslow’s rigid sequence. These needs also relate to Herzberg’s Two-Factor theory where intrinsic satisfiers such as achievement, recognition, responsibility and advancement (Teck-Hong & Waheed, 2011:76).

#### **Theme 8: Professional development and teacher welfare**

In-service was identified as critical for most teachers. In many schools it was principals and SMT members who provided school-based in-service: *“...Throughout the year is the HoD that must ensure that this teacher is developed, as I also monitor the development,”* [Principal-B, Interview 7, 03/10/2013]. This principal further pointed out that the continuing curriculum reform in a post-1994 education system was one of the causes of deficiency in the content knowledge of teachers: *“if you change curriculum you also need to capacitate your educators like it’s done in other countries. You find a teacher in countries like Japan is taken for a year to go and be capacitated...”* [Principal-B, Interview 7, 03/10/2013]. The principal of School A indicated that members of their School Management Team (SMT) shared the in-service

responsibilities: “...if it is content-based then I’m referring back to the HoD who must do the in-service training. So it depends on what is the challenge then I can refer to where I need to refer”. [Principal-A, Interview 1, 18/04/2013]. However, the involvement of SMT members in staff development varied as well as the response of the teachers toward the staff development programmes. One of the interviewed science teachers shared experiences that newly appointed teachers face when they arrive in the schools: “I was thrown in the deep end and they just assumed I’ll swim...Initially, I actually asked for assistance, not from the school because there was nobody...I outsourced assistance from outside with different concepts. I didn’t get help from the school itself. They just left it up to me to get it done” [Teacher-C2, Interview 9, 21/10/2013]. In a response to a probing question on the decision of the school not to provide support, the aforementioned teacher highlighted the limitations in their SMT structure: “...there are only two science teachers, so the HoD is not a science teacher so what happens is that she says ‘you guys, are you O.K?’ and we say ‘yes’ then she says ‘wonderful’...and that’s where the cluster meetings are so important...that is where the forum is for science teachers to get together and say I’ve an issue with this, how can we solve it?’ instead of having meetings for the sake of meetings” [Teacher-C2, Interview 9, 21/10/2013].

Teacher in-service activities require the creation of a favourable and supportive working environment as well as school circumstances. An interview with the principal of School A highlighted the importance of a good working environment for teachers: “...teachers don’t want to feel uncomfortable in their classrooms. They want to be able to have a good day at work, you know” [Principal-A, Interview 1, 18/04/2013]. This view was also articulated by the principal of School C who said that “...the principal must do his utmost to create a safe environment for every teacher and to acknowledge the contributions that the teachers have made” [Principal-C, Interview 10, 21/10/2013]. The finding recognises the critical role that staff development programmes play in the professional growth of teachers. The finding is in line with literature evidence which is suggestive that teachers in Singapore are entitled to 100 hours per year for in-service training as well as a small personal budget for materials and personal computers (Smithers & Robinson, 2013:54).

Furthermore, the study found that the efforts of the principals were being supported by external structures, especially those of the MDE such as the Employee Health and Wellness Programme (EHWP). The district official described what the EHWP entails: “It looks after educators’ needs so that they function well; they are healthy...It also looks after educators who are HIV positive...and their families” [Official-ED2, Interview 14, 15/11/2013]. Furthermore, this current study established the importance of the EHWP from an interview with the principal of School A who described how the



EHWP assisted one of teachers at this particular school: *“the Wellness Centre, the division of HR...of the Department came to assist me when an educator was suffering from depression, and they were very good and she was given an extended leave and assisted to get treatment. I was very impressed with the professional way they handled her. And the educator is back in class now”* [Principal-A, Interview 1, 18/04/2013].

However, this study established that some of the school principals were concerned about their exclusion from some teacher development and support programmes that circuit, district and provincial offices of the MDE were conducting with teachers. These interviewed principals viewed the organisation and coordination of the skills development programme of the MDE as being improperly managed. The principal of School B stated:

*I think this skills development is not run properly. We don't have a say as managers of schools...our teachers are doing this skills development and specialise in HIV/AIDS, ACE management. You find a post level 1 educator doing education law and policy...This teacher is supposed to be enriching himself on content things. If he is a mathematics teacher he must be doing a skills development or an ACE qualification in mathematics* [Principal-B, Interview 7, 03/10/2013].

Despite the aforementioned concerns from principals, the interviewed teachers identified technological development as an important area for their empowerment. A teacher in School D described how technological advancement influences the decisions of the young generation of teachers in terms of work placement: *“You know new graduates will like to work with computers...schools don't have them. One guy we work together on these afternoon classes, he was even saying he can't use a chalk. He doesn't want to use it...He doesn't want to draw because with smart boards...when you want a circle, you just make a circle very easily”* [Teacher-D2, Interview 13, 23/10/2013]. The district official agreed with the view that technological development and support was necessary in the empowerment of teachers: *“looking at this generation and things that are happening, even the technological development also adds to the challenges of our teachers...”* [Official-ED2, Interview 14, 15/11/2013]. Further information revealed that the affluent schools were already utilising technological equipment and skills to support their teaching and learning programmes. School A has installed a computerized system to monitor learner attendance. The school appointed a “truancy officer” to operate its electronic network. According to the principal, the electronic system helps to track patterns in the attendance of individual learners, *“...because it is all computerized now, then he (truancy officer) looks at patterns: ‘John Nkosi was absent for three days last week. John Nkosi is often absent’”* [Principal-A, Interview 1, 18/04/2013]. Equally,

CCTV cameras were being used in School C in order to monitor the behaviour of learners in the classrooms. A teacher explained how the cameras work and their effectiveness, *“We have CCTV cameras...and there is no sound, but you can see. You don’t know how many thefts, abusing, stealing of calculators we solve with the cameras”* [Teacher-C1, Interview 8, 21/10/2013].

### **Theme 9: Deployment in rural schools**

Equally, information revealed that the majority of participants chose their workplaces based on family considerations. The study found that most participants were reluctant to leave their families and relocate to needy schools that are situated in rural areas. A teacher in School C stated that it would not be a good thing to consistently move his family: *“It has been more with my wife, my family; keeping the family stable. We don’t want to move all the time. I don’t think it’s fair on the family”* [Teacher-C2, Interview 9, 21/10/2013]. Another teacher indicated that he has relocated from a rural school in another province in order to be nearer his family: *“One point was family. My wife got a job here. That was the first point which made me to relocate”* [Teacher D2, Interview 13, 23/10/2013]. The teacher further responded to an interview question on whether in future he would consider returning to a school in a rural area, the response was *“...eish! It’s too depressing...being in a deep rural area, no water, no toilets...but you know it is just a matter of surviving but it’s not nice”* [Teacher D2, Interview 13, 23/10/2013]. The apparent lack of desire shown by these aforementioned teachers supports evidence from literature that posting in rural schools is an unattractive proposition to most teachers (Adedeji & Olaniyan, 2011:74; Monk, 2007:164; Mulkeen, 2007:18).

Furthermore, this present study shows that teachers value their families and that family members have great influence on teachers’ decisions regarding their deployment. For instance, the principal of School B posits that proximity to family affects the placement of *Funza Lushaka* graduates: *“they have a contract to honour but in some instances they also check in terms of proximity...whether ‘I am next to my place of residence”* [Principal-B, Interview 7, 03/10/2013]. Responding to a question on whether 17 years of teaching in the same school were not enough, the teacher’s response was that *“firstly, it is near my home...”* [Teacher D1, Interview 12, 23/10/2013]. This finding supports previous research which found that qualified teachers in general are reluctant to work in impoverished rural schools. this applies to both the developed and developing countries. For instance, in England and the US, it was found that most qualified teachers tend to stay for shorter periods in under-resourced schools and swiftly relocate to well-resourced schools in affluent communities (Murnane & Steele, 2007:15; Ingersoll & May, 2012:446; Johnson et al, 2012:3-5). Similarly, Lumadi (2008:37) noted that most teachers who find employment in urban areas have specialised in mathematics and

science, teachers who specialised in commerce are mostly employed in peri-urban areas and teachers who are generalists are most likely hired in rural schools. Mhishi et al. (2012:3) established that teachers that are posted in rural schools most likely exit those schools in large numbers (Mhishi et al. 2012:3).

#### **4.2. CHAPTER SUMMARY**

In this chapter, the focus was on the strategies that were applied during the organisation of and management of data. The chapter discussed the data analysis process, the coding and establishment of codes and formulation of themes or categories. Patterns were identified from the themes and these patterns were analysed and interpreted. The findings of this study were presented in this chapter under the formulated themes and sub-themes where applicable. The next chapter will deal with the discussion of the findings.

## **CHAPTER FIVE**

### **DISCUSSION AND INTERPRETATION**

#### **5.1. INTRODUCTION**

This chapter focuses on the discussion and interpretation of the findings that have been presented in the preceding chapter. The purpose of interpreting the findings is to answer the research questions as stated in the first chapter. The purpose of interpreting the findings is to determine the implications of this study.

#### **5.2. DISCUSSION OF FINDINGS**

The discussion and interpretation of the findings are structured as follows:

##### **5.2.1. Consultation and tension**

The analysis of the findings of this study paints a picture of a post-apartheid teacher recruitment and appointment process which is apparently complex and tedious. This process is largely regulated by the relevant legislation such as the Employment of Educators Act (EEA (Act No. 76 of 1998) and the South African Schools Act (SASA) Act No. 84 of 1996). However, the process of teacher recruitment and appointment seems to be complex and arduous in the province of Mpumalanga. The responsibilities of the Head of Department entail a process of appointing teachers which is punctuated by on-going consultations with school governing bodies and the Education Labour Relations Council. These consultations are largely regulated by section 6 of the EEA. It was imperative for this present study to analyse stakeholder relationships that permeate these consultative processes and the extent to which they affect the recruitment and appointment of qualified mathematics and science teachers in Mpumalanga. The analysis shows that relationships between stakeholders such as teacher unions, school governing bodies and education officials were often stuck in disputes and continuous tensions that constrain the recruitment and appointment of qualified mathematics and science teachers. Research and the findings of this study suggest that the tensions mainly emanate from conflicting interests and influence of principals and teacher unions over decisions that school governing bodies need to take as they recommend teachers for appointment. It is in this context that the dominant teacher union in the education sector, the South African Democratic Teachers Union (SADTU), has been singled out as the most disruptive education stakeholder in the country as it probably exerts its influence on the recruitment and appointment processes. The union has been accused of undue influence over school governing bodies, of illegal interference in the decision-making process of school governing bodies as well as disruption and corruption with regard

teacher recruitment and appointment processes (Pattillo, 2012:71-72; Smit & Oosthuizen, 2011:59; Zengele, 2013:605). The findings of this study have not confirmed the aforementioned views.

The evidence from interviews suggests that the participation of union representatives ends at the level of the interview committee. There is no regulation which entitles unions to be present in the meetings of the school governing body when it considers the written recommendations and motivation from the interview committee. The only plausible explanation for the allegations against SADTU influence on the appointment of teachers can only derive from what Chisholm describes as close personal and political ties that SADTU have with the “*new department officials because many of its members were catapulted into leadership positions in the new national and provincial departments after 1994*” (Chisholm, 2003:6). SADTU also alludes to the alleged influence in its 2030 vision which suggests that the union intends to influence established government structures for the next 20 years. According to the vision, the union will achieve this through cadre deployment and influence in line with its strategic objectives (SADTU, 2010:8). In the absence of evidence regarding the alleged unlawful interference of unions in the decision of the school governing body to recommend its own candidates, this study’s focus falls on the findings that confirm the active participation of unions and the absence of agreed upon interview guidelines in the ELRC chamber. Section 3.3(g) of the Act requires that the interviews should be conducted according to guidelines jointly agreed upon by the parties to the provincial chamber of the ELRC. Having conducted an extensive search for the guidelines, the study found that such guidelines did not exist. The result of this lack of guidelines is that interview committees formulate their own criteria. Therefore, the absence of guidelines agreed upon at the ELRC seems to contribute to tensions between stakeholders.

In addition, the EEA requires unions to observe the fairness of interviewing but the findings suggest that union representatives participate actively in the process. Therefore, the assertion of the district official that the unions “*sometimes they become handy to the SGB*” [Official-ED2, Interview 14, 15/11/2013] only confirms that the provision of the EEA was being transgressed in the presence of representative(s) from the Department of Education who serve as members of the interview committee. Equally, the role that some of the principals play before and after the meeting(s) of the interview committee seems not to be neutral. This view is supported by information from the interview with the principal of School C who stated that “*the principal and his SGB know what they want...why suddenly in the presence of a union member start discussing criteria...and when it comes to the interview, how come you can’t formulate and discuss your questions with your SGB before time?*” [Principal-C, Interview 10, 21/10/2013]. This information from the principal confirms that some of the school governing body

members and principals attend the meetings of interview committee with pre-determined outcomes. This conduct implies that the interview committee has become a site of struggle between principals and the representatives of teacher unions, particularly with regard to the filling of management posts. It appears that principals and representatives of teacher unions often attempt to sway the outcome from the interview committee in their favour. This was evident during an interview with the principal of School C who believed, inter alia, that SGB members rely on the principal who has a duty to *“inform them, to guide them, to recommend to them and you have to motivate them or convince them. This is the route to follow”* [Principal-C, Interview 10, 21/10/2013]. The comments of the principal explicitly indicate that principals make recommendations to the SGBs. The possibility is that these recommendations may include those regarding the filling of posts and that may interfere with the functions of the interview committee which recommends to the SGB. Notwithstanding, the finding regarding dominance in the SGB is contrary to the assertion by Chisholm (2004:17) that school governing bodies in the impoverished schools are being dominated by principals and teachers while SGBs in former white schools were being dominated by white middle-class parents. This study suggests that SGB members in both affluent and impoverished schools rely on principals for guidance. The result is that whenever there are differing opinions between the principal and teachers the SGB is split between the two groups. Teachers seem to have an advantage because they can rely on their unions to challenge the decisions of the principal. The outcome is that suspicion among education stakeholders and tensions will most likely increase. Thus, the recruitment of qualified mathematics and science teachers gets constrained.

The possible outcome of such tensions is that qualified and competent teachers may feel disappointed and decide to seek employment in the other sectors of the economy such as firms and industries. Furthermore, the stalemate at the level of interviewing tend to give credence to the view that the devolution or market system of teacher deployment is largely characterised by prejudice, nepotism, favouritism, bribery and even rampant corruption. Previous research provides many examples of alleged impropriety in both the developed and developing countries regarding school-based and market system of teacher deployment (Monk, 2007:164; Mobegi et al. 2010: 408; Kipsoi & Anthony, 2008:7). For instance, local communities in Kenya were often accused of demanding that their own people be appointed to the positions of school principal without the necessary qualifications (Mobegi et al. 2010: 408) and that Kenyan local districts were often accused of acts such as nepotism, receiving bribes and keeping selection dates secret (Kipsoi & Anthony, 2008:7). In Pennsylvania, it is reported that schools often hire candidates with local ties, friends and relatives (Monk, 2007:164).

### 5.2.2. Post establishment and contradictions

The study has identified several constraints in the recruitment of qualified mathematics and science teachers based on the post provision or post establishment model which is used for the allocation of posts to schools in the province of Mpumalanga. According to the findings, the post establishment model seems to focus on cost curtailment regarding personnel expenditure instead of ensuring that schools have sufficient posts, particularly in the prioritised fields of mathematics and science. In addition, the apparent infusion of elements from the central authority and market systems of teacher deployment has resulted in contradictions and confusion of roles between the provincial Department and the schools. The findings of the study show that provincial and district officials often perform functions that have been devolved to the schools through the provisions of the South African Schools Act (Act No. 84 of 1996) and the Employment of Educators Act (Act No. 76 of 1998) respectively. The gist of these Acts is that the school community should participate in the process regarding the appointment, transfer and promotion of teachers in schools. The participation of school communities is further emphasised in the preamble of the South African Schools Act (Act No. 84 of 1996) which states the objectives of the education system as being, among others, to uphold the rights of learners, parents and educators, *and promote their acceptance of responsibility for the organization, governance and funding of schools in partnership with the State* [own emphasis] (RSA, 1996b: 3-4).

In line with this joint objective of the Acts, the provincial education officials use the central authority feature of the post establishment model to centrally allocate teaching posts to individual schools through the post establishment certificates in order that the schools should apply the market system features of the model (i.e. decentralisation or school-based management) and start recruiting and recommending teachers to the Head of Department for appointment (i.e. back to central authority feature). The interviewed official from the provincial office explained the purpose of the post establishment certificates as follows: “...so that (certificates) will indicate how many posts they (schools) will have for next year and they can start recruiting, if they get extra posts or then they can start identifying educators for redeployment if they are over-staffed” [Official-ED1, Interview 4, 30/05/2013]. The comment of the official specifies the objective of the post establishment: place a limit on the number of teaching posts for schools and redeploy or circulate the available posts or teachers throughout the schools to address shortage. Therefore, the model prompts this continuous cyclic process of moving teachers from one school to the other but without addressing the shortage in the subjects of mathematics and science. In terms of the post establishment certificates, schools that have experienced a decline in the learner enrolment should start the process of redeployment by identifying excess teachers or posts so that circuit and district

offices should centrally redeploy the teachers (central authority system). This apparent top-down redeployment of excess teachers supports the assumption of the World Bank that school-based management in the developing countries only means participation in decision-making without power (World Bank, 2007:5). An interview with the principal of School B described how the school community gets side lined:

*The Department want (sic) to redeploy...and when they redeploy you don't have any right to reject...they'll tell the circuit manager to deploy the excess teachers that have a shortage (sic) before we can even talk about recruiting new teachers. the process of redeployment must be the first one...and that must happen somewhere after we've received the post establishment...so that you don't even get a chance to motivate for a teacher you want to recruit [Principal-B, Interview 7, 03/10/2013].*

Notwithstanding the above, the findings of this study show that the top-down redeployment of excess teachers compromise the expansion of high quality mathematics and science education to historically disadvantaged learners. The aforementioned interview with the principal of School B revealed that redeployment has undermined their curriculum and the future prospects learners in the fields of mathematics and science: “...somewhere in 2010, 2011 our school was able to meet one of the requirements of the Department of having 50 per cent of learners doing mathematics and science, but because of this practice science and mathematics learners are no longer 50 per cent, they have gone down because...you have to streamline based on the resource that is available...if I have more teachers that can offer history then I must have more classes that are doing history” [Principal-B, Interview 7, 03/10/2013]. This comment suggests that school curriculum needs are determined by the skills of the available teachers and not according to the needs of the country. Given the shortage of qualified mathematics and science teachers in most impoverished schools, the anomalies of apartheid between affluent and impoverished schools will continue. This is exacerbated by the reality that the redeployment process has not been able to yield such teachers as the district official pointed out: “you'll never find a mathematics and science teacher who is in addition (excess)” [Official-ED2, Interview 14, 15/11/2013].

Added to this dilemma is the lack of planning that is apparent in the allocation of the 200 *ad-hoc* posts. These *ad-hoc* posts are defined as extra posts that the Member of the Executive Council for Education (MEC) creates in addition to the post establishment model in order to address extreme cases of overcrowding in schools. According to the findings, these *ad-hoc* posts are allocated after a 10<sup>th</sup> day Snap Survey. The survey relates to learner enrolment after the 10<sup>th</sup> day of the first quarter in the school calendar. Information from the interview with the provincial official suggests that the 200 *ad-hoc*



posts are actually withheld by the provincial office from those that the MEC creates for the post establishment of schools. Therefore, this implies that the teacher shortage in schools has been intentionally created by the withholding of these posts considering that the Annual Survey pre-determined the actual number of posts that the MEC needed to create for all the schools. Apparently, the ad-hoc posts are part of this initial number of posts. This analysis is based on the information from an interview with the provincial official who admitted that *“when the MEC approves the pool of posts that we must distribute, we retain 200 posts. We call it ad-hoc posts”* [Official-ED1, Interview 4, 30/05/2013].

The study further established that there was no specific criterion or policy for the allocation of the *ad-hoc* posts to schools. Both the district and provincial officials confirmed the absence of a written policy or guidelines: *“first come, first served”* principle which was being followed to allocate the ad-hoc posts [Official-ED1, Interview 4, 30/05/2013; Official-ED2, Interview 14, 15/10/2013] and that the major beneficiaries from this approach are the former Model C schools [Official-ED2, Interview 14, 15/10/2013]. The irony of this finding is that schools that were disadvantaged under the apartheid education system were still being disadvantaged under the post-apartheid education system. Carnoy, Chisholm et al. (2008:9) mention that former Model C schools effectively levy user fees to create with the aim of recruiting the best teachers as well as to maintain small class sizes, while the majority of impoverished SGBs still depend on redeployment lists to hire teachers. This study provides information which supports the literature finding. In a response to a questioning relating to overcrowding in schools, the principal of School C pointed out that *“the intervention of the SGB helps tremendously...and it comes a long period of time (sic). I really would not know what to do if SGB says ‘no more SGB teachers”* [Principal-C, Interview 10, 21/10/2013].

### **5.2.3. Service and working conditions**

The discussion relates to permanent and temporary status, overcrowding, low teacher morale and overload, in-service training and welfare as well as remuneration and benefits.

***Permanent and temporary status:*** the ELRC moratorium on the permanent appointment of teachers in South Africa was meant for the period between 1997 and 2000 (Appelton et al. 2006:776). Throughout that period of the moratorium, newly qualified teachers could only work in temporary posts in government schools (Appelton et al. 2006: 776). However, the introduction of the post establishment model in 1998 (DoE, 2005:72) has apparently turned the temporary employment of teachers into a permanent feature of the

post-1994 education system. The analysis of the study's findings indicates that the appointment of teachers still hinges on permanent and temporary status of teachers. However, the most striking aspect in the appointment procedures is the varying treatment that is being afforded to qualified long-serving temporary teachers with newly appointed government bursary beneficiaries that are appointed after the long-serving temporary teachers. Long-serving teachers were appointed temporarily for a fixed period of not more than 12 months in accordance with section 7(2) (b) of the EEA. Furthermore, their appointment on temporary status can probably not be justified against the backdrop of the employment of government bursary scheme beneficiaries that are being instantly appointed under section 7(2)(a), that is, on permanent status and without probation. By virtue of being appointed under section 7(2)(a) the bursary beneficiaries have an immediate access to fringe benefits such as medical aid and housing allowance while long-serving teachers have to wait for more than two years before they could access the benefits. In view of the absence of reasons for the different appointment procedures, it can be construed that the difference in treatment is only based on government having invested financially towards the training of the bursary scheme beneficiaries. An analysis of the findings suggests that teachers in temporary status go through the interviewing process while the beneficiaries neither apply formally nor attend formal interviews because they are telephonically contacted and offered jobs in schools. The assumption is that schools had an opportunity to participate or input as well as choice in the appointment of their temporary teachers while in the case of government bursary beneficiaries such an opportunity seemingly does not arise was not being afforded. This apparent top-down approach could be traced from the reaction of the principal of School A: who stated that *"we can't be told as high schools: 'You must take them!' It should be 'if you have a post suitable'"* [Principal-A, Interview 1, 18/04/2013]. The plight of the qualified but temporary mathematics and science teachers is that they have to wait for a period of about two years for ELRC processes to confirm permanent status and ensure job security as well as to gain access to fringe benefits. This apparent lack of a sense of urgency in appointing qualified mathematics and science teachers suggests undermines the decision by the government to prioritise these subjects.

However, this study was unable to find any legislation prescribing that the ELRC needs to assist the Head of Department with the implementation of what appears as a straightforward process regarding the conversion of temporary status to permanent status employment. According to section 6B of the EEA, the Head of Department is required to consult the governing body regarding the conversion of temporary teachers into permanent status employment and not necessarily to obtain their consent on the matter. The short-circuiting of the consultation process with the school governing body probably makes it obvious that government wanted to urgently address the plight of qualified temporary teachers through section 6B of the EEA. In this context, the ELRC

process seems to be an unnecessary constraint to the recruitment and appointment of qualified mathematics and science teachers. The ELRC process seems to facilitate the exit of qualified mathematics and science teachers that cannot wait for about two years for appointment on permanent status. Temporary status would be justified if the incumbents were serving probation to determine their competency and performance.

Furthermore, this study did not find any evidence of teachers that were serving probation in a post-1994 education system. According to Naidu (2011:5) probation procedures were applied in the apartheid education system to assess the performance of new teachers perform their employment could be approved or disapproved. Given the absence of probation processes in a post-1994 education system, the continuous employment of qualified teachers in terms of section 7(2) (b) of the EEA only exacerbates the uneven allocation of qualified mathematics and science teachers between affluent and impoverished schools.

***Overcrowding, low morale and overload:*** The findings show that the workload of teachers has increased tremendously over the years due to socio-economic reforms in a post-1994 South Africa. The repeal of the Group Areas Act (Act No. 41 of 1950) in 1990 facilitated racial integration in urban areas. The outcome of the repeal was a one-sided emigration of African middle-income households from townships and villages to the cities and towns of the country. Therefore, some of the city and town schools experienced overcrowding probably for the first time in their history of existence. The overcrowding was aggravated by inadequate infrastructural development because government did not prioritise the construction of new classrooms in these former white-only residential areas. In essence, this study indicates that since the introduction of Claase's schooling models (Whittle: 2007:77) and the subsequent collapse of apartheid the exodus of learners from dysfunctional schools de-classified the phenomenon of overcrowding from being an African education problem as it presently affect both affluent and impoverished schools, particularly English-medium schools that parents regard producing good Grade 12 results.

The emigration of learners from schools deemed as being dysfunctional underscores the World Bank (2007:4) principle of *choice and competition*. Notwithstanding the overcrowding, this study points out that former Model C schools have managed to maintain law class sizes due to their unmatched capacity to levy high user fees that they utilise to maintain their world-class facilities and employ additional teachers while schools in impoverished communities are not be able to do so (Sayed, 2008:10; Harber & Mncube, 2011:236). Further evidence from the literature indicates that large class sizes influence schools to reproduce the very inequalities that education is meant to tackle (Mpokosa & Ndaruhutse, 2008:29). This finding was further confirmed during an

interview with a principal from one of the affluent schools. The principal stated that “...most of my classes are 30 or below. Thirty learners or below...We’ve got one class which is 34 learners because some learners do this subject change” [Principal-A, Interview 1, 18/04/2013]. A similar situation was found in another affluent school where the principal stated that “our SGB wants more teachers and smaller classes” [Principal-C, interview 10, 21/10/2013].

According to the findings of the present study, the influx of learners was severe in the English-medium schools as they accommodated the majority of the learners than their Afrikaans-medium counterparts. One of the interviewed principals suggested that Afrikaans-medium schools benefitted from the language policy [Principal-A, Interview 1, 18/04.2013]. The guidelines of the National Language Policy require that learners should first fill all available single-medium schools before they can become double medium schools (Smit, 2008:86). Attempts by the MDE to compel Afrikaans-medium schools to become dual-medium institutions of learning have so far been less successful. In a case between *Laerskool Middelburg vs. Departementshoof, Mpumalanga Departement van Onderwys* the court ruled that the MDE action to include English as a medium of instruction in an Afrikaans-medium school was irregular and an unjust action (Smit, 2008:86). This implies that all English-medium schools in the province have to be filled before English-medium classes could be introduced in the Afrikaans-medium schools.

Another cause of overcrowding is the view that schools in the cities and towns provide descent education when compared to the majority of many township and village schools. Nevertheless, there are few “performing” schools in the townships and villages that experience an influx of learners from schools that are viewed as dysfunctional. One of the interviewed principals confirmed that “If you do well your enrolment...goes up and it gives you an allowance to get more teachers” [Principal-B, interview 7, 03/10/2013]. Although many participants shared the view that good learner attainment often attracts more learners, there has been no visible improvement in the provision of classrooms and additional teachers to these schools, particularly in mathematics and science. Some of the interviewed teachers felt that they were being overworked due to overcrowding and increasing administrative responsibilities, especially paperwork related to the filling in of forms for the Integrated Quality Management System (IQMS). Further probing solicited information from one principal who revealed that the provincial Department of Education sometimes urged schools not to deny any learner admission irrespective of the physical capacity or infrastructural limitations: “...they always in January put pressure on us to accept more learners..,” commented the principal [Principal-A, Interview 1, 18/04/2013].

The aforementioned comment suggests that schools were left to their own devices after the January learner admission process has been completed. As a result, most affluent schools used SGB-posts to hire additional teachers in order to alleviate overcrowding and to reduce class sizes to about 30 learners per class. However, the majority “performing” but impoverished schools faced overcrowded classes because of the limited financial capacity of their SGBs to hire additional teachers, particularly in the subjects of mathematics and science. This finding supports evidence from the literature that teacher shortage has a greater impact on the workload of mathematics and science teachers than those in the other subjects (Mulkeen, 2010:66). The direct outcomes of overcrowded classrooms include an apparent decline in learner discipline, an increase of negative learner attitude and poor learner attainment as well as low teacher morale. Although the district official believes that the learner discipline is the competency of school principals and teachers, the principal of School B and two teachers at School A indicated that schools were sometimes powerless in this regard. The principal of School B remarked as follows:

*It is a difficult situation to manage...as managers here at our schools we are seen as the Department...we represent the Department. The change on change that is happening, we are the mirrors of the change on change...it becomes difficult to run the schools. Then you will have ill-discipline among educators. As a result there will be ill-discipline among learners also [Principal-B, interview 7, 03/10/2013].*

The abovementioned finding echoes Thurlow’s (2002:15) sentiments that principals “assume greater responsibility under difficult circumstances for the management of all those who work in their schools”. However, it seems that South African schools are expected to adjust quickly to the continuing “change on change” [Principal-B, interview 7, 03/10/2013] or the development of new policies, the restructuring and the redefining of the whole education system (DoE, 2008b:72). According to Schleicher (2007:41), a school can only achieve its goals under the current and complex education reforms if it has an efficient and effective principal. Without such a principal, the school is unlikely to have a culture of high expectations or continuous improvement (Schleicher, 2007:41). The efficiency of such a principal may rekindle the morale of the teachers considering that interviews with the two teachers in School A reveals that teachers were getting demotivated due to an apparent lack of support, particularly from the general public. According to one of these teachers, the events around the announcement of the National Senior Certificate results contribute to their frustrations, especially by media comments that mathematics and science results are a ‘joke,’ “*even parents pick up on that and they tell their kids ‘mathematics and science is a joke (sic). It is what concerns me’*” [Teacher-A1, Interview 2, 15/05/2013].

**Professional development:** interviewed teachers identified professional development and support as being important to them. They articulated a strong desire to have access to state bursaries in order to refresh their mathematical and scientific capabilities. However, this study noted that the major challenge for the current crop of teachers lies in technology. This rapid technological development in the social and economic 21<sup>st</sup> globalised world requires that both teachers as well as their learners should be skilled in this area. The district official remarked: *“looking at this generation and things that are happening, even the technological development also adds to the challenges of our teachers...”* [Official-ED2, Interview 14, 15/11/2013]. A mathematics teacher in school D further stated that there is a need for the Department of Education to review its provisioning strategy with regard to education resources and equipment. *“New graduates will like to work with computers...Schools don’t have them,”* remarked the teacher [Teacher-D2, Interview 13, 23/10/2013].

The previous remark suggests that although the new generation of teachers is technologically advanced, their skills were being blunted by resources and equipment that were not commensurate with the current technological innovation, particularly with regard to impoverished schools. Indications from the interviews were that all the participating schools were providing some form of professional development and support to mathematics and science teachers. This implies that principals were aware that their major responsibility entails curriculum enrichment which focuses on administrative support for teachers. Therefore, principals have to create a favourable environment in order to enhance teacher development and support programmes. Furthermore, it was noticeable during the interviews that in the majority of the schools the principals delegated school-based professional development and support programmes to the heads of department (HoDs).

Another study conducted in Limpopo and Mpumalanga provinces attributed delegation to the principals’ apparent weak grasp of teaching and learning (Bush et al, 2009:4). Furthermore, these authors presumed that delegating the responsibility was an indication that the management of teaching and learning does not appear as central to the principals (Bush et al, 2009:4). However, Van der Berg et al. (2011:8) attributes the principals’ perceived lack of interest in curriculum issues to their background. These authors mention that South African principals have been trained and have gained experience as teachers yet they are required to manage large and complex institutions (Van der Berg et al. 2011:8). Despite the aforementioned findings, this study found that some of the principals have a keen interest in teacher development. Hence, they were concerned about their exclusion from the skills development programmes that were aimed at their teachers. These principals felt that the programmes were essentially irrelevant to the

needs of the schools and the teachers they were targeting. For instance, there was an indication that some of the mathematics and science teachers were being skilled in courses such as ACE management instead of an ACE qualification in mathematics.

Providing teachers with skills they will not immediately apply in the classroom will not necessarily enrich the curriculum and improve learner performance. Therefore, it is prudent for principals and education officials to ensure that professional development programmes address the classroom needs. During the interviews, some of the principals stated that *“we don’t have a say as managers of schools...our teachers are doing this skills development and specialise in HIV/AIDS...”* [Principal-B, Interview 7, 03/10/2013]. This remark may be interpreted as suggesting that HIV/AIDS programmes were less important. However, further findings revealed that the Department of Education fully provided support to teachers through its structures such as the Employee Health and Wellness Programme (EHWP). The district official explained that EHWP deals with occupational health, HIV/Aids support, referrals to professional assistance and rehabilitation. According to some of the principals, the EHWP was viewed as being relevant and crucial for teachers. Implicitly, the EHWP contributes to the reduction of stressful working conditions that negatively affect the well-being of the teachers. Literature indicates that the majority of teachers who intend quitting are in the crucial fields of technology, natural sciences, economics and management (ELRC, 2005: xvi).

Their reasons for quitting include workload stress (Pitsoe & Machaisa, 2012:4). Despite the already-mentioned support from the Department of Education, principals felt that the long period of absence of ailing teachers affect the performance of learners because the department does not necessarily provide substitute teachers. One of the principals highlighted this omission as follows: *“...now as you know, when people are sick the Department does not send you replacement...so I got two qualified educators to come and substitute the two that were sick and the SGB paid them...”* [Principal-A, Interview 1, 18/04/2013]. The implication is that affluent SGBs were able to ensure that teaching and the teacher learning continue during the absence of ailing teachers. However, learners in impoverished schools could be without teachers for longer periods.

**Remuneration and incentives:** in this study, six of the eight interviewed mathematics and science teachers viewed their salaries as being low and not commensurate with their increasing workload. The analysis of the teachers’ comments indicates that it is difficult to discuss teachers’ remuneration without being referred to the working conditions. The connection between the two aspects became more definitive when the one teacher in School A pointed out that even if she could be paid a high salary that will not change anything as long as the working conditions are not improved [Teacher-A1, Interview 2, 15/05/2013]. However, another teacher in School C expressly indicated that only a better

salary will be an acceptable compensation. Therefore, this study indicates that although teachers agree that their salaries are insufficient, they were unable to indicate whether they prefer to earn better salaries while working under bad conditions or to work under good conditions and earn less. One teacher from School C viewed his seemingly low salary as a message from the Department of Education that the teachers' hard work was not being appreciated: "*I think people don't appreciate the amount of work we do...*" [Teacher-D2, Interview 13, 23/10/2013]. [Teacher-D2, Interview 13, 23/10/2013]. Therefore, most of the teachers believed that appreciation should be in a form of better salaries and incentives. Their viewpoint was supported by the district official [Official-ED2, Interview 14, 15/11/2013]. This finding is in line with that of Van der Berg and Burger (2010:11) who established that the general belief of most teachers in South Africa is that they are being underpaid. According to Gustafson and Patel (2006:71), the view that South African teachers are underpaid has been exacerbated by the suspension of the experience-based increments 1995. Gustafson and Patel argue that the suspension drastically altered the conditions of employment for South African teachers (Gustafson & Patel, 2006:71). The result is that wage increases for experienced and highly qualified teachers in the country have stagnated to a point where they have become lower than those of young and less qualified teachers (Van der Berg and Burger, 2010:11; SACE, 2010:8; DoE, 2005:60).

International evidence from literature has yielded mixed findings regarding the effects of incentives and better salaries for qualified mathematics and science teachers (Mulkeen, 2010:54-55; Ingersoll, 2001:505; Lankford et al. 2002:51; Smithers & Robinson, 2005:6; Ross & Hutchings, 2003:42). These researchers report divergent findings on the effects of remuneration and incentives for teachers. There are those who suggest that teachers focus on wages (Ingersoll, 2001:505; Lankford et al. 2002:51). Some indicate that incentives have little effect in the retention of teachers (Mulkeen, 2010:54-55). Similarly, there are researchers who argue that incentives tend to be effective (Smithers & Robinson, 2005:6; Ross & Hutchings, 2003:42). Experiences from well-performing education systems also vary in terms of the remuneration of qualified mathematics and science teachers. For instance teachers in Finland have master's degrees as a minimum qualification requirement but their salaries are lower than those of the other professions (Carnoy et al. 2009:82). Conversely, very few teachers in Singapore have Master's degrees but their salaries are almost equal to those of the other professions (Carnoy et al. 2009:114).

However, there seems to be convergence on the effects of poor salaries and strenuous working conditions as major factors that contribute to the loss of qualified teachers, especially in the fields of mathematics and science (Sargent & Hannum, 2005:178). The connection between salaries and working conditions suggests that the improvement of



either salaries or working conditions may not necessarily convert into the retention of these qualified teachers in some of the schools. In the case of the province of Mpumalanga, the Department of Education recognised the need for the introduction of a “rural allowance” for mathematics teachers, the failure to implement the approved incentive may give credence to the view that the services of mathematics and science teachers were not being appreciated. Furthermore, the failure to honour this commitment may have dented the credibility of the MDE and eroded its trustworthiness among the teachers that were already promised such an incentive. One of the interviewed teachers in School A alluded to this unfulfilled promise: *“Every year we get forms that we must fill in all the maths and science people. Then they promise they will try and see if they can budget. I don’t know what the story is, if there is any money left at the end of the financial year, we will get some money, but it never happened, never”* [Teacher-A2, Interview 3, 15/05/2013].

From the previous remark, it is clear that schools and mathematics teachers were already informed about the introduction of the “rural allowance”. Thus, their expectations were seemingly raised in vain. However, it is also important to indicate that one teacher and two principals were not convinced that monetary incentives were a necessity. The lack of convergence on monetary incentives implies that mathematics and science teachers have different expectations from teaching. More importantly, the lack of convergence also disproves evidence from literature which creates a generic sense suggestive of mathematics and science teachers pursuing the dictates of the labour market in search of monetary rewards (Smithers & Robinson, 2013:33; Krispien (2010:49).

#### **5.2.4. Placement of *Funza Lushaka* graduates**

The centrally driven placement of *Funza Lushaka* graduates has encountered some form of resistance in both affluent and impoverished schools. During the interviews with the four school principals, it was evident that they supported government’s efforts of ensuring the creation of a pool of qualified mathematics and science teachers. This study also notes a marked attitudinal difference between principals from the Nkangala district and those that are based in the Ehlanzeni district. For instance, the two principals from Ehlanzeni district felt that the district officials were more dictatorial in their approach. For instance, the principal of School A commented that *“...we can’t just be told as high schools; “You must take them!” It should be; “If you have a post suitable.”* [Principal-A, Interview 1, 18/04/2013]. The apparent dictatorial approach was also noted during the interview with the principal of School B who stated that *“you don’t have an option with Funza Lushaka because they are given, they have to be taken”* [Principal-B, Interview 7, 03/10/2013]. Conversely, the approach from the Nkangala district appeared to be different from that of the Ehlanzeni district. Schools in the Nkangala district

indicated that they were not being compelled to use the national placement list. Although the district does hand the placement list to the schools, the principal of School C pointed out that “*they never enforce it on us*” [Principal-C, Interview 10, 21/10/2013].

In essence, schools in the Nkangala district have some semblance of autonomy with regard the placement of the graduates. For instance, the interviewed district official indicated that schools do not adhere to the placement policy of the Department of Education. The policy requires that excess teachers and government bursary beneficiaries such as *Funza Lushaka* graduates should be given first preference in filling vacancies. The district official remarked that indicated that principals will say “...*we don't want a Funza Lushaka, we don't want a teacher in addition we want this foreign teacher because he's good*” [Official-ED2, Interview 14, 15/11/2013]. The belief of the principal of School C is that *Funza Lushaka* graduates should apply for jobs like all other new teachers. The study therefore relates this finding in the Nkangala district to the view advanced by Mackenzie (2011:30) that “principals want to have the best candidate for the available teacher's position”. However, the stratified policy implementation in the two districts reveals, again, the lack of cohesion in the management of change in a single provincial Education Department. Cohesion is critical for the success of a complex unitary education system like that of South Africa.

Despite the aforementioned district contradictions, the study further noted that the current placement strategy is practically difficult for the schools to implement. The belief that *Funza Lushaka* graduates can be successfully placed through the telecommunication system seems questionable. The strategy implies that rural schools will not be able to recruit these graduates due to weak telecommunication network. Evidence from literature suggests that rural schools are characterised by the lack of amenities such as electricity and network (Monk, 2007:164; Australian Government, 2012:92). An interview with the teacher of School C revealed practical difficulties that teachers in the rural communities face on daily bases: “*it's too depressing...being in a deep rural area, no water, no toilets...but you know it is just a matter of surviving but it's not nice*” [Teacher-D2, Interview 13, 21/10/2013].

Another difficulty with regard the strategy is that for its success it depends on the very same reluctant principals to telephonically recruit the graduates from the national list. It is predictable that some of the principals would find reasons not to telephone or recommend the graduates for appointment. Therefore, the allegation that the graduates lack content knowledge could be one of the reasons that principals use in order to circumvent the placement of the graduates. According to Shulman (1986:9-10), criticism against teachers with regard to their lack of content knowledge should be able to specify the type of content knowledge that the teachers' lack. Shulman argues that

there are three types of content knowledge: subject matter, pedagogical knowledge and curricular knowledge. Similarly, Douglas (2005:18) postulates that in the modern days it is accepted that content knowledge alone is insufficient for effective teaching and that teachers require a balanced training in content and teaching methods. However, the current study did not venture into the direction of measuring types of content knowledge that *Funza Lushaka* graduates have acquired or failed to acquire during their training. Therefore, there is a need for further research in this area.

Notwithstanding the aforementioned debate on content knowledge, the findings of this study confirm that resistance to take up the graduates was prevalent in the urban and peri-urban schools rather than those schools that are situated in rural communities. This finding is in line with the report of the Department of Education which indicates that the shortage of qualified teachers was more severe in impoverished rural areas than in the capital cities and urbanised areas (DoE, 2007:12). Therefore, the finding implies that the graduates were being deployed for other purposes than to address the initial problem of teacher shortage in the impoverished schools. Equally, the study suggests that some of the graduates contribute to the apparent slow placement by declining job offers from certain schools. This finding supports the assertion by Boyd et al. (2004:117) that most newly qualified teachers prefer to take their first teaching jobs very close to their hometowns or where they attended college. Based on this evidence, the assertion made by the district official in this current study that a Cape Town-based graduate could be placed in a rural school in Nelspruit seems practically unlikely, regardless of the conditions of the agreement the graduates sign with the national Department of Education.

The Memorandum of Understanding (MoU) between the graduates and the national Department of Education is not a substitute for legislation. Section 8(7) of the EEA provides that the Head of Department may transfer bursary holders with their consent (RSA, 1998:6-7). In addition, the section states that the duration of the transfer will have to be indicated. This viewpoint derives from section 8(5) of the EEA which points out that the *“Head of Department may, without a recommendation of the SGB transfer a teacher temporarily for a stated period from a post at a public school...to a post at another public school”* (RSA, 1998:7). Seemingly, the graduates are within their right to choose where they will be placed. Therefore, there is a need to strike a balance between the needs of the country and the individual rights of the graduates. In Singapore, for example, new teachers are deployed according to the manpower needs of the nation at least for the first year of teaching before being allowed to transfer to the schools of their choice (Choo & Darling-Hammond, 2011:34).

### 5.2.5. Quality of teachers and management

Presumably, the objective advertising vacancies entails the recruitment of teachers with appropriate skills while the process of filling the vacancy requires fairness through adherence to organisational recruitment policies. However, in a post-apartheid South Africa, the additional objectives include equity and equality in order to redress the anomalies of the past racially and ethnically stratified education system.

**Advertisement of vacancies:** the findings of this study show that only promotional posts are being advertised in the Mpumalanga Department of Education despite legislative provisions requiring that all vacancies must be advertised including those bracketed for teachers in access. Section 2 of the Personnel administrative Measures (PAM) explicitly deals with the placement of excess teachers and states that all vacancies that arise from operational requirements must be advertised and that provincial Departments of Education (PEDs) must publish a closed vacancy list and offer the posts to serving teachers displaced as a result of operational requirements (RSA, 1998:75). Similarly, section 3 of PAM deals with the filling of entry level posts for teachers in general and also states that all posts in public schools must be advertised (RSA, 1998:76). However, these legislative provisions were never adhered to in the Mpumalanga Department of Education since the dawn of democracy in 1994 and according to education leaders and managers in the province. The principal of School C stated that “*there are no vacancy lists to advertise teaching posts...only promotional posts are being advertised...I think not one vacancy list has appeared for post level 1 teachers...then you have to go and recruit your own teachers*” [Principal-C, Interview 10, 21/10/2013]. This practice was confirmed by the district official as follows: “*We don’t advertise post level one posts in a vacancy list in this province. We don’t do that*” [Official-ED2, Interview 14, 15/11/2013]. Briefly stated, attracting and screening the suitability of teachers that are entering the education system in the province of Mpumalanga was never done, thus, transgressing the laws of the country.

**Filling of vacancies:** the absence of provincial advertisements means that individual schools use their own criterion to recruit new teachers. The result is that some of the schools fill the vacancies either with unqualified or under-qualified South African and foreign teachers. This was confirmed one of the interviewed officials: “*although we also have under-qualified foreign teachers...it is better for us to employ an unqualified South African than to employ an under-qualified foreign teacher*” [Official-ED2, Interview 14, 15/11/2013]. Literature suggests that the ELRC collective agreement of 2001 has also encouraged the appointment of under-qualified teachers. In terms of the ELRC collective agreement as captured as Resolution No. 4 of 2001, under-qualified teachers may only be appointed where no qualified teachers can be found as from 31 December

2001 onwards (ELRC, 2001:1). The implication is that the under-qualified teachers mainly teaching the subjects of mathematics and science subjects because that is where there is a shortage of skills. Given that the school governing body is responsible for the recruitment and making recommendations for the appointment of teachers, the appointment of unqualified and under-qualified teachers in the subjects of mathematics and science has not only turned education in the province to the reproduction of the past inequalities but also deferred the government vision of deploying qualified mathematics and science teachers to all secondary schools.

Harber and Mncube (2011:234) argue that education reproduction happens when the “education system merely serves to reproduce things as they are; children from poor backgrounds go to poor schools and then into poorly paid, low status jobs or unemployment”. It is noteworthy that schools allocate their most experienced teachers to the senior classes such as Grade 12. The implication is that learners of the impoverished schools are being taught by unqualified but experienced teachers. This reliance on experience for the senior classes was confirmed during an interview with the School A principal who commented: *“if you are looking for someone who is going to teach a Grade 12 mathematics class you can’t take a bursary holder. You’ve to get someone with experience”* [Principal-A, Interview 1, 18/04/2013]. In addition, this study supports previous research that identifies the hybrid education policies of a post-apartheid South Africa as the major contributing to the anomalies in education (Harber & Mncube, 2011:234; Whittle, 2007:157; Weber, 2008:19-20; Samoff, 2008:xi). These policies are hybrid because they concurrently promote centralization and decentralization.

For instance, the two affluent schools were not affected by the shortage of qualified mathematics and science teachers because of the ability of their school governing bodies to levy user fees. The result is that these schools tend to recruit and appoint additional teachers into SGB posts but later convert the teachers to be government employees. The principal of School C described the process: *“when we find teachers they are first appointed by the SGB...and should there be a state vacancy they will recommend those teachers to the Department to be appointed as state-paid teachers”* [Principal-C, Interview 10, 21/10/2013]. The study found that the practice started many years ago as the principal of School A pointed out: *“I’ve been doing that for the past five years, moving SGB employed educators into state posts by just completing EDU 1 and attaching copies...now they are trying to force me to take two of these bursary holders”* [Principal-A, Interview 1, 18/04/2013].

The aforementioned practice is open to many subjective interpretations. First, it could be seen as an attempt of former Model C school governing bodies to circumvent the redeployment of teachers to the affluent schools. Second, the practice could be

motivated by the desire of the school governing bodies to relief itself of the financial burden while retaining the teachers at the school. Finally, it could be the desire of the teachers themselves to work for government considering the factors such as job security, promotion prospects and the related fringe benefits. One of the teachers in School C personal experiences of being an employee of the SGB and later that of government: *“as soon as you move from an SGB post to a government post you begin as a first year teacher, so you take a salary drop, which I think is criminal of the Education Department”* [Teacher-C2, Interview 9, 21/10/2013]. The implications of the practice is that the more teachers remain in the employ of the SGB their cumulative years of experience are forfeited and their chances of being promoted to senior positions in the education system are minimized. This finding highlights the dilemma of the present public-private partnership as encapsulated in the preamble of the South African Schools Act. The finding also puts into context the assertion by Gaynor (1998:31) that “the wider system must ensure nationwide equity in the distribution of teachers, build a career structure for teachers that attracts and keeps good teachers and safeguard the rights of teachers, no matter who pays them” (Gaynor, 1998:31).

Gaynor’s proposition is that there is a need for cohesion in an education system and that strategies should be put in place for the retention of quality teachers that are to be evenly deployed to schools. It is noteworthy that the findings of this study support the view that the school-based management (SBM) principles that are inherent in the South African Schools Act as well as the Employment of Educators Act compel education leaders and managers to vacillate between the discourses of centralization decentralization. Christie ((2010:700) points out that SBM principles create a contradictory trend which allows the government to assume centralist functions while the World Bank (2007:2) indicates that the key to decentralization of functions is to identify exactly what the government’s role in decision-making should be. Sadly, the findings of this study suggests that the role that government should play in decision-making regarding the recruitment of qualified mathematics and science teachers in a post-1994 education system has not been identified yet.

#### **5.2.6. Deployment in rural schools**

The findings of this study show that the movement of teachers is linked to the distance between the workplace and the teachers’ family homes. Some of the participants had to request transfers from education authorities in order to relocate nearer their family members. Furthermore, once the teachers were reunited with their families, it became very difficult for these teachers to consider further transfers. A science teacher explained the difficulty of moving the family consistently: *“It has been more with my wife, my family; keeping the family stable. We don’t want to move all the time. I don’t think it’s*

*fair on the family*” [Teacher-C2, Interview 9, 21/10/2013]. Family ties seem strong as they affect the retention of teachers in schools, particularly the married teachers whose stay is influenced to a certain extent by the movement of their spouses. For instance, in one of the schools, the principal explained the sudden resignation of a qualified mathematics and science teacher because the spouse left the area: “...now when the other two resigned suddenly, two weeks before the schools closed – one the husband was transferred ...” [Principal-A, Interview 1, 18/04/2013].

The participants who responded that they might consider transferring to schools in rural areas indicated that this can only happen if the Department of Education can apply a strategy which includes the arrangement of accommodation for their family members. A mathematics teacher explained what the strategy should entail: “*If they can also think of my family*” [Teacher-D1, Interview 12, 21/10/2013]. Mhishi et al. (2012:3) mention that governments often find it difficult to retain teachers in the rural areas as most of them tend to request transfers from the rural schools to those situated in more desirable communities. In spite of the research evidence, this current study reports that the interviewed district official strongly believe that the provision of accommodation and incentives for mathematics and science teachers can mitigate the harsh conditions in rural schools: “*you know if you get to some of the public hospitals you find that the Department of Health is providing them with houses you know...We should consider these things if we are serious*” [Official-ED2, Interview 14, 15/11/2013]. Previous research reports mixed outcomes on the strategy of providing accommodation for teachers has been less successful in most countries due to huge expenses associated with the provision of housing (Mulkeen, 2010:53).

However, in England the government introduced a grant for teachers and an additional allowance as a contribution to the extra cost of living in the centre of London (Ross & Hutchings, 2003:42). Schools in London were faced with huge challenges regarding teacher recruitment and retention due to housing costs (Smithers & Robinson, 2003:6). However, it should be noted that a teacher who stays in an expensive inner city of London cannot be fairly compared to a teacher who stays in a rural village where there is virtually nothing to spend your salary on as the teacher from School D stated: “*it’s too depressing...being in a deep rural area, no water, no toilets*” [Teacher-D2, Interview 13, 21/10/2013].

### **5.3. CHAPTER SUMMARY**

The discussion and interpretation of the findings revealed important patterns regarding management constraints in the distribution of qualified mathematics and science teachers. Some of these revelations are that the post-establishment model and related

legislation on the appointment of teachers have blended the irreconcilable central authority as well as the market systems of teacher deployment. Provisions of the Employment of Educators Act (Act No. 76 of 1998) were not being followed. For instance, the advertisement of post level 1 teachers were not advertised and interview committees were not submitting reports to the School Governing Bodies (SGBs) after the conclusion of interviewing. The discussion further revealed evidence suggesting that SGBs in both affluent and impoverished schools were being dominated by principals and teacher unions or both. More importantly, the discussion showed that the deployment of qualified mathematics and science teachers was not a priority in the processes of teacher selection as well as appointment including the ELRC. This approach is contrary to the national vision of expanding access to quality mathematics and science education to the historically disadvantaged learners.



## CHAPTER SIX

### SUMMARY, CONCLUSION AND RECOMMENDATIONS

#### 6.1. INTRODUCTION

This is the final chapter of the qualitative case study whose objective was to gain an in-depth understanding on the sorts of management constraints that the post-1994 education system faces in the recruitment of qualified mathematics and science teachers in the Mpumalanga Province. The study adopted a constructivist paradigm and used semi-structured interviews to generate information from the identified participants. The conceptualisation of the study was preceded by an extensive and comprehensive literature review on national as well as international perspectives on teacher recruitment practices.

#### 6.2. SUMMARY

The summary of the findings are presented below.

##### **Research question 1**

*How are qualified mathematics and science teachers distributed in affluent and impoverished schools in the Mpumalanga Province?*

This question looked at specific tools or mechanisms as well as strategies that the Mpumalanga Department of Education (MDE) currently uses to recruit and deploy qualified mathematics and science teachers to individual schools. The study found that the Mpumalanga Department of Education uses only the nationally developed *post establishment* model to allocate posts to schools. It was further found that the model facilitates the concurrent processes of the recruitment of new teachers as well as the redeployment of those that are considered to be in excess. Given that the post establishment model is an annual event, the recruitment and redeployment of teachers have become annual processes as well.

##### **Research question 2**

*How do teachers, principals and education officials see the recruitment of qualified mathematics and science teachers in affluent and impoverished schools in the Mpumalanga Province?*

The second research question intended to generate information that would paint a picture of the management constraints in both the affluent and impoverished schools with regard to the recruitment of qualified mathematics and science teachers in the province of Mpumalanga. Findings of the study show transgressions in the implementation of legislation including the provisions of the Employment of Educators Act (EEA) Act No. 76 of 1998). For instance, vacancies for entry-level teachers are not advertised in government gazettes and bulletins that are published in the provincial and national media. Only promotional or management vacancies are advertised. The outcome of this transgression is that individual schools use informal networks in order to fill vacancies. Affluent schools, for example, fill government vacancies through the teachers that are employed in the posts of the school governing body. SGB-paid teachers would later be moved into government posts as soon as such posts become available. Similarly, the impoverished schools use the current teachers to search for entry-level teachers.

In addition, the study established that the ELRC plays a critical role in the recruitment process, albeit exacerbating existing tensions between the MDE and schools. For instance, the collective agreements of the ELRC prioritise the placement of excess teachers and the beneficiaries of government bursary schemes. However, the study found that the ELRC has not been able to comply with the provision of the EEA that it (ELRC) should prepare interview guidelines for the interview committees, hence, individual schools tend to develop their own interviewing criteria. Finally, the study found that entry-level teachers were being appointed according to two distinct procedures of the EEA: section 7(2)(a) and 7(2)(b). Beneficiaries of government bursary schemes such as those of *Funza Lushaka* are mainly appointed through sub-section 7(2)(a) on permanent status and without probation while most of the teachers are appointed through sub-section 7(2)(b) on temporary status. In general, there is no evidence that teachers in a post-1994 education system serve probationary periods.

Another finding is that most of the mathematics and science teachers felt despondent due to their service and working conditions. Some of these teachers have described their situations as depressing and frustrating. The factors that the teachers have identified as contributing to their frustrations include workloads, overcrowding, learner underperformance and lack of discipline. The inappropriate management of qualified mathematics and science teachers exacerbates the frustrations of the teachers. For instance, the study found that there are anomalies in the subject allocation of some of the schools. For example, it was revealed that South African and foreign teachers that were initially recruited for mathematics and science are allocated to teach subjects they are not qualified to teach.

In conclusion, the study established that the teachers were reluctant to relocate to schools that are situated in unfamiliar surroundings such as those in rural communities. The thread of their reluctance is that the teachers want to be close to their families. Apparently, the placement of *Funza Lushaka* graduates in rural schools is also affected by similar challenges.

### **Research question 3**

*What are the strategies that can be developed to reduce management constraints in the recruitment of qualified mathematics and science teachers in affluent and impoverished schools in the Mpumalanga Province?*

The third research question aimed at uncovering strategies that participants regard as ideal for the recruitment and retention of qualified mathematics and science teachers in the schools of Mpumalanga. The findings with regard to this research question are that most interviewed teachers believed the MDE can attract good teachers only if the remuneration of teachers can be improved and incentives introduced for mathematics and science teachers. However, this was not a homogenous view from the participants. There are participants who disagreed with the call for financial incentives. These participants believed that teaching is a calling and that incentives were meaningless in an unsafe working environment. Furthermore, these teachers mentioned that incentives are not a guarantee that teachers will not quit the profession. Despite the different perspectives on remuneration and incentives, the study found that the provincial Department of Education took a decision to introduce an incentive called “rural allowance” for mathematics teachers but it was never implemented.

Teachers further believed that professional development and welfare strategies will ensure a successful recruitment and retention of qualified mathematics and science teachers. The dominant view of the participants was that the continuing curriculum and general education reform poses new challenges for classroom practice and causes deficiencies in the content knowledge of some of the teachers. For instance, some of the participants cited the introduction of programmes such as the Employee Health and Wellness Programme (EHWP) as examples of the support they expect from the Department of Education. The EHWP is a programme of the MDE which looks after the welfare of teachers and their families, especially with regard psychological and physiological needs, thus confirming Maslow’s propositions as indicated in the Hierarchy of needs. In addition, the view of most teachers was that the Department of Education should consider increasing professional development opportunities for mathematics and science teachers. However, some of the principals were concerned about the lack of coordination and management of teacher development and support

programmes that district and circuit offices offer to teachers. For instance, the principal of School B was concerned that mathematics and science teachers were being developed in areas such as school management instead of being developed in technology and in the subjects they were currently teaching in their schools.

### 6.3. CONCLUSIONS

Firstly, although the weight of individual subjects is being considered in determining teaching posts for individual schools, the *post establishment model* does not allocate the posts per subject. The process of allocating the posts per subject is handled by the School Management Team (SMT). The study concludes that the failure to link each post to a specific subject makes it difficult for the provincial Department of Education to determine the extent of teacher shortage in mathematics and science. Moreover, the study argues that this failure can be a result of the model's over-emphasis on cost curtailment regarding personnel expenditure rather than focusing on addressing the skills shortage in the fields of mathematics and science. Furthermore, the concurrent implementation of the recruitment and redeployment processes reflects the contradictions of centralisation (central authority system) and decentralisation (market system) that are inherent in the post establishment model. These contradictions shape the nature of the relationship between the Department of Education and school governing body as well as teacher unions, particularly with regard to tensions during the fillings of vacancies in schools. In essence, the *post establishment model* is proving to be an unreliable strategy for the allocation and deployment of qualified mathematics and science teachers in the post-1994 education system of a democratic South Africa.

Secondly, the study noted that high performing education systems have strict centralised selection procedures for aspiring teachers and that only the best are being recruited. Conversely, the decision of the Mpumalanga Department of Education to devolve recruitment to the school governing body not only encourages competition based on inequalities between affluent and impoverished schools but also allows individual schools to determine the direction as well as quality of the education system. Therefore, affluent schools continue to use their capacity which they acquired under the apartheid government to attract and retain highly qualified teachers for mathematics and science. Given that most school governing bodies of impoverished schools lack the financial and knowledge capacity to attract highly qualified teachers, the academic performance gap in mathematics and science between impoverished and affluent schools will persist, albeit in a democratic South Africa. Further implications for the devolution of recruitment responsibilities are that education leaders and managers in Mpumalanga are yet to successfully address the requirements of the National Policy Framework for Teacher Education and Development in South Africa (DoE, 2007:13). The framework

requires provincial Departments of Education to ensure that all vacancies in schools are filled by qualified teachers and to “make special provisions” with regard to mathematics, science, technology and language teachers in view of their scarcity (see section 1.2). The devolution also creates challenges for the provincial Department of Education in monitoring whether schools promote values of the Constitution of the Republic of South Africa, particularly section 195(1) which requires that “public administration must be broadly representative of all South African people, with employment and personnel management practices based on ability, objectivity, fairness and the need to redress the imbalances of the past to achieve broad representation” (RSA, 1996a:105).

#### **6.4. THEORETICAL IMPLICATIONS**

From the comprehensive literature review on different organisational and leadership approaches, the study was located within the organisational development or change management theory and Kotter’s Eight-Step Change Model was identified as being of relevance considering that many big organisations adopt the model as a guide to introduce complex change. However, inspirational leaders continuously communicate with their followers from the initiation until the final phases of change. In order to understand leadership behaviours during the change process, theories on transactional, transformational leadership, Maslow’s Hierarchy of Need and Herzberg’s Two-Factor theories were applied. These theories painted a picture which shows that leadership is about the pursuit of an organisation’s vision and that communication between leaders and followers is largely based on the needs of the organisation as well as on the psychological and physiological needs of the followers within the organisation. Briefly stated, leaders cannot pursue the interests of the organisation while disregarding those of the people within the organisation because organisational change is essentially people-driven. In the final analysis, Kotter’s model was adopted and modified to develop a conceptual framework for this study, *turning vision into practice* (TVP). The modified framework suggests that national and provincial education leaders and managers should be the first to accept or acknowledge that the shortage of qualified mathematics and science teachers in impoverished schools is the legacy of apartheid and that it constitutes a crisis which has to be urgently addressed.

The *turning vision into practice* (TVP) framework is a process model and it is useful in setting out best practice processes regarding the recruitment of qualified mathematics and science teachers in a post-1994 education system. The framework requires senior education leaders to take responsibility and inspire confidence in the education system through the promotion of effective communication with relevant education stakeholders, particularly with the education leadership at the frontline (districts, circuits and schools). The framework requires an urgent development of systems and strategies for the specific

recruitment, deployment and retention of qualified mathematics and science teachers. Furthermore, the framework requires leaders to motivate and inspire the recruited qualified mathematics and science teachers around the importance of the vision of expanding quality education programmes to impoverished schools. More importantly, the job security and job satisfaction of the teachers should be assured. The implication is that psychological and physiological needs of the teachers cannot be disregarded while focus is put on posts as it is presently the situation. More importantly, the framework requires national and provincial education leaders not to divorce themselves from the change process in order to ensure the effective implementation, monitoring and evaluation of the change as well as to review the new recruitment systems whenever it is necessary.

In essence, the TVP aims at strengthening and building on good practices that the post-1994 government has initiated regarding the recruitment and deployment of qualified mathematics and science teachers in a post-1994 education system. These practices include the values that are enshrined in the Constitution of the Republic of South Africa under section 195(1) as well as initiatives such the *Funza Lushaka* project.

## **6.5. CONTRIBUTION TO KNOWLEDGE**

The first contribution is that the analysis of current strategies in respect of teacher recruitment has revealed the shortcomings in the *post establishment* model. This study contributes the turning vision into practice in order to guide the management and the change process in the teacher recruitment of mathematics and science teachers.

The second contribution relates to the extensive previous research that has been conducted on the lack of policy implementation in education. The findings of this study provide an in-depth understanding of the extent of systemic weakness as well as the nature of transgressions in the process of teacher recruitment and deployment. This finding draws the attention of education leaders and managers to the seriousness of the transgressions and their effects on education transformation in a democratic South Africa.

The third contribution is that the finding in respect of the placement of *Funza Lushaka* beneficiaries allows the provincial and national Departments of Education to close the gap between the recruitment of teacher trainee (national) and placement of graduates (provincial). Therefore, the study contributes useful insights into effective monitoring and evaluation of the placement of *Funza Lushaka* graduates in schools.

## 6.6. RECOMMENDATIONS

Based on the conclusions and findings of the study, the following are recommended:

- Considering that the success of countries such as Cuba, Finland and Singapore in mathematics and science is based on huge investment in terms of finance and effort, in the short-term, it is recommended that the Department of Education should appoint all qualified mathematics and science teachers in terms of section 7(2)(a) and review the apparent cost-curtailement mechanism, *post establishment model*, with the aim of replacing it with a strategy that attaches every vacancy or post to a specific subject.
- In the long-term, the Government needs to review its decision which led to the closure of education colleges with the aim of reopening this network for the training of mathematics and science teachers. Strict selection criteria should be introduced at these institutions in order to recruit the best candidates. Unlike, the *Funza Lushaka* bursary project, candidates in the mathematics and science network should not be made to repay government except when a candidate quits the programme before completing;
- The provincial Department of Education should invoke and implement the provisions of the EEA as well as monitor *compliance* with legislation by advertising all vacancies in order to *broaden its recruitment base* and to ensure that the values of the Constitution of South Africa as encapsulated in section 195(1) are adhered to.

## 6.7. FURTHER RESEARCH

Findings of the study suggest that the initial aim of the *Funza Lushaka* bursary scheme was to attract and develop qualified teachers for gateway subjects such as mathematics, science and technology for deployment in rural the schools. However, their *Funza Lushaka* placement to schools is characterised by the reluctance of schools in urban areas to accept the graduates as well as graduates who decline job offers from certain types of needy schools. Given that the national Department of Education invests huge financial resources in this programme, it is recommended that a further in-depth study should be undertaken on the quality of the programme, terms and conditions of the contracts and placement of the graduates.

Equally, evidence from the literature shows that very little research has been conducted regarding the initiatives in respect of *Funza Lushaka* and *Dinaledi* schools. Anecdotal evidence suggests that the performance of some of the *Dinaledi* schools seems not to be commensurate with the financial investment of the government. Similarly, *Funza Lushaka* graduates are seen as poorly trained teachers for the classroom situation. Given these assumptions, it is recommended that research be conducted on these projects.

The study was designed within the constructivist paradigm. Therefore, its data collection instruments yielded qualitative rather than quantitative data for analysis. However, literature review revealed that there is a gap regarding reliable quantitative data regarding qualified, unqualified and under-qualified mathematics and science teachers in the Mpumalanga Department of Education. This study did not cover such an area of research. Therefore, it is recommended that further research based on quantitative data should be conducted to determine the actual number of teachers that are required per school, circuit, district and province.

## **6.8. CONCLUDING REMARKS**

This chapter addressed the entire research process from background, research questions, objective, design and methods, findings, conclusions, implications of the findings, contributions to knowledge as well as recommendations. The findings of the study have brought a new deeper understanding regarding constraints in the management of change in the post-1994 education system, especially in the fields of mathematics and science. The findings clarified issues of leadership, importance of planned change and the critical factors that relate to the extent to which the apartheid education system used mathematics and science as instruments of economic deprivation. Similarly, the post-apartheid government has identified the same subjects of mathematics and science as gateways from socio-economic deprivation. Therefore, it is necessary for the national and provincial education leaders and managers to be at the centre of the change process in order to reduce the anomalies of apartheid education in the recruitment of qualified mathematics and science teachers in a post-1994 education system of South Africa.



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## APPENDIX A



**education**  
DEPARTMENT OF EDUCATION  
MPUMALANGA PROVINCE

Private Bag X 11341  
Nelspruit 1200  
Government Boulevard  
Riverside Park  
Building 5  
Mpumalanga Province  
Republic of South Africa

*Lilimo le Tsimonhovo Umyango waFundo Department van Onderwys Umyango wezaMundo*  
*Isiqaliso: A.J. Bafyil (013) 766 9476*

**MRS. S.M. TWALA**  
P.O. BOX 457  
DENNILTON  
1030

**RE: APPLICATION TO CONDUCT EDUCATIONAL RESEARCH IN SCHOOLS,  
(MPUMALANGA DEPARTMENT OF EDUCATION).**

Your application (dated 7 September 2012) to conduct educational research on the research topic: **"Analysis of constraints in the distribution and management of Mathematics and Science Teachers in a post 1994 Education System of South Africa: A case study of Senior Secondary Schools in Mpumalanga Province"** was received on the 10 September 2012.

The Mpumalanga Department of Education promotes research studies which focus on learner performance and achievement. Your application to conduct a scientific inquiry in the distribution and management of Mathematics and Science teachers in the province will undoubtedly assist the department in the planning and resourcing of schools with both mathematics and science teachers.

Given the motivation and the anticipated report of the study, I approve your application to conduct your research in the sampled schools of the department.

You are further requested to read and observe the guidelines as spelt out in the attached research manual. The importance of this study cannot be overemphasized; it is further strongly recommended that after completing the study, you share your findings with the department especially the relevant directorate (MST). It will be appreciated if you can present your findings and recommendations in electronic form and make formal presentation to the Mathematics, Science and Technology (MST) directorate and the Department's Research Unit.

For more information kindly liaise with the Department's research unit @ 013 766 5476 or [a.baloyi@education.mpu.gov.za](mailto:a.baloyi@education.mpu.gov.za) and MST directorate at 013 766 0068.

The Department wishes you well in this important study and pledges to give you the necessary support you may need. This letter should be used in conjunction with the research manual to access the schools you have sampled.

**SUPPORTED/NOT SUPPORTED**

*The proposed study is in line with current departmental plans and is relevant for planning purposes.*

*A.H.*  
MR A.H. BALOYI  
CES: RESEARCH

*16/09/2012*  
DATE

**APPROVED/NOT APPROVED:**

*MOC*  
MRS MOC MHLABANE  
HEAD OF DEPARTMENT

*11/09/2012*  
DATE

## APPENDIX B

### RE: INVITATION FOR PARTICIPATION IN A RESEARCH STUDY

Dear Sir/Madam

Kindly receive this request for your participation in an academic research study. You have been identified for participation in the study in your capacity as a Grade 12 teacher for mathematics/science subject (s). The study entails an *analysis of management constraints in the distribution of mathematics and science teachers in a post -1994 education system of South Africa: A case study of secondary schools in the Mpumalanga Province*. The overall aim of the study is to analyse constraints in the recruitment and management of mathematics and science teachers with the purpose of contributing towards the development of strategies that can increase learner attainment the fields of mathematics and science.

There are no anticipated risks for participants in the study. However, agreeing to participate in the study means that you are giving consent to a recorded one-on-one interview with the researcher for the duration of almost an hour (60 minutes). The information you contribute will be treated as confidential; and your privacy will be protected through the utilization of codes for your responses to interview questions. Equally, your name and that of your school will be replaced by codes throughout the management of the research information and findings.

You retain the right to ask any question about the study before, during or after the research. You also have the right to withdraw from the study at any given point without any penalty and without affecting your relationship with anyone associated with this research. The majority of research questions relate to constraints in the recruitment and management of mathematics/science teachers in the post-1994 education system; and to the impact that teacher qualifications have on mathematics/science learner attainment. Your signature on the attached **consent form** serves as an indication of your willingness to voluntarily participate in the study and as a confirmation that you have read and accept the aforesaid information.

Thanking in anticipation

---

Thwala Siphos Moses

**APPENDIX C**

**INFORMED CONSENT FORM**

I ..... acknowledge receipt of a request for my participation in an academic research study titled: *An analysis of management constraints in the distribution of mathematics and science teachers in a post-1994 education system of South Africa: A case study of secondary schools in the Mpumalanga Province.*

Additionally, I have received information in regard the aim of the study and related ethical issues. I have been informed of my right to withdraw from the study at any given time without penalties. Therefore, I hereby consent to the participation.

Participant's surname and initials: .....

Signature: ..... Date: .....

Researcher's surname and initials: .....

Signature: ..... Date: .....

## APPENDIX D

### INTERVIEW SCHEDULE FOR TEACHERS

1. How does the education department provide teachers to the school? And how do you ensure that qualified mathematics and science teachers are being recruited to the school?
2. What are the major sources from which the school recruits its qualified mathematics and science teachers?
3. What is your view on the recruitment and recruitment of mathematics/science teachers the school?
4. How satisfied have you been with the recruitment and utilization of mathematics/science teachers in the education system? Please explain.
5. How would you describe how the role of the circuit and district offices in the recruitment of *Funza Lushaka* and foreign teachers for mathematics and science at your school?
6. How would you describe your experiences on the allocation of mathematics/science teachers to individual classrooms at the school? And what is the size of your mathematics/science classes?
7. What management constraints do you experience regarding the filling of posts, teacher usage and administrative support?
8. Do these management constraints sometimes influence you to consider quitting the teaching profession? Please explain.
9. What is your view on the provision of incentives for mathematics/science teachers?
10. How would you react to a request that you should relocate to a rural school?
11. What do you think should be done to /reduce these constraints in the education system?

## APPENDIX E

### INTERVIEW SCHEDULE FOR PRINCIPALS

1. How would you describe the applicable systems or models that the education department uses to distribute qualified mathematics and science teachers to the schools?
2. What is the role/involvement of the school in the recruitment of mathematics and science teachers?
3. How is the usage of the distributed posts being done at the school in regard mathematics and science subjects?
4. What is your experience on the impact of the recruitment process on the suggested shortage of qualified mathematics and science teachers? And how do you allocate them to individual classes? How do you address teacher shortage in the subjects of mathematics and science?
5. What is the role of the SGB in the recruitment of *Funza Lushaka* graduates as well as foreign mathematics and science teachers?
6. What criteria are used by the SGB uses when recommending new teachers for appointment?
7. How does the appointment of *Funza Lushaka* graduates and foreign teachers' impact on your teacher-learner ratio in mathematics and science classes?
8. What do you consider as the major management constraints in the recruitment of qualified mathematics and science teachers in a post-1994 education system?
9. What factors do you consider as the main causes of these management constraints?
10. How would you describe your leadership role in ensuring the retention of qualified mathematics and science teachers? And what is your view on incentives?
11. What strategies would you suggest for the enhancement of your ability to constraints in the recruitment and management of qualified maths/science teachers?

## APPENDIX F

### INTERVIEW SCHEDULE FOR EDUCATION OFFICIALS

1. What is your main role and responsibility regarding the recruitment of teachers to schools?
2. What are the policies or criteria guide you in the allocation of teaching posts to schools?
3. How long does it take to fill a teaching vacancy? And what are the steps that are being followed to ensure that all posts are filled by qualified mathematics and science teachers?
4. How does the recruitment of *Funza Lushaka* graduates and foreign teachers impact on the suggested shortages?
5. What is your view on the recruitment of *Funza Lushaka* graduates and foreign teachers in the fields of mathematics and science?
6. How do these incentives assist the department in the posting of qualified mathematics and science teachers to rural schools?
7. What incentives does the department give to mathematics and science teachers?
8. What do you consider as the major management constraints in the process of filling the distributed posts with qualified teachers?
9. How would you describe the causes of these management constraints?
10. What do you think should be done to /reduce these constraints in the education system?



## APPENDIX G

### TRANSCRIPT: RESEARCHER AND PROVINCIAL EDUCATION OFFICIAL

HELD ON 30 MAY 2013

- Researcher: Morning Sir. I'll like to thank you for having agreed to participate in this academic study. Allow me to remind you that this is a voluntary participation which is being recorded for quality control purposes. Do you have any question on the study?
- Official: Welcome Mr Thwala for now I don't have any question. But thanks for enquiring.
- Researcher: The first question relates to your duties and day-to-day responsibilities. How would you describe them?
- P. Official: Right, first of all it's our duty to determine the posts that we allocate to the schools. Now that is based on the enrolment of the school which we get through the annual survey. Ok we use the annual survey, the current year annual survey to determine the post establishment of next year. Right so the enrolment of the learners, the enrolment of the schools as well as the curriculum for grade 10-12, as well as the medium of learning and teaching. Is it double medium or dual medium or single medium because those three are the main factors that determine the posts per school. But we get that information from the annual survey.
- Researcher: Ok
- P. Official: We then import it into the post provision model. The model then distributes the pool that we get from the HR, distribute it through the model to all the schools. the model makes sure that it allocates to the schools so that one school is not over-staffed and one school is understaffed. Like, actually that's our role, and once that has been determined, we then print the post-provision certificate for each school and we give it to them. Actually, the policy says it must reach the school by the end of September of that year so that they can start planning for next year. So that will indicate how many posts they will have for next year and they can start recruiting if they get extra posts or then they can start identifying educators for redeployment if they are overstaffed.
- Researcher: Ok
- P. Official: Actually that is where our responsibility actually ends because we give the paperwork to HR then deals with the appointments and the filling of those posts if the school has extra posts. Now they are responsible also for the redeployment of educators who are in excess.
- Researcher: Is HR for redeployment?
- P. Official: Yeah

- Researcher: How old is this model you are using?
- P. Official: Eh; it was developed in 2001 and then it was updated in 2002. I can indicate that currently the national Department of Basic Education has appointed Deloitte & Touché to look into the model and how can the model fit, can serve the schools best because currently, the current model has two shortfalls. The first one is: it does not address multi-grade teaching. So you will get to a school and grade 1 until grade 4 with one educator. if a school has, for example, 30 learners, you allocate one educator to that school despite the curriculum.
- Researcher: Ok
- P. Official: The other shortfall is that it does not consider the physical facilities at the school. I can give you an example. Ndlela High has 83 educator posts but they have only about 45 classes. So the question is if those 45 classes are occupied, the teachers are there, what are the rest of the teachers doing? Because they have 83 on policy, but only 45 classes so the model does not consider that. It will give posts despite the number of classes
- Researcher: Is it the shortfall of the model? Where are the rest of the learners, if the ratio is 1:35 and how does the model address the extra learners who only arrive in January?
- P. Official: Actually, we do address it but I will tell you the challenge there. When the MEC approves the pool of posts that we must distribute, we retain 200 posts. We call it ad-hoc posts. So come January and there was an increase in a school' enrolment and they must do a written request to us and they must indicate to us that they request a recalculation of their post-establishment. Yeah we do address that, end based on the snap survey of that year. So the 2013 issues have been handled on the recent data that we have. Eh, the challenge there is that we've got only 200 posts and it's a matter of "first come, first served". So the schools that are quick and send their requests in January or February are assisted. I must also indicate that we only assist them if it was signed off by the district manager and the district manager indicates that the information that is given is true, then we help them.
- Researcher: I see.
- P. Official: now coming March, the kitty is exhausted. The 200 posts have been given to those that were quick to indicate changes, eh now the schools that are late like in March, April, May they cannot be assisted because the 200 posts are already exhausted. Em, I can say that we are currently addressing the situation by, and it is working actually, by asking the circuit managers to identify vacancies within the circuit so that we can then transfer those vacancies to the schools where the posts are needed, not only vacancies but they can also identify educators in schools where there was a drop in enrolment and we just reallocate those educators where they are needed. And I must say the second one is actually assisting. They are now used to it, so they start managing it within the circuit, and also the district is assisting us there. So it is the circuit that indicates to us but if it is not possible within the circuit then we ask the district to assist. So the district will

see when the district can retain some posts or people and reallocate within that circuit when it is needed. And if the district cannot assist, then we ask Head office to assist, and head Office must look provincially how can we assist.

Researcher: Where do those posts in the circuit come from?

P. Official: Eh, we actually go through this. Firstly, we identify vacant posts. So it's much easier if there is vacancy we just reallocate the post to where it is needed, and then, once the school receive that post they can fill that post. Eh, the second category is when we actually have warm bodies in the post and then it means the warm body must also reallocate with the post. But that is our second option. Our first option is to identify vacant posts.

Researcher: Is the reallocation of warm bodies referring to redeployment processes?

P. Official: Yeah

Researcher: Moving warm bodies. Does it address the need for maths teachers?

P. Official: Yeah, what we want to do actually, we are working on a proposal, that we will table at senior management for adoption, where we say: ok, ehm, we want to give those 200 posts to the district managers so that district managers would then deal with those posts within his or her district. So as from next year we want actually to do it next year. But we will not give the post each district 50 posts. We will give them according to the percentage of the learners they in the province or district. For example, Ehlanzeni has about, I think 28 per cent of learners in the province. So Ehlanzeni will get 28 per cent of the 200 posts while Bohlabela, I think has 19 per cent of the learners in the province. They'll get 19 per cent of the posts. That's our proposal but management can say: 'no give them, everyone 50 posts up to 200. Our biggest challenge for the past two years is Nkangala. Bushbuckridge/Bohlabela there's few problems because the situation in Bohlabela is that the schools are close to each other and if a school gets good Grade 12 results, then the parents say: 'no we are taking our learners to that school because they are performing'. So you'll get this increase enrolment in this school, this previous year or the previous past years but the other schools they drop. So actually Bohlabela is assisting a lot and say ok, they will phone me or write me a letter and say: 'I have already moved five educators from those five schools and I have reallocated them to Freddy Sithole just update your database so that they can appear on the correct payroll'. So it is very assisting. So that is why we say let us give those posts to the district managers and they will distribute in the districts.

Researcher: So you say it is easier in Bushbuckridge to reallocate teachers because of the proximity of the schools?

P. Official: Yeah

Researcher: Who determines whether the post should be for mathematics or science?

- P. Official: Actually, that becomes an HR issue eh but HR gets that information from the school. So the school will say, and it happens frequently, that HR will tell the school that you've two educators in excess. Then normally, the first principle there is that they use the LIFO principle. And then the school will tell you: 'Last In is teaching mathematics and science'. So now the school and the SGB will have to deal with that to identify an educator to be redeployed. But in many, in some instances they will tell you: 'listen, we cannot redeploy because of the curriculum needs of the school and but then HR has to deal with that in the ELRC, and ELRC will then assist by assisting the school and the district to resolve the issue. We did, actually very well the past two years in this redeployment issue because people are very cooperative. Ehm, there were few, I but there were few instances where Labour had to deal through the ELRC, but they are very cooperative to assist.
- Researcher: Practically, what does LIFO mean?
- P. Official: Ok, so the educator that was last appointed by the Department for that school, for example, there is 23 educators, then they get an extra post, they become 24. to fill that 24 they recruit and appoint. Then the person coming to that 24<sup>th</sup> post is the last man to join the club.
- Researcher: What does this perpetual movement of the same educators from school to school mean for education?
- P. Official: I would say it does not assist because you see, normally your educators teaching scarce subjects like your mathematics, science and accounting, if they are Last In, they will retain them. So if your educators are teaching History, Agricultural Sciences, now the danger is: the educator because is always moving can get de-motivated. The other danger is that educators cannot settle in that school's environment. Just when getting to the learners and staff, then you have to go again. So yeah, it is actually not supporting the system. I must indicate that national Department of Basic Education is considering and it has opened discussions with the provinces but they say, or their proposal is that, that comes from the Minister herself, she wants us to only do the post establishment every five years to prevent this issue. Eh I'm in very support of that because then you can get stability in the provinces. The only challenge for us here in Mpumalanga will be, actually Bohlabela, but it is not that big challenge because, as I said, to be relocated to schools in Bohlabela is not a matter of travelling extra 100 kilometres per day. So that can assist and then you deal with that internally, say ok only five schools are affected, we'll deal with those schools five schools. The other 1 795 we will deal with them only in five years. Now actually HR is, they are not opposing it but the only question from HR is: 'Ok fine, if we do it only in five years, then your educators in five years will be five times than what should have been in one year', so which is true, it can happen. If you deal with it every year, you deal with that 1000 every year, but if you deal with it after five years it could be 5000 that must be reallocated. So relocation again becomes an issue because actually, we are struggling to relocate a 1000. How are we going to relocate 5 000?
- Researcher: Mathematics and science statistics. What is the picture?

P. Official: Actually we did a survey, a separate survey beginning of this year, 2013 and I can e-mail that report to you. It is interesting that we have 511 educators that are qualified to teach mathematics but they are not teaching mathematics. Ok, this is only covering Grade 10-12. An instruction was given that we must identify those educators by name and Persal Number so that we can start dealing with them to see if we can relocate them to schools where there is no mathematics teacher. There are schools that have educators that are not qualified but they teach mathematics. So it is just to swap them. So those 511 educators are in those 250 schools. So letters will go out to those 250 schools to say: 'you have indicated in January that you have three educators not teaching mathematics, please give us the particulars so that we can identify them in person'. So we can start dealing with them through the ELRC.

Researcher: What is the cause of mathematics teachers, teaching something else?

P. Official: Yeah we still have to determine that. I can give you an example, Amadlelo Secondary School in Piet Retief. They have indicated they have eight educators that can teach mathematics but are teaching other subjects. Now it can be that, I'm just speculating, it can be that SGB when recruiting will say: 'let us take this person, he can teach mathematics, if we need mathematics teachers we can allocate the subject to them, but in the meantime, let them teach the other subjects'. I think it is a matter also that your mathematics, science and accounting educators are in big demand in those schools. And if they can get one, they will take him and say; 'ok we have you now, you can teach something else but we have you'. I think that is one reason and then the other reason it may be nepotism. It may be that the SGB favours a certain person, maybe a friend or family, whatever. The other thing that we expect from schools is that, ok they only gave us aggregate data, they tell us: 'ok, I've got eight educators'. Now you ask them particulars, they tell you: 'No, no, no five already left, I've only three', because they know now things are going to happen. They are going to lose these educators.

Researcher: So you can't rely on this information from schools?

P. Official: Which is true yeah, which is true because when we start comparing these surveys, you pick up discrepancies. So when it comes to affect the school, then they start changing. For example, if I ask the particulars of those educators, those eight at Amadlelo, are they really going to give it to me? Because they realise that something is happening now. 'Why does the Department need this information?' and we must tell them why we need the information so that they can be prepared for what happens at the negotiations of the ELRC. So the question now is, it is only speculation also, we will see if we get particulars of the 511 educators as indicated in the survey. Then we can start comparing and say: 'ok these 20 schools either they lied in January, you said you have four now you only give us particulars of one. Where are the other three?' so we will verify that, ehm.

Researcher: How do you check the reliability of information from schools?

- P. Official: Actually, I can just show you a document neh. This is an example of the Annual Survey. What we do is, we've a control list in front where the principal as well as the circuit manager must confirm that these tables have been completed, and also then check that the tables tally with each other. And then they sign it off and stamp.
- Researcher: Substitute posts. Do you have them?
- P. Official: Yeah, yeah we do have but actually it is not part of the model. It is something handled separately. And I'm not even dealing with that. These are going straight to HR. HR is responsible for the allocation of substitute educators
- Researcher: So HR has other posts that you do not have?
- P. Official: Actually HR can give you that. HR draws up a request to the MEC to approve. That request to the MEC clearly states how many posts, for what. So I'm only dealing with the 23 000 posts
- Researcher: Does your model include principals even though some are not teaching?
- P. Official: The model that, or let me say the research team that was appointed. Those people from Deloitte & Touché, actually they are designated for all provinces, and that is one of the recommendations they want to do, to say: 'Ok, principals to be excluded from the post-provisioning because they are not teaching. Actually, we support that. We said there must be a cut off because if you have two educators at the school, one is principal, if we say the principal is not going to teach then, and that school does not have an office, what is the principal going to do besides doing administration. The other educator must then take the workload.
- Researcher: Is there a school that does not have an office?
- P. Official: Yes. There are schools in the province that do not have administration block offices. But then what they normally do, they use one classroom for administration.
- Researcher: If a principal, qualified in mathematics and science does not go to class and is part of the post establishment, what happens?
- P. Official: Actually, that 511 educators that I have referred to, management also want us to identify how many of them are principals because first of all principals they cannot be transferred unless they apply. They cannot be redeployed and secondly, we must determine if he is a principal, does he teach or not.
- Researcher: Based on your experience, what are the major challenges of this model?
- P. Official: Eh, yeah. I think the biggest challenge we have is that those 200 posts from the kitty are not the allocated posts. So when we determine the establishment for 2014, the model then ignores those *ad-hoc* posts that we are giving them this year but actually the situation did not change at the school this year. So coming 2014 the school gets a certificate excluding those *ad-hoc* posts. Then the whole administration process

must re-start. I'll give you an example, there is a school in Nkangala where actually they are offering four languages. They are offering isiZulu and isiNdebele but in 2011 they made a submission to the HoD to say: 'we are correctly staffed but we need two educators for isiZulu and isiNdebele to teach because the learners are there but we don't have teachers to teach them'. The HoD then said: 'approved, give them the two posts'. That was 2011. For 2012, now when they received the latest certificate, the two posts were ignored because they are ad-hoc posts and also the enrolment dropped. So actually, I retained those educator posts for isiZulu and isiNdebele but because the enrolment dropped we removed the posts. Then they enquire and reported that we did not give them the posts as approved by the HoD. Then, they went to national then national went for HoD who went for me. I then explained to them: 'no the two posts were there. We didn't take them back because of your curriculum. We take it because of the dropping of enrolment. So that's our biggest challenge, to maintain stability. That's why I said I'm still in support of the ides, we only address it every five years, then we will get stability in the schools, in the province.

Researcher: Are these 200 posts for relief and for a year?

P. Official: Yes.

Researcher: Is that your biggest challenge?

P. Official: Your possible solution?

Researcher: Eh, I would say the best solution for me and to assist, actually to assist our core business is that we only revise it every five years. Eh, I would say for a start we only do it for three years and if it's working is should be introduced every five years. I would say that's the best solution. Then we can only address the burning issues. Then every year we identify these problematic areas and then we see how we are going to address them.

P. Official: Overcrowding. What is the problem there? You see I'll give you an example...Ndlela High had; Ndlela was from Grades 8-12. Then they built Amadlelo and said: 'let us take grades 8-9 from Ndlela to Amadlelo'. As we are speaking now both of them are overcrowded. So we built another school last year to relieve these two schools. it did relieve but it was not planned so that you can have let's say 600 or 800 over the two schools. now that's why they have turned and built another school, the fourth. It's Piet Retief is a growing area. It's a growing point but the other thing that we must determine, actually we do have the information, is to check how many of those learners in and around Piet Retief are foreigners from Swaziland, because I can give you an example, the one school Zendelingspost, if you say this [drawing on the table] is the yard of the school and you drive or you get out of the school, there is a board that says "welcome to Swaziland". So how many learners in this school, actually it's a big school and the gate id open on the side of the Swaziland border. How many of the learners in that school, ok this is not in Piet Retief, because of the closeness to Swaziland. We can say, how many learners that creates this overcrowding are from Swaziland.

Researcher: Foreign learners, I agree. Foreign teachers, how many?

P. Official: Eh, actually I have the information. I think last year it was 122 mostly from Zimbabwe to teach mathematics and science. Apparently they are very good. Feedback from districts says they are good.

Researcher: does that all teachers from Zimbabwe are very good?

P. Official: That's the impression.

Researcher: Who is recruiting them?

P. Official: The schools.

Researcher: No, thanks for your time. This was the last question from my side.

P. Official: You are welcome.



## APPENDIX H

### TRANSCRIPT: RESEARCHER AND PRINCIPAL-A

HELD ON 18 APRIL 2013

- Researcher: Thanks Ma'am for welcoming me at your school. As I have indicated, I'm a researcher conducting an academic study on maths and science teachers. I would then appreciate if I start by asking you in terms of the vision of the school, particularly in maths and science. How would you tell me about the vision and mission of the school already identified?
- P(A): Yeah! I'm not sure that we have a formal vision and mission relating just to maths and science. Our mission and vision is to provide a holistic education, eh... and is also values-based on respect, honesty and responsibility. These are our core values and to provide as I have said a holistic education, but we do understand the importance of maths and science as... as key subjects but also understanding that there's some learners you know who are not as... as capable as others, there might be those learners who.. who can't do those subjects. So we take the ability of the child into account, yah.
- Researcher: Ok, so in other words you have (*vibration*) developed an approach that (*vibration*) says as you assess them, let's say in terms of your capabilities...based on the assessment
- P(A): Yeah! We have a school psychologist who does that
- Researcher: Ok, ok, no
- P(A): on the... on the staff
- Researcher: Alright, ok. Now the... the challenges on this maths and science (pause), as the principal most of the time find that you confront these challenges that every time you come to school you are managing all the teachers without specifically focusing on the maths and science, but then... when you do that, if you can narrow it to say, how is your approach on teachers based on their attendance... and such things.
- P(A): Eh, teachers' attendance and so on?
- Researcher: Yeah! I'm giving that as an example

P(A): or teacher discipline? Yah!

Researcher: Yeah!

P(A): look, at our school I don't think we have, it doesn't become an issue really. Err, we've got our attendance register, err, teachers are occasionally absent whether it's on, because they are ill or they got some family responsibility. Err...but I can't say that absenteeism is, is ..is an issue, is a problem you know, it's.... yeah. And we have a, a, structured substitution timetable

Researcher: Ok

P(A):So that on a rotation basis that is drawn up, err if, if a teacher is absent then one of the other teachers will go and look after the class. It's worked out on a rotation (vibration) basis of free period. Err so you know, if in period three on Monday, there is a teacher absent it will be your job to look after the class. Yeah, I... it is not really an issue. Err teachers are on time, for work teachers work very hard at, at the school. There is a strong work ethic here, yeah.

Researcher: Alright, so, they...they don't give you problems, excuses you know why so and so does not do it?

P(A): Yeah!

Researcher; and I like the fact you mentioned that you have a timetable that one knows that "it's me", not something a person is just told in passing that no he's not in can you..

P(A): No, no! it's planned in advance, yeah.

Researcher: Ok, no thanks ma'am. The... the teachers you have, as I have said my focus is on these two subjects, the...in terms of their (*vibration*) ... qualifications

P(A): They are all qualified.

Researcher: Ok. The minimum qualification?

P(A): Ok the, some of the older ones, my age you know, some of them have that Higher Diploma in Education with Mathematics, as the, the major subject you know, in those days you could do the HED

Researcher: Yeah!

P(A): Yeah. And then, but the younger ones they all got degrees. The one I have just employed now she' got a BSc (vibration) with a PGC (Postgraduate Certificate in Education)

Researcher: Ok (vibration)

P(A): they just all got degrees.

Researcher: Alright.

P(A): Yeah! everyone is qualified either in Mathematics or Physics and Chemistry, yeah

Researcher: Ok, then you mentioned one from Zimbabwe..

P(A): Three! From Zimbabwe

Researcher: Three from Zimbabwe

P(A): Three maths teachers from Zimbabwe

Researcher: What do they have? They have permits

P(A): They all worked for the Department, I didn't find them

Researcher: Oh! They, they worked for the Department?

P(A): Eeh!

Researcher: And...

P(A): They were sent here (laughing)

Researcher: Oh they were sent here!

P(A): Eeh!

Researcher: You didn't interview them as SGB?

P(A): Mhh!

Researcher: but then it is fine, because you are satisfied with them

P(A): They are very good

Researcher: as teachers and so on

P (A): One has a Master's degree

Researcher: Is it?

P (A): Master's degree

Researcher: Oh, no, no, no, then they are fine

P(A): Yeah

Researcher: They are fine. The...touching on that one, we will then go to this, because if you say they send them to you....

P(A): Mhh!

Researcher: it gives me a sense of a ... deployment (vibration)

P(A): Dinaledi system, neh.

Researcher: Oh! The Dinaledi schools

P(A): Yeah, yes Dinaledi (vibration).

Researcher: Oh! Dinaledi, (vibration) they bring them for you

P(A): Yeah!

Researcher: And the then the normal processes, eh let's take this one of Dinaledi, the SGBs the posts you advertise, what we call funded posts.

P(A): Mhh!

Researcher: Those ones, eh..

P(A): The SGB posts?

Researcher: No, the ones like those of the Dinaledi teachers

P(A): Yeah, ok, we advertise them in the newspaper

Researcher: In the newspaper?

P(A): Yeah, *The Star*. Local newspaper and in *The Star*

Researcher: Ok

P(A): So we throw the net wide, not just local

Researcher: Ok

P(A): Yeah. Normal procedure: short-list and interview (vibration)

Researcher: Your role in that?

P(A): I'm part of the selection panel

Researcher: of the selection panel

P(A): Mhh!

Researcher: Ah no, that's good because sometimes you find that principals are side-lined and

P(A): But that is not according to the policy

Researcher: find you find that you as principals complain that "teachers are given to us, we are not given a chance to select them"

P(A) No!

Researcher: so it's 'fine in that instance. The, the performance of the school, I think I have checked, I have realized that the school performs, and I wondered to myself that do you have performance standards that all the teachers know and have to conform to?

P(A): Yeah, targets

Researcher: Targets?

P(A): Yeah, we set those in November of the previous year.

Researcher: Ok, so they know all of them that when you go there these are the targets?

P(A): Yeah. There is general targets, so for the school as a whole. For this year it is 100% rate foe Grade 12. 60% bachelor passes, 200 level sevens, in total eh!

Researcher: eh!

P(A): and then each department, from the English department all the way through to the Life Orientation , they set their specific targets.

Researcher: Ok

P(A): Yeah, I also am funded by Optimet Trust, an NGO. I don't know if you know Optimet Trust, they assist with the certain schools; they give assistance for mathematics department, neh. So we had to set very strict targets for the maths department, and in order to keep the funding we have to reach the target.

Researcher: Alright

P(A): and we, we receive support from them. Not just money, but also in terms of workshops. So my Grade 8 teacher was on a workshop last weekend in Jo'burg,

Researcher: Ok.

P (A): Yeah, funded by Optimist, they pay for the flight in order to get there, you understand so we get a lot of assistance from the Optemet Trust.

Researcher: Ok, so. What are the targets. I know the general ones for the school you said is hundred per cent

P(A): For this year

Researcher: Yeah, and hopefully also for next year, the maths ones?

P(A): I don't remember out of my head here

Researcher: Ok

P (A): Its very, it's very specific targets. The number of level sevens, no, number of level 5 to 7, number of level 8 it goes up. So I don't remember out of my head, I could give you a copy of that before you leave

Researcher: Yeah, I'll appreciate that, it will help me

P(A): Yeah

Researcher: Eh the, the system as you have said, the distribution system of teachers (vibration) I suspect that you are happy with that

P(A): Mhh!

Researcher: because they give you what you according to your demands, eh, but generally were your assessment of posts, post provisioning, whether you look at it annually from the department around October or September

P(A): End of September beginning of October, yeah

Researcher: Eh, what is your view on that, the main challenges around that?

P (A): lots of challenges, it's far too few teachers

Researcher: Ok

P(A): It's the 46 and 46 teachers

Researcher: Ok

P(A): Heeh! And they reduce it by one because the, post-provisioning is based on your enrolment of the previous year

Researcher: Previous year

P(A): previous year, ok, and then they always in January put pressure on us to accept more learners, so post-provisioning is based on the learners we had in 2012

Researcher: In the previous year

P(A): Yeah, but now in 2013 we have more learners than what we had in 2012 but there is no adjustment to the post-provisioning, and that, yeah, last year they, my post-provisioning was reduced by one at first I thought it was an error, but it wasn't an error, and the so the Science teacher who resigned at the end of last year because her husband was transferred to Johannesburg, eh the department did not replace her. The school fu... fee had to pay to replace her

Researcher: To replace the teacher? so it put a very big burden on the budget

P(A): Yeah

Researcher: Yeah, on the budget of the school

P(A): Yeah

Researcher: because it becomes a, a, an SGB post

P(A): Post, yeah and it was very unexpected

Researcher: Yeah, I see that. The, the area you touched. You mentioned that they put pressure so that you can, I think the department is the one that put pressure for you to, to take more learners

P(A): Yeap!

Researcher: What could be the reasons for more learners coming to your school?

P(A): Because the size of Nelspruit has trebled, and they didn't build any more schools.

Researcher: Ok, I'm asking because I know that somewhere in the policy it says that the SGB has to play a role in terms of

P(A): Admissions

Researcher: Admissions?

P(A): Yeah, but it's, it's psychological warfare, you must understand

Researcher: Mhh!

P(A): It's a very complex issue, so but the problem is, Mr Thwala, as I said. If you think of Nelspruit in 1994 how big it was if you think of

Nelspruit now, so there was no Stonehenge, you see is growing, growing, growing but no more school, more and more and more residential areas but it's the same number of schools now as they were in 1994 but it's three times as many children. And why are we at a disadvantage? Because the Afrikaans-medium high schools use language, that eh the decision of the supreme court (vibration) you remember?

Researcher: I remember

P(A): Yeah, so they are fine, they can say "Haa!, we only take Afrikaans," you see. It's the same with the *Funza Lushaka* bursary holders.

Researcher: bursary holders

P(A): Yeah, the Afrikaans schools don't have to take them, because if you look at the list, the language of teaching and learning of all the bursary holders is English. So they are not under any pressure to take these young and inexperienced teachers. So it's apartheid, it's a new apartheid.

Researcher: Ok

P(A): It's a new apartheid and it is disadvantaging the kids who come to the English medium high schools

Researcher: Yeah, of course

P(A): On both sides, yeah in, on both sides

Researcher: Yeah, yeah I, I thanks for that explanation. It did not come to me in that way that you have this kind of a challenge

P(A): Mhh!

Researcher: The, when you explained that part always worried me, when I was a principal myself, I know that part of the stats from previous years are being used this year even in terms of LTSM provisioning we used all those to order (vibration)

P(A): Yeah

Researcher: The, the monitoring of teachers in class. How are you conducting it to check if they are teaching effectively these learners, 'cause somewhere they talk about class observation. In your school how do you manage that? Do you conduct them?



P(A): Yeah, the (vibration), the heads of department (vibration) do the monitoring of post-level 1 teachers

Researcher: Ok

P(A): all the class visits all the monitoring events, because with the SGB teachers, I've got nearly 70 teachers

Researcher: Seventy

P(A): Yeah, there is no way I'll be able to, to eh I'll do nothing else neh

Researcher: Mhh

P(A): So the HoDs do the monitoring of the post level 1 teachers, and the I'm doing the class visits of the Heads of Department

Researcher: Ok

P(A): And, I'm doing the class visits of educators where the HoD has picked up a challenge

Researcher: Alright

P(A): Alright, so last term we picked up a challenge with two educators, post level two, to post level one educators. So this term I'm doing class visits of the HoDs plus these two.

Researcher: Err, the class visits, as you have explained how they being structured and, and as you say they provide you with that information

P(A): Mhh

Researcher: For example, the two teachers you are mentioned were challenged, my suspicion is that they need assistance of at some point, and that's where you come in now

P(A): Mhh

Researcher: Err, how could you describe that supportive programme? One, you picked the challenges, two these are the programmes I'm putting in place in terms of their performance?

P(A): It depends what the, what challenge they have. If it's classroom management and discipline then I get Mr [*name of Deputy-Principal*] who is in charge of discipline, to do in-service training with the educators, ok

Researcher: the school-based one?

P(A): Yeah, yeah, If it may be personal development, if it may be something (vibration), you get an educator who needs anger management or whatever, then I've got Doctor [*name of official*] who is a psychologist, she's on the staff

Researcher: Ok

P(A): She's a deputy in charge of Human Resources, then she does the necessary in-service training. If it's content based, then I'm referring back to the HoD who must do the in-service training. so it depends on what is the challenge, then I can refer to where I need to refer

Researcher: Ok

P(A): In the one case, last term, I had the Wellness Centre, you know the Wellness Centre the division of HR,

Researcher: Yeah, of the Department

P(A): of the Department, came to assist me where an educator was suffering from depression, and they were very good and she was given an extended leave and assisted to get, they got a treatment, they appointed err, they were very good. I was very impressed.

Researcher: Mhh

P(A): Very impressed with the professional way they handled her. And the educator is back in class now.

Researcher: Ok

P(A): So, it depends, Mr Thwala, you know it's your situation, so I go, I will assess this is the help this educator needs. Where, where is the help needed?

Researcher: Ok, now I'm picking one thing, the way you refer to the deputies and heads of subjects, it gives me a sense that you are working as a collective, you're not everywhere. You are sharing these issues

P(A): Delegating, yeah

Researcher: with the other members so that everyone should play a part

P(A): Yes!

Researcher: The, the part that I will, I will rush to because you've already responded to three questions relating to how the information you gather from monitoring you explained, giving the examples that you

gave. The area, that will be depending on the information you receive from Mr [name of Deputy-principal]

P(A): For the discipline and classroom management, yea

Researcher: because I just wanted to check the times. Are all teachers Are all these teachers ready for help because sometimes you can provide this help but only find someone not ready to receive it?

P(A): Mr Thwala I think, at our at this school you know, because of the way it is structured and the systems we have in place, err we don't, we 've not experienced that kind of a problem in the last few years, you know. People don't want to be, teachers don't want to feel uncomfortable in their classrooms. They want to be able to have a good day at work, you know. You don't want to go home in the afternoon and say: "Ag! It was a horrible day at work the kids were, I couldn't control the kids." People don't want to feel like that, so the help that we offer them when there is a problem, they are only too happy to say "thank you, now I know when a child behaves like this I've got this skill," and I think that's really the atmosphere here at the school. If it will help me to have a good day at work, then I'm happy to receive that help, yeah

Researcher: I know the programmes and the plans as you explained them. I'm just looking at the point where you will make recommendations so that, in your view particularly on that area you touched on post-provisioning, err, what areas would you like the department to improve in terms of supplying teachers to you, it's fine you have the Dinaledi programme does give you teachers, but then this school, yourself as an individual how would you make these recommendations that you prefer in future that this and that should be considered so that the process comes more improved in terms of providing teachers

P(A): I think, heh! I think the big issue is that somehow that post-provisioning needs to project forward, or there needs to be a window-period where you can say in January: "we've admitted thirty more learners than we anticipated, and the department can be flexible enough to say "Ok we accept that, we increase you post-provisioning." I don't know why they can't do that. I don't see the point in saying: "Oh well sorry you took 30 more learners but, you know we thought you'll have 1 200 so you'll have to somehow manage with the 46, so we can't." they need to be more flexible. One needs to be able to say in January now I really, we need an extra

teacher, you know. The other thing is this Funza Lushaka bursary holders, (vibration) because it's all very well, I understand the kids need post they had bursary, the money, posts. But it is not always fair to say, you know, you see if you are looking for someone who is going to teach a Grade 12 maths class, you can't take a bursary holder, you got to get someone with

Researcher: Experience

P(A): Experience, most experience, Ok. So I was, I'm sitting in a case this term, where I lost two senior teachers, now they are trying to force me to take two of these bursary holders. If I've lost two junior teachers, who were teaching Grade 8 and 9 then I could say Ok. But I can't, I can't put someone who is just from university to teach my Grade 12 maths class. I can't, I Researcher:

Researcher: The next problem will be: "You are accountable for the results."

P(A): Yeah, exactly! I'm engaged at the moment with HR. I've got other, I've appointed, not appointed, I've got two teachers in the classrooms but they have send the EDU 1 back saying no, I must send these two away I must take two of these. I'm engaged with Ms [name of District Official], we are busy trying to sort it out, that's also a challenge you know. And to me it looks like there was a lack of planning, with that, with these bursaries

Researcher: In which way?

P(A): Why are there 227, bursary holders still looking for work?

Researcher: Yeah, you are touching the reasons for this study because the issue was "do we have enough teachers in maths and science, have we distributed these teachers?" and the issue you are bringing talks of experience and so forth, it's a good submission

P(A): Yeah, you see it's, it's, heh! I don't know, my desk is a mess I, because I'm busy with so many things, I've got that list, the I counted, it's 227 neh

Researcher: Mhh

P(A): And then the other thing is our school is English home language neh, ok so now even though for 90% of our learners English is not their Home Language, but we do not offer English Second Language. We only offer English Home language. It's English Home Language and then we have Afrikaans First Additional and SiSwati First Additional.

Now most of the Funza Lushaka bursary holders, it says their language of teaching and learning is English, but when you engage with them, the level, standard of English often, not always neh, but often, often the standard of English is not of a high enough standard, err for a school like [name of school], and you know my learners, when you don't speak English properly neh, they laugh at you. And they, they

Researcher: lose confidence

P(A): they lose confidence.... so, so this issue is a complex issue, so these bursary holders should start in Grade 8 and 9, yeah. We can't just be told as High schools "You must take them". It should be "if you have a post suitable" and the standard of English when, when coming to an English Home language environment, it's got to be of a high standard

Researcher: Now you are touching on a serious area, because as we are sitting you were looking for that list, the understanding for me is that you should be receiving a list that says, ok fine choose, take them for an interview to see if they meet what you want, if not then you can say no, from this list we couldn't get what we want, can we be given the latitude

P(A): That's what I've done, that's the process, but time consuming. I can't have kids sitting without a teacher for a month while I go through these processes

Researcher: So in the meantime who is, oh you said you have them but you have those they say you should take them out?

P(A): Yeah, you see what, it's complex what happened I had two teachers on sick leave last term, one that I told you about neh, and the other one had a big operation, now as you know when people are sick the Department does not send you replacement neh, so I got two qualified educators to come and substitute the two that were sick and the SGB paid them, now when the other two resigned suddenly, two weeks before the schools closed – one the husband was transferred, the other one ran to a private school- you know what they do neh, that is another challenge, ok, then I said to these two, I did some adjustments here and there with the timetable, I said to these two "now you don't have to leave at the end of this term, I'm gonna move you across to the state posts." And we never, I've been doing that for the past five years, moving SGB employed educators into state posts by just completing EDU 1 and attaching copies of the... we filled all the forms like we did for years, send it off to the circuit office nobody,

last term already neh, nobody said a word, nobody, the Circuit manager didn't phone me and say: "Hey .. what about the", nothing, he even signed, approved the, approved he signed. It's only when it got to the last signature at HR. somebody at HR said "Ahhh!" Three weeks later, no, four weeks later, four weeks later, they send them back to me "now you must consult the Funza Lushaka list." Hhaa! Hehe!

Researcher: Yeah, it's a challenge, no it's a challenge.

P(A): somebody needs to manage this Funza Lushaka posts. Anyway we took ten, and we called (*break*).. I don't know who is managing, think Ms [name of HR official - Head Office mentioned] is managing (*vibration*). Yeah, I think [names of two HR officials at Head Office mentioned]. Yesterday I phoned [District HR official mentioned], luckily I have a good relationship with the department you know, err, that's something I've done on purpose. Not in an ugly way, I mean I feel (*vibration*) what is the point of fighting with the department

Researcher: Yeah

P(A): That's going to be counterproductive you see, so that's not my management style. It's not my style at all. I've got a very good relationship with, with the department. With my circuit manager, with HR you know, but this, this one upset me, but I think, I think I've solved it now you know. But you know we can't, we can't, and I'm sure what happens in other schools is: those classes and it's was eight classes all together because it's two teachers neh. Those classes would have been left for four or five weeks without a teacher

Researcher: without a teacher?

P(A): while they sorted something out, I can't do that. I act so that my kids have a teacher. They didn't miss a day of mathematics, maths post and science post

Researcher: those are critical

P(A): It's critical, we can't be messing around with that err Mr Thwala

Researcher: You said you've got almost 70 teachers

P(A): Mm!

Researcher: Err, it's a big school?

P(A): Mm!

Researcher: The 46 are from the department, the rest SGB?

P(A): Yeah

Researcher: Now, how would you then say your teacher: pupil ratio is around, because I'm trying to check

P(A): Ok now some of the

Researcher: why the department should give you more teachers?

P(A): You must remember now, two of the SGB are extra deputies neh,

Researcher: Yeah

P(A): So at my school, myself and the four deputies, see the department pay two deputies, Researcher: Ok

P(A): The SGB is paying two deputies

Researcher: Ok

P(A): These two deputies are not employed by the department at all

Researcher: Ok

P(A): Ok, and the five of us we only take one class each. We don't teach, I teach one grade 12 class

Researcher: Ok

P(A): Mr [name of deputy principal], the senior deputy, he teaches one Grade 10 Geography class

Researcher: Mm!

P(A): You see, and so on neh

Researcher: but you teach?

P(A): I teach, but only one class you know whereas in err you know, and the deputies only teach one class because they've got other duties I need them to do you see

Researcher: Yeah

P(A): Mr [senior deputy principal] is all the admin, Dr [second deputy] is the psychologist, Mr [name of third deputy principal] is discipline and classroom management, Mr [name of fourth deputy] is extra-curriculum activities, you see

Researcher: Mhh!

P(A): So they must teach with all those duties neh

Researcher: Ok

P(A): So they only teach one whereas the expectation on your post-provisioning (vibration).. the HoDs, they also got much lighter teaching loads so that they can monitor correctly, you see

Researcher: I see

P(A): Yeah, yeah, Ok, much lighter than the state would expect, Ok. That's also alright. And then I've got a support staff that I include. So one of those is the occupational therapist, she's not a teacher, neh. I employ an occupational therapist. One of those is a social worker

Researcher: Ok

P(A): Ok, one of those is a sport officer

Researcher: Alright

P(A): Alright, you see. One of those is an IT specialist, is not a teacher is a IT specialist. So if anything goes wrong in either of the two computer labs, the teacher does have to spend time. You understand. And also we all, we're on a huge network

Researcher: Yeah

P(A): Ok, so its I mean when I say I'm got a staff of seventy I'm including all these support staff: occupational therapist, social worker, sport officer err

Researcher: IT

P(A): IT, and I have a truancy officer

Researcher: Yehh!

P(A): A truancy officer, all that boy does, is a past pupil, he's 26 years old, in the afternoon he coaches sport neh, but in the morning he's checking that these kids are in class, he's check because we take register every period neh

Researcher: Ok



P(A): he's checking: "John Nkosi" was marked present at registration but it comes up on the computer that "John Nkosi" didn't attend the fifth period, then he investigates where "John Nkosi" was in period five

Researcher: Ok

P(A): Because it's all computerized now. Then he looks at patterns: "John Nkosi" was absent for three days last week. John Nkosi is often absent. Teachers aren't, you see

Researcher: Yes

P(A): So I'm employing extra, we are employing extra support staff.

Researcher: Alright

P(A): Yeah, we have to, to maintain discipline

Researcher: Yeah, I see, it makes sense to me. That's why I was saying at a school as big as this you walk around but you don't find kids all over

P(A): No, never because they know Mr [name of school official] will catch them

Researcher: when you know there are other schools

P(A): I think it's, yeah fourteen extra educators, actual educators that the SGB pay for. So it's a teaching (vibration) 60 and 10 of the support staff. So most of my classes are 30 or below. Thirty learners or below, It's sometimes what happens, for example Grade 11 with the History, we've got one class which is 34 learners because some learners do this subject change

Researcher: Yeah

P(A): at the beginning of Grade 11 neh, say no we can't manage with the IT or we can't manage with the Physics and what do they change to? History.

Researcher: Alright

P(A): Yeah, so the I know one History class has got 34 learners, but that is the exception

Researcher: Ok

P(A): Ok, most is 30

Researcher: That's good. I think that will be all. Thanks.

P(A): It was so enjoyable to talk to somebody. You know it's nice to talk about err

Researcher: Your work

P(A): Yeah it is, and to someone who is interested and trying to find solutions to these challenges

**[End of interview]**

## APPENDIX I

### TRANSCRIPT: RESEARCHER AND OFFICIAL-ED2

HELD: 15/11/2013

Researcher: Thank you once again for agreeing to participate in this study, May you please take me through your responsibilities in the district?

Official: Yeah, well as a Human Resource Service manager in the district, I'm responsible for the management, control and monitoring of all HR activities which have to do with skills in the district. Eh, basically we are servicing educators in the school which are found in the district which is about 577 schools. Yeah, and then in the region of about, what is it, 5000 teachers in the district. Eh, we are responsible for to ensure for instance that their benefits are looked after, benefits which include housing, medical, pension, right up to when they exit the system either through retirement or natural attrition. I am responsible for that. I'm also responsible for the employee health and wellness programme in the district. Yeah, we this one is a new section in the department, although it is about seven years old, but it is relatively new. It looks after educators needs so that they function well, they are healthy. Their problems are looked after whether it is at work or at home you know. It also looks into issues of the occupational health. It also looks after educators who are HIV positive. We also look after those and their families. That is the Employee Health Wellness Programme. Yeah, we refer them even for professional assistance, rehabilitation, etc, that is EHWP. Well I'm also responsible for HRD in the district. Yeah to improve the skills of people who are employed and the youth which is unemployed around the district. We also cater for those.

Researcher: The unemployed?

Official: Yeah the unemployed youth. We take them into certain programmes like learnerships.

Researcher: Ok

Official: Yeah learnerships, etc. But basically we are also improving the skills of the employed crop in the district. There are certain programmes which are introduced by the province and then we enrol them into short courses even, even academic courses we are responsible for that. And the last one is the employment or staffing. We are responsible for recruitment of staff in the district in schools.

Researcher: Ok

Official: Year, recruitment of educators, recruitment of heads of department, deputy principals and principals. And the clerical personnel or the support staff in the schools. We are responsible for that as well. The filling of vacant posts, I'm also responsible for that. So basically there

are four legs in the HR in the district, as I've mentioned the four. That is what we perform on daily basis.

Researcher: Thanks for that. What policies guide your work of distributing teachers to schools?

Official: Yeah well as HR we are the one who receive the post establishment for schools and then we distribute to all the schools. And we also, as HR, programme these posts into the system, into PERSAL system.

Researcher: Ok

Official: Yeah we programme the PERSAL system to say 'school A you qualify for 10 posts level 1 educators. You qualify for 3 HoDs. You qualify for a deputy principal, you qualify for a principal, then we put that into the system so that when the school begins recruitment, we are done with post level 1, so ours is to implement this to make sure that schools comply to the post establishment. They don't exceed it. That is our role in the district.

Researcher: I assume that the information from schools to province also via your office?

Official: Yeah but then it is another office that does that. It is, we do have EMIS in the district. Those are the ones who do the head count for us and say 'you've got so much enrolment at this school, and then they submit it to EMIS at Head Office, which in turn produces the post establishment.

Researcher: Is it?

Official: Yeah, so we are not directly involved in ascertaining the statistics of the schools. It is, there's an office that deals with that.

Researcher: I pick a connection between your office and EMIS.

Official: Yeah, there is.

Researcher: This process speaks numbers but does not specify for which subjects. It just says posts.

Official: Yeah, number of posts. That's it.

Researcher: Now. How then does the Department ensure that the national policies on vacant posts are filled by qualified teachers, particularly in mathematics and science?

Official: Yeah well, with HR it's a little bit difficult you know, like you initially said we are only dealing with numbers. To say you qualify for five. How you staff your schools that becomes the competency of the circuit manager to say yes you qualify for 10 teachers and this is, these fields, these streams in your school you have to satisfy in terms of how you recruit your educators. Year, as you can also know it is the SGB that will then sit and ensure that the correct educators are employed by the

school. The only role of the department is that the circuit manager will be there as a departmental rep to ensure that is happening. HR is only doing what I can call it's more administrative there. We don't play a role in ensuring that indeed you are getting the maths and science teacher, except to say when they submit documents to us to say we've recruited Mr. Thwala, he is a Physical Science teacher up to grade 12. Then when they submit we then check those documents, we even verify, we even take these documents for verification with SAQA and the Department of Education. We do that, especially the foreign teachers, because a foreign teacher when he submits his qualifications he must also submit proof that these are authentic. Must submit that proof, the original copy coming from SAQA, but we also have to take it ourselves again to the national department, now is done by the department of higher education. We also do that, just to verification part of it to say 'yes the person is indeed qualified to be a maths and science teacher'.

Researcher: How do you allocate ad hoc posts to schools?

Official: Yeah honestly, speaking on this one I think we have a challenge because the department will determine the number of ad hoc posts for the coming academic year. For instance, now in October – November they will determine how many ad-hoc posts must we have for 2014 and that is determined by the budget of course. But the practice for the past 5 years or so is that there shall be 200 in the province. 200 ad-hoc posts. Now when I say there is a challenge, there is, there is really no policy that is in place to say how they should be allocated. It is a first come, first served basis. If for instance, you are a principal of a school, and then you foresee a need that next year I'm going to have a challenge because this is a growth area, and they are only giving me 20 posts but by the way people are coming to this area, I'm going to need more. Then you make a submission to the Department. And it all depends on who came first like I say. And I must say on this one I think we are short-changed in the Department by the former Model C schools. They are the ones who are getting these ad hoc posts mostly, to be honest with you, because I think, I don't think it has to do with them planning properly better than the formerly disadvantaged school but if you can check, you can go and check at head office, the people who get most of the ad hoc posts are the former Model C schools.

Researcher: Ok

Official: Yeah, and then if you come at a later stage and you are in a dire need of an ad hoc pots, you find that they say they are now exhausted, you know we don't have really a clear policy on how they should be allocated. That's why I say it's a first come, first served. They are being given on a first come, first served basis

Researcher: Is it a first come, first served when schools apply? And also first come, first served when districts apply?

Official: Yes, exactly. The Director will also make a submission to say "I need posts for his particular schools, it will go and then we are left with 3 and

you want 5, we can only give you 2 and reserve 1 maybe for another district, so Head Office will determine who get the posts.

Researcher: what is your advisory role to the Director about the spread of qualified teachers to schools?

Official: Yeah, well I think as HR we do advice the Director. But now we depend on the submission from schools through the correct line function from the school to the circuit, yeah. The school will raise a need with the circuit and say 'we need a physical science teacher, we do have a vacancy in terms of the post – establishment. We have recruited this educator for us from this period up to this period. And then the circuit will support that submission and then it comes to HR. when it comes to HR we write a memo to the Director. Now that the powers have been delegated to the Director to appoint.

Researcher: To appoint teachers?

Official: Yeah, particularly foreign teachers. Remember that our department teachers on P1 powers have been delegated to the circuit manager. Yeah to appoint teachers of P1 but when it is a foreign teacher, then it must go to the District Director. And then it's us now as HR we are the ones who must say 'this one is appointable he's got all the qualifications, he's got the work permits, he's got the SACE certificate, he qualifies to be appointed as a foreign teacher and his qualifications have been verified'. And then we recommend to the Director as HR. That one is appointable, please appoint, supporting the submission from the school and the circuit through the correct line function. But now a South African who qualifies the circuit manager appoints out-rightly on that one. That is why in our province a school is able to appoint a teacher like to say 'come and work tomorrow'. The process, we don't advertise P1 posts in a vacancy list in this province, we don't do that. The SGB can quickly get the number of CVs and say 'no let's just check them, just an impromptu interview, you know when we say 'just come and work tomorrow and work' if the teacher is qualifying. The challenge is on the area of those who are foreign teachers. Those ones need to be. You must get approval from the District Director on that one.

Researcher: The delegation of powers to appoint teachers suggests more interaction between circuits and SGBs. Is it not cumbersome for circuit managers and capacity of SGBs in impoverished schools to check quality of teachers.

Official: Yes, they are correct. Although unions are supposed to come and observe the process, but they end up participating you know, yeah. And even the school governing body will say let's get the opinion of the union on this one. And then they will fully participate. Yeah, we really don't bar them. Sometimes they are helpful, I must be honest, the unions. So sometimes they become handy to the SGB but obviously some will push their own agenda you know to say 'there is someone'. They will always earmark somebody who is a member of course. And then if there is no problem the process will run up to its end, but if there are interests. You see even the governing body does have interest

sometimes to say 'no this person has been acting for long time and did well for us', you know they will want that one. But the union sometimes will be very, very objective to say 'no, no, no here is a candidate'. Then there'll be that dispute that will erupt there, you know. And then it will follow the correct process then in trying to address that.

Researcher: What is that process?

Official: Procedurally the union will write a letter, initially it is a grievance before it becomes a dispute they will write a letter of complaint, give it to the chairperson of the panel to say 'we are not happy here, the circuit manager was influential'; whatever the dispute that they have. And then the chairperson of the panel should address that with the Department, the nearest will be the circuit manager to try, then they will try to resolve it.

Researcher: Ok.

Official: If there is a need to redo the whole process they will redo it even before it comes to the district. But if it was just a perception they will also try to resolve it at that level, but if the parties are not satisfied the union will take it further. It will come to the district. The district director will act as an employer at that point because he is the one who is appointing. It doesn't go to the ELRC. But if there is a deadlock up to that point, then it will be a formal dispute. It will then go to the bargaining council to be addressed by the bargaining council but in many cases we are able to resolve disputes because the director will take a decision to say 'no, no, no I'm appointing a new panel there'. That panel must recues itself. We are employing a new panel that will conduct the process of interviews.

Researcher: New panel meaning exclusion of SGB?

Official: The director will direct to say I am supporting other departmental officials to take over the process or the SGB must go and get other people who did not participate.

Researcher: The Director?

Official: Yeah, it is there, it is in the policy. To say 'get other people who did not participate, from within the SGB can get people or even

Researcher: The SGB, not the District Director

Official: But there is also the provision in the politics that if the District Director feels the entire SGB will not run the process fairly, then the Director will request the Head of Department to take the powers of the SGB so that the Department now is the one that runs the process fully, but only the HoD who can take away the powers from the SGB.

Researcher: Is that the process?

Official: Yeah, it's a cumbersome and long process of course. Because he must tell them and they must have recourse to say 'no the HoD is taking our

powers we don't think it's fair. But the MEC will have the final say about that one.

Researcher: The view held somewhere in education circles is that it is easier to fill SGB posts than funded ones but SGB teachers are easily transferred to funded posts. But disputes on posts are probably few in affluent schools.

Official: In fact they are not there.

Researcher: Shortages have led to the employment of foreign teachers that are preferred by schools over *Fundza Lushaka* graduates. Why?

Official: Our experience. Maybe let me start here. Our experience about the *Fundza Lushaka* educators, schools are complaining. That it is fact. They are saying they are not properly being trained particularly on content. It's not really pedagogical challenges but content. Yeah, you do find there and there where schools are happy but generally speaking, I think their training does have a challenge. You know that they are now trained for 4 years neh? And on the 3<sup>rd</sup> year, what do they call it? Eh its experience trial training. They go to a school for the whole year and they are getting a stipend for that part. And that is when they are supposed to be interacting with the teachers, one other advantage of foreign teachers is that you know they come and stay in the country for the whole year. They teach on Saturdays, they teach on Sundays, they teach on holidays. They don't go home. They'll go home in December, so they have all the time with learners. That is what makes the first difference between them and our teachers who are based locally. Yeah foreign teachers, the second thing that we have observed, they are not much, they are not unionized if I may put it neh, therefore their rights, their benefits, they don't worry that much when it comes to that. The hours of work that fours on certain hours. I must go home. no they don't worry about that. They are not so much on benefits as compared to our teachers. So they will really dedicate their time to their learners. I think that's another aspect which makes the difference. We cannot say much about the type of training which they get. But what you may also know is that the ones who come from Zimbabwe neh, eh it is said that the teacher who comes from a college in Zimbabwe is less qualified than a teacher who comes from a college in South Africa. In fact we were advised that we should not take a... How can I put it? If you take a Zimbabwean teacher it must be a teacher with a degree because part of their study at college, especially the P. Science ones, part of their study does not cover the entire Physical Science. There is part that is not there. I think it's chemistry if I am not mistaken. So if you take a teacher with a diploma in Zimbabwe in fact you are taking an under-qualified teacher for the standard in South Africa. So we have to be careful when we recruit them. They must have a degree. So but as to the type of training really. Eh, its correct what you are saying that they seem to be better trained you know, they seem better trained. Besides dedication and in ample time they give to learners, the *Fundza Lushaka*. We also have in our province, *Fundza Lushaka*, *Funza Lushaka* is a national isn't it? We also have in the Dept skills development where we



train our own teachers from the funds of the Dept in the province. We call them Skills development teachers.

Researcher: Ok. Do you train those that are already working?

Official: (Interruption) we do have those who are, our crop of teachers who are under-qualified. And then we take them for this B&D but we do also take those who come from grade 12. Fresh from school to do BEd. We take them to Fort Hare, Limpopo UFS, all that, Yeah

Researcher: Who compiles the selection lists for *Fundza Lushaka* bursary holders and the criteria used?

Official: To be honest with you, people apply directly to national the *Fundza Lushaka*, Yeah. What we do, we assist them by giving them the application forms, advising them but all that there is an office at national that hands les *Fundza Lushaka* directly. That is why if a teacher is qualified under *Fundza Lushaka* can teach anywhere in the country. You can stay in Ermelo and say 'I want to go and teach in Cape Town', They will allow you to go there but you must teach for the period of 4yrs or you must pay back the national department. So we are not really so much involved in that one. Our role is when they qualify. We must make sure that we place them because you'll know that *Funza Lushaka* bursars immediately they come, immediately they qualify you must employ them permanently the first day. They don't serve probation. They are not temporary. When they come they are the first preference. In fact according to our policy, when the *Fundza Lushaka* bursar qualifies and comes, must kick out the foreign teacher. You start with teachers who are in addition, neh? You prioritize to replace them. it there is no one of them who can get the subject you want in a school, the school is the *Fundza Lushaka* bursary holder, and then comes the foreign teacher. But like we said, principals say 'no, no, no we don't want a *Fundza Lushaka*, we don't want a teacher in addition, we want this foreign teacher because he is good. That is the practice in the schools, but in terms of our policy: it's a teacher in addition, followed by a bursary holder, and then a foreign teacher comes in.

Researcher: So you are saying it is difficult to implement that policy?

Official: Practically it is difficult. The schools will come with very good reasons and say 'no we've interviewed this person doesn't make the grade, he doesn't make the grade. That is how it goes. It is very difficult and they will give you good reasons and say 'we've advertised the post, we did not find a local person, these was no teacher in addition this one on teacher in addition. It is obvious you know, teachers in addition you'll never find a mathematics and science teacher who is in addition. Yeah you'll find History, Geography, Bibs, Language. You'll find those. And then they'll say this person was the best for our school. Who are you to say the principal must not take what he says is best because the next thing you will say you are not performing as a school. So we always approve that. We always approve their submissions.

Researcher: Are the *Fundza Lushaka* lists compiled and distributed to schools?

Official: It is national. National compiles the list. In fact you see this is November, we have already received lists for next year because they know who is about to complete. They know the final year student. They give us those list. It is the name of the person, the address, the cell number, the subjects, in that list. Everything, you get all that information. They give to national and so they give it to the province, our province then forward that information to the districts. We are the ones then who must place them in terms of that list. It is a very very tedious process because, eh you will phone a person because the address is Kwagga because you will say this one is nearer but you'll find that he has already been taken or the phone is not working. It is a very tedious process. But now to answer your question national gives the list to the province with an instruction, a clear instruction that you must place these people you know. And when you phone them you must not really look into the address, like I said a person in Cape Town can come and teach in Nelspruit. You must take your chances. Are you placed? Yes or No. If he is placed they must forward the proof to you. There must be proof to say I am placed. Either you speak to the school where he says he is absorbed. Then you go to the next one, just like that.

Researcher: Who is supposed to do that one? Is it the district or school?

Official: We in the district we receive the list we make copies for circuit managers. They are the ones who know which schools have vacancies. They are the ones who know because remember that when the post establishment comes this year for the next year it is the circuit manager who know I've three posts.

Researcher: Who is supposed to phone these people on the list?

Researcher: It is supposed to be the school that phones, but you know the way things are, then the school will refer this thing to the circuit and say 'please help us'.

Researcher: I was coming to that given the resources at school.

Response: The circuit also gets frustrated. There are instances where we in my own office phone these people. The school simply say we want a month teacher, they don't even phone, they don't even phone, they don't do a thing, then we take a list. You know the advantage of us doing it as a district, is that we will be very honest because we want to place these people as a district but the school, no one will be placed. They will go to their preference which is what? Foreign teachers, unqualified teachers. So you know that we also have unqualified teachers? They say: 'no this person has a BSc. he's left with one course to complete his professional qualification. Please let us employ this person. We've got in our district we've got about 71 qualified teachers. 71 unqualified teachers because a person.....

Researcher: Locals not foreigners?

- Official: Locals in the district not foreigners, although we also have under-qualified foreigners. We do have them. But it is better for us to employ an unqualified South African than to employ under-qualified foreigner, yeah. That is the principle we are following at this stage...Why must we employ an under-qualified foreigner teacher. Well it's another argument because you know a foreigner teacher even if he's under-qualified is still good most of them, they are still good.
- Researcher: *Fundza Lushaka* have a choice of selecting school and places they want to serve. Why the choice?
- Official: Yeah, there is in fact a memorandum of understanding that they sign before they were taken in for training. They sign to say I shall abide by the following one of which is what you are raising that 'I will be able to be placed wherever a vacancy exist in the Republic', especially the *Fundza Lushaka* ones. So they have no right to, you see in fact the idea was firstly to address the issue of teachers in rural areas because if you got your nice BSc you can teach anywhere. So now people run away from rural areas. To address it they say you go for full training, on the 4<sup>th</sup> year we give you stipend but you go and teach where we want you to teach. So it can't be that they can then have a choice to where, want to go. So there is that memorandum of understanding. Maybe you need to get a copy as well.
- Researcher: Is this choice presenting you with challenges?
- Official: Gradually we suppose to be reducing the number of foreign teachers but it is the other way, they are increasing.
- Researcher: Do you have incentives for MIS?
- Official: Rural allowance? Yes, they call it rural allowance right. Eh we supposed to choose as a province. We were supposed to decide whether our rural allowance is in terms of subjects or area. Yeah, the deep rural area, are we saying all the teachers teaching in deep rural area must get an incentive or are we saying all maths teachers so our province chose the subject maths teacher. But we have not yet implanted it.
- Researcher: Why?
- Official: Yeah, I don't know why. The budget was there, there was a time when we last year we did all the calculations and don't know really what head office did because the budget was there, it held not yet been implemented.
- Researcher: So but the idea is there?
- Official: The idea is there. There's a resolution for that matter. There's a council resolution to say no we are not going for subject, because you know why according to national they were classifying for instance, Nkangala, our district saying it is not rural. All of it you know. They are saying we have Witbank, Middleburg. We are close to Pretoria, you know, so they

were saying there'll be no person qualifying for that. That's why they said no lets go for Mathematics and Physical Science.

Researcher: Where you have a chief, then it's rural.

Official: The other complex thing about this thing of a of the scarce skills is the school must say we've 10 post: 1,2,3,4,5,6,7,8,9,10. We are funding, the person in this post must get the allowance you understand, so that is a maths so that no one must say I belong to this post. So the primary must say post number 13 is a Physical Science post, is the one who qualifies. So if this person moves out, goes elsewhere either through natural attrition or something, the person who must come in to the one who must teach the subject and qualify for this allowance and no any other teacher in the staff.

Researcher: If the qualifying teacher is female and goes for accouchement leave does the substitute teacher qualify?

Official: No that one that left is going to be paid at home together with the rural allowance.

Researcher: The substitute doesn't get

Official: Honestly I'm not sure about that one, we'll have to check if it's substitute, honestly I didn't even think about it.

Researcher: No it's really another area. Challenges have been highlighted throughout the interview. What are your proposals on these challenges?

Official: Particularly for science teachers is the foreign teachers?

Researcher: Yeah.

Official: Honestly speaking my recommendation would be we need to have colleges if education back. I think that will solve our problem. You must have a pool of these teachers so that if you want a teacher tomorrow you'll go somewhere and get the teacher because I think the problem of mathematics and science teacher to me it started when our people were exposed to more and better carriers in M/S and therefore people abandoned teaching as a profession. Of course you also link it to the remuneration one that teachers get compared to what they could get if they were in a private sector. Obviously if a BSc. person goes to work in laboratory somewhere in a private company will be earning better, so you know it is not attractive. I'll give you what happened one day. We got bursaries neh, as a district we got 200 bursaries and they say we must allocate these bursaries to people in JS Moroka and Thembisile Hani, the rural areas and then we were supposed to classify that whom do we want and where. It's a mine, there's a mine between KwaMhlanga and Bronkhorspruit, then they give us these bursaries. Obviously we are going to think of teaching. So we said we are taking 200 for teaching, 20 for engineering, Then we classified: What, what medicine you know. Then we loud hailed, we made sort of an announcement to say those grade 12 of 2010 who want to go to tertiary

and they didn't have money they must come to the parliament...KwaMhlanga so that we can introduce this to them. They came the hall was full neh. Now we started with those who want to do teaching. We said: If you want to do teaching go and stand at that corner. You know the hall had about 600 learners only 3 went to that corner, 3. Irrespective of saying what are you going to teach, 3 yes like! We said this thing is not going to work. I'm telling you. You know at the end of the whole exercise, we could only place 80, we lost 120 of these bursaries. Then they took them to other districts. Well this 80 is not only teachers, it is engineering and others. I'm trying to express that teaching as a career is not attractive. There must be ways of marketing teaching. And obvious one of them is to incentive these teachers more than what they are getting now, you know, either you improve..I know government is planning that, you know the president has announced that teachers salaries must be improved. So that is one of them we need to seriously consider improving conditions of teachers.

Researcher: How

Official: Yeah well I've mentioned the issue of remuneration. Yea the benefits that teachers should get you know. You know if you go to some of the public hospitals you find that the Department of Health is providing them with houses you, car allowance. We should consider these things if we are serious.

Researcher: Literature suggests that teachers are taking the bulk of the budget in many countries. Can these types of benefits be sustained?

Official: Yeah, I was coming to that aspect as well of working conditions of educators. Yeah the working conditions of educators, look right now you know our school don't have laboratories, our schools don't have libraries. Resources are just not there. Maybe this issue of norms and standards will assist because there are norms and standards as to what a school should be like. But I mean how many years is it going to take? In terms of sustaining these benefits I believe our country can sustaining them, you know I don't think we really have a problem of finances in our country but there's a lot of wastage in our country's budget. There's a lot of wastage which I think, because look we are talking about Physical Science and Maths here, we are not talking about all the teachers. Yeah, not all. We are talking about Science and Maths and therefore I believe that our Department can sustain it for a certain period of time because we are addressing problem of people who want to join in and do M/S rights now we are trying to recruit more learners to do P. Science, and therefore if you put these incentive for them. I believe we are saying 'let's get more of them coming in'.

Researcher: Learner discipline some do complain about learner discipline they have even installed CCTV cameras in classrooms to curb it.

Official: I really in my personal opinion I believe that learners are able to do what we want them to do. Look even when we conduct workshops, you'll never find a workshop where we are calling learners once we workshop the school management and educators, we are done. Once

you have these two ok, I believe the school will follow the learners will follow suit. If you go to the school even from your own experience, even if you go to a school, you know a school that is not well looked after it will never give you good results. I've never seen a school where desks are lying all over the show and they give you good results. I've never seen a school like that. It so it goes with the school management and the legacy that teachers put the staff itself, therefore learners will do what their teachers and management are saying they should do. So I don't believe that ill-discipline of, ill-discipline of learners is as a result of the management of the school. How the teachers themselves of the school are carrying themselves I believe so. So once you deal with those two, I believe learners will follow suit. I really don't believe that you can, because sometimes you do go to a school neh, the principal during our outreach, the principal will say learners of this year are not going to pass. Why principal? They are not disciplined. The following year those once are very good. It depends on what? What does it depend on?

Researcher: It is by teacher's choice?

Official: It is difficult of course for teachers you know, looking at this generation and things that are happening even the technological development, they also do add to the challenges of our teachers but isn't that the system should develop ways of also dealing with that, I believe either the Dept or the school as an institution but there has to be a way.

Researcher: I think we can close this interview at this point. Thanks for participation.

Official: Ok

## APPENDIX J

### TRANSCRIPT: RESEARCHER AND TEACHER-D2

HELD ON 23 OCTOBER 2013

- Researcher: Good day sir and thanks for your availability. Your principal has just informed me that during this time of the year your school has a tight schedule because you are about to start with the examinations. Maybe I should start by asking you how were you recruited to the school.
- Teacher: The process was that I was teaching in Limpopo, then there was this friend of mine who was teaching here [place] and he wanted to relocate to Limpopo whereas even myself I also wanted to relocate to here. So it because a cross-transfer.
- Researcher: Which subjects does your friend teach?
- Teacher: Fortunately both of us were maths educators.
- Researcher: Why did you decide to relocate?
- Teacher: One point was family. My wife got a job here [place]. That was the first point which made me want to relocate. And the second one was just I needed change because I grew in Limpopo and went to college and therefore I worked not far from home then I just wanted challenges.
- Researcher: You wanted to run away from your parents?
- Teacher: Not necessary because the school where I was working, my job was done because it was one of the best schools. Yeah, and we were getting 100%. You know sometimes you need challenges somewhere.
- Researcher: How long have you been here?
- Teacher: Since, now 8 years.
- Researcher: Experience as a maths teacher?
- Teacher: 15 years
- Researcher: What factors would force or nearly forced you to quit teaching?
- Teacher: Yeah, you know, as a maths teacher sometimes we've got a serious challenge because generally we are overworked, because, you know in all schools especially when they do subject allocation, they don't look at how demanding this subject is. For instance, as a maths teacher like myself I work, I'm having morning classes, I have to teach during the periods and also afternoon classes and also on Saturdays I have to teach. You can see that the work is too much, and on top of that you will find a

person, for example, is teaching history is having 10 learners but the number of periods for that person is the same. And the work overload, you know, in mathematics, the overload as you can compare with other learning areas is too much.

Researcher: In your view, what causes that situation? And what strategies do you think should be adopted to address the given that more learners are taking maths than other subjects because I thought redeployment strategy addresses such situations.

Teacher: Yeah, I think, obviously when they redeploy, the thing is, they'll just look at the subject to say that "we have three" for instance let's take maths and science department you've got this number of educators in the department, let's say the school department, we have this number of educators. When they redeploy they'll say this department has many educators, then they'll take from the science, whereas when it comes to work distribution, people who are in the maths science department, they've got too much work as compared to that one.

Researcher: What about the subject weights. How are they being used?

Teacher: You know, what I can say with regard to that. I know maths weights more but the thing now comes back to schools. You'll find that in some schools there are lot of streams. Like for instance, let me give you an example with our schools, we have maths science stream, we've got commerce, we've got special sciences, we've got the consumer/tourism department and in all these departments, obviously, there has to be educators. Then the school establishment when it comes, it says a school must have this number of educators. Isn't it? And from the number of educators, the distribution of the educators will not be to say that maths weight this therefore maths will have more. If maths has more you may find that other departments don't have educators.

Researcher: So there is no post establishment that talks specifically about maths?

Teacher: Yes, it talks generally. That is why even last year, when they were redeploying, we've a crisis whereby they had to redeploy a maths teacher, because you see schools have many, many as I was saying, many streams, and some of them I can say they are very unnecessary because at the end the maths science department will be the one suffering.

Researcher: You say a maths teacher was redeployed, but there popular belief is that redeployment has not affected maths and science teachers.

Teacher: No, was redeployed at our school.

Researcher: Is it?

Teacher: Yes, I'm talking from what transpired.

Researcher: But I'm told you are running short of maths teachers.



Teacher: We are running short of maths teachers If I can tell you.

Researcher: You redeployed the one you were supposed to keep?

Teacher: That is because of the many streams that we are having. Isn't we've got so many streams. You find in some streams, because the problem is the numbers, school establishment, says you have to be 16 educators. But now you've got many, many streams and in some of them there are very few learners but they have educators. They you find that in maths, even if we can be short of educators they cannot give us a teacher.

Researcher: How are these streams introduced at the school? Is it about creating jobs for excess teachers?

Teacher: Like tourism, it was just created as you are saying and you end up having many streams.

Researcher: Recruitment, what are schools doing in recruiting maths science teachers?

Teacher: I think, you know one thing that makes a lot of educators not to come to, let's say to our schools, the thing is you know, maths as a scarce as it is, schools don't or the Department don't take it serious as a scarce subject because, number one, the weighting as you mentioned, is three but its application generally is not because in all schools, if you can go to all schools even us here, in the maths and science we've got more periods than any other educator in the school. Therefore, you know when teachers come to these rural schools like us, the disadvantaged schools they tend not to want to come to the school because of the work overload. Obviously we are very, very overloaded. And another thing obviously, lack of resources that's the main thing. You know new graduates will like to work with computers, things like that, schools don't have them.

Researcher: Did they use the equipment when training?

Teacher: You know one guy we work together on these afternoon classes he was even saying you know he can't use a chalk, he doesn't want to use it. He doesn't want to draw because with smart boards, you see when you want a circle you just make a circle very easy. Things like that. He was complaining about all these staffs.

Researcher: Can such teacher teach in deep rural areas?

Teacher: Never! I taught in a deep rural area. There it's even more difficult there, yes.

Researcher: Foreign teachers. What lesson have you learnt in working with them?

Teacher: Eish! you know what, the problem with foreign teachers I think it's about the background you know where they come from it is different to the situation here in South Africa. That is why they are always complaining that your learners cannot do this. I think it is about, if I

may say, is environment or what but you know they expect a lot from learners. That is their main problem. You may find that you give them a grade 8 class for instance, because I worked with them here at school, eh they expect the learners to know, one let's say basic things, you understand me, from the primary but then if a learner does not know that then they start to complain about 'hey' why are your learners so poor, why they (interruption). Yeah, that's their main problem, but generally, I work with them a lot, many of them are qualified and they know their staff, the only thing is that how to impart it to our learners, because they are used to their own type of education system to teach.

Researcher: Are you happy about the low level of knowledge of learners?

Teacher: No! generally I'm not happy. I'm not happy but I'm not blaming the educators per se in the lower primary. I know the kind of learners we are having, even up to grade, let me say up to grade 11. The type of learners that we are having, I used to tell a lot of educators that you see learners start to open up in grade 11.

Researcher: What is the problem? Learners start schooling being blank. Everything that the learner knows is from a teacher. Why not blame poor education on teachers? What is the teachers' contribution to poor education?

Teacher: I understand.

Researcher: The new system tries to improve the quality of teaching. Now what is it that foreign teachers bring to the education system that we don't have as a country?

Teacher: To be honest with you, no they are not changing. There is nothing that they are bringing. The only thing they are just closing gaps which we have. But with regard to the quality which you can say they are bringing in quality to our learners, that "no".

Researcher: My earlier interviews show that there is a belief that the Zimbabwean teachers are very good.

Teacher: No, I work with them. You know what? Why in some schools they talk about Zimbabweans as very, very good. I can tell you, you see one thing with them they go all out. You know sometimes when you come to a country and you are a foreigner, you won't be like myself who is here. Myself I know my job is secure. I'm in a comfort zone. Things like that. I may not go to class, you understand me but with regard to the quality, no. I worked with them, yeah. We are no par with them. Some of them, some of them we, you know with us even though we did whatever Bantu education or what, we learnt a lot of things which is, with them they don't know. They specialize in 1, 2 and 3 but with us we know everything in maths. But with them, you know like now when we are attending CAPS for grade 12 they are good in probability because they did a lot of probability in Zimbabwe but when it comes to us, we did thing like that at university and even in teacher colleges. It's just that sometimes it looks as took a long for it to be introduced to these days, yeah.

Researcher: What is the teacher allocation procedure to classes?

Teacher: Eih, that's a problem, let me give an example about our school. We have to physical science educators, we've got three mathematics except the 4<sup>th</sup> one who is not redeployed, 3 maths educators. Do you know what we do? We first start these on top Grade 12 and say 'you teach grade 12' then we go down. Now the problem is when we go down there is when the lower classes start to suffer. Yeah, because an educator will be given that class just to fill the gap. The priority in the school is in Grade 12.

Researcher: What types of teachers are allocated to grade 12?

Teacher: In many cases the principal, for instance, if you are privileged, as results in grade 12 were good, they'll say 'no just continue with the learners'. But what I can say is that you see the lower classes....

Researcher: Is there no procedure that you use? or you decide annually?

Teacher: No we sit as the departments. Yeah, different departments they sit and make the...

Researcher: Do you decide annually?

Teacher: No we meet annually, there's no guideline. Teachers from the department will sit and make the allocation together with the HoD.

Researcher: Don't you raise the issue of being overworked in your discussions?

Teacher: We'll raise it every year but the thing is, you'll find that you are only 2 physical science educators, you are only three maths educators and you concentrate more with the higher classes you say let's share them.

Researcher: How is performance in class being monitored? Do you use class visits?

Teacher: Yes.

Researcher: Are they announced?

Teacher: A timetable exists. The HoD will prepare a timetable for class visits, yes.

Researcher: Is that a good way of doing these visits?

Teacher: You know it is a good thing and it is a bad thing. As you are saying, if you know today the HoD or teacher I will be coming in for visits, obviously you'll prepare for things like that but obviously if you come unannounced you may find that it is a test day or is what? Sometimes learners are doing activity, things like that.

Researcher: Which approach do you prefer? The timetable or...

Teacher: No myself I don't like the timetable one. Myself prefer that whoever is in charge, must come unannounced to monitor. Isn't it myself I regard it as a way of helping a teacher not to, not to find faults per se.

Researcher: Information gathered from class visits. How is it used to assist you?

Teacher: The intervention, if I can say, you know it will be during subject meetings, whereby those reports are given but you know a person will always have a way to come out of these types of situations.

Researcher: Except meetings?

Teacher: Isn't that we have someone in charge like the HoDs they come into the subject meetings, they brief us on the developments and then talk about how we can help each other in improving the quality of teaching in classes, but generally it is only that. Yeah.

Researcher: Are these interventions specifically aimed to help an individual teacher or generalised comments in meetings?

Teacher: Yeah, they are generalised.

Researcher: If you could be redeployed to a deep rural school where you've worked already, would you go?

Teacher: Yeah, eish, you see in the rural areas life is too tough. Yeah, it is very tough but the school where I worked was a very small school. We did not have too many streams. We only had two streams: general stream and mathematics and science. The majority of learners were doing mathematics and science. And you see how it was run, only grade 8 learners were admitted, yeah as compared to here where a learner can come in grade 12. A learner will never be promoted if he did not qualify. There were no condones. And that is why it was one of the best, the only thing was, eish! The environment was not that conducive.

Researcher: Let's talk about that environment a bit more.

Teacher: Eish, it's too depressing. It is depressing. You see being in deep rural area, no water, no toilets, eish yeah, but you know it's just a matter of surviving but it's not nice. But the school itself was one of the best it was even sponsored by Post Office from London. Yeah, it was producing some best learners, they are popular people around. The only thing is that the environment is too depressing. You see schools which are deep rural, number one the department sometimes forget about them, yeah because you may sit for three months without books. You understand. They you have to, you see, tell learners to buy and some of them their parents, they don't have parents they depend on grants. You see those kinds of situations. And even when I was in Limpopo, we did not have the feeding schemes, yeah, therefore eish, you understand. It was very depressing seeing learners suffering, some fainting because of hunger, you see those kind of situations. You end up being depressed as a person. Yeah, but I heard these days conditions are improving from what I hear, because of the feeding scheme, things like that.

Researcher: So because now there is feeding scheme, can you go back there?

Teacher: No sir, learners have to walk long distances. You know it is depressing generally, yeah. And only to find that there is no water, yeah. When you are a teacher there you know you end up eish. No electricity, no network. You are working there, there is no network, yeah. The roads are not well, your car eish! When you have to go to work you think about your car even if you can leave your car there's no transport to go there, if you don't have a car it is another disadvantage you see, yeah.

Researcher: What then do you think should be done? Your suggestions on the deployment of teachers for mathematics to those schools.

Teacher: I think number one, maths teachers are scarce, the Department number one, the first strategy which they can use to retain them in the schools is to try to, as a scarce subject as it is, is to try to come up with another way in which they can keep them in a form of remunerating them in some way of, for instance, giving them bursaries so that they can improve themselves to study further, you understand me, and also, I think also some form of incentives. Incentives cannot be money sometimes, it can be vouchers, yeah, things like that.

Researcher: Vouchers for what? Maybe airtime?

Teacher: Not airtime. It can be holidays or whatever or sometimes give them vouchers for laptops, things like that which can make them to believe in themselves because sometimes you are teaching maths, you are going extra mile, then there's this teacher, he comes to school, you understand, he sits there the whole day, he is having two periods a day, you out of six periods, everyday it's 5 periods. Do you see, you end up being depressed, yeah.

Researcher: So the teacher will have a voucher but no teaching equipment. Ok?

Teacher: When I talked about, in fact I meant vouchers for, based on the field of study for instance, improving teachers to take short courses in computers on the improvement of maths for instance. But generally the Department what it can do to retain educators I think if they can make available bursaries so that teachers you know even if they are depressed, you know once you start to study you'll not be depressed, yeah.

Researcher: What happened to that project of teacher laptop initiative?

Teacher: It did not succeed. I think there are some loopholes then it was cancelled.

Researcher: How does the school leadership style impact on the retention of mathematics' teachers?

Teacher: Yeah, I think management, to be honest with you, management in schools, they generally don't take mathematics as that scarce subject because what they concentrate on, they'll just concentrate on the distribution of duties, to say 'teachers in mathematics and science they

are overloaded that one they overlook'. That's why even in schools you'll find that a teacher who is doing maths is being redeployed.

Researcher: Is your view suggesting that school management do not consider the subject as a priority in terms of policy? That is, the national policy prioritising mathematics and science.

Teacher: Yes, somewhere along the lines, yeah.

Researcher: There is a view that the mathematics' standard is higher in the new curriculum than it was previously. What do you think about that?

Teacher: Yeah, on the standard I think a little bit, the standard is very high, especially on the content, yeah. maths as compared to now is too much and learners, you know, it needs learners who can go an extra mile. I think, look in fact generally, as I can say is not much the standard has differed a lot, the only thing is that it demands, this one demands a lot from learners and our learners are not prepared at early stages for what it is expected of them.

Researcher: So it is more on learner initiative.

Teacher: Yes, learners are not prepared for that. I think somewhere they need to be prepared for that, because even if you can go to grade 8 content for a grade 8 learner in the olden days it was too difficult compared to this, the standard is not much different.

Researcher: Thank you sir. That brings us to the end of the interview. Do you have any comment on the interview?

Teacher: No sir, no.

Researcher: Thank you for your time then.

## APPENDIX K

### TRANSCRIPT: RESEARCHER AND TEACHER-C2

HELD ON 21 OCTOBER 2013

Researcher: Finally we found a quite place. Yes as I was about to ask you before we moved from the other room. How did the school recruit you, mathematics and science teachers?

Teacher: From what I've seen the school generally, they have to advertise if they have to. But from what I've seen the school rather seconds. In other words we hear there is a teacher with good quality and the school generally phones them and ask them to come and teach if they agree with the school. So generally the school makes the job offer.

Researcher: How would you explain your appointment in terms of what you have just mentioned?

Teacher: It was the same process. I was in [name of place] and I was phoned and asked if I had interest to come and teach, not specifically for science but with Physical Science in mind. But eventually I would teach science. I mean, I'm an ex-pupil of the school.

Teacher: Then it was on condition that the first Department post that will become available, it will be mine.

Researcher: Oh it started as an SGB post when you first came here? Can you explain the difference between SGB and government post?

Teacher: It's a governing body, which means school...

Researcher: No that one I'm clear, my issue is movement from SGB to government post. What are advantages and disadvantages?

Teacher: SGB post is no advantage, the more you stay in an SGB post the less pension you are making. I mean also as soon as you move from an SGB post to a government post you begin in the Department as a first year teacher so you take a salary drop, which I think is criminal of the education department. If you look at it, I've lost probably about five years worth of service. So I think it's criminal of the department finding a loophole.

Researcher: Do you mean really there is no advantage in an SGB post?

Teacher: I think the only advantage of the SGB post is that if you want to leave the post, the amount of notice that you give can waver, and that's anything between a day and a term of which the Department you have a long notice that you want to give. If you want to call that an advantage.

Researcher: Maybe for you science teachers because you are always on the move, but the others they just have to stay forever. Isn't?

Teacher: No, not if you become a family man. If you've got to stay, you have to be responsible. You've got your home, your family, your parents.

Researcher: What has kept you in the school when science teachers are in demand elsewhere?

Teacher: It's been more with my wife, my family. Keep the family stable. We don't want to move all the time. I don't think it's fair on the family.

Researcher: So you do not have this drive to earn more as other science teachers feel.

Teacher: What we did alternatively. I know I'm under 40, male, teaching science and so there are not many of us. So what I did alternatively is we started looking for, what business could we open up while I'm teaching, what business can we run as well just to increase our income.

Researcher: By implication your salary from the department needs to be augmented?

Teacher: Yeah, you don't feel appreciated. That's the truth, as a teacher you don't feel appreciated. You know you get this small salary. We do a lot of work. I think people don't appreciate the amount of work we do, so I've to supplement my income.

Researcher: Who is running your business when you are here?

Teacher: Ah, you've to decide what kind of business. We opened an education business because where is the lack, where is the need? There is a real need in education.

Researcher: Can we call that a business, because you are still doing what you are doing here. You are increasing skills for the country.

Teacher: Yes we've been talking about that. What we said was number one, we want to make money. Then number two, you have to make sure that the business has a positive effect. What is the point of having a business if you are not helping? Year! Getting money is nice but you've to see the difference in children's lives.

Researcher: Let's get to the issue of not being appreciated. What is your experience on Department incentives?

Teacher: I don't have experience on incentives because we are given no incentives. But I think it's a good idea if they talk about that.

Researcher: But do you think it can help to retain teachers?



- Teacher: Yes, hopefully it will keep the teachers. What kind of effect is it going to have? Is it going to change the way teachers gonna teach? I don't know.
- Researcher: Then what would you like to see happening?
- Teacher: No definitely I will say incentives that will keep the teachers. But then the problem is if you get an incentive, there has to be a condition to the incentive. What is the incentive going to be? Is it going to make you remain in the school or is it going to make you remain and we see an improvement in marks. And what are the conditions of the incentives because usually it is in the favour of the Department.
- Researcher: Stability in mathematics and science teacher retention. What should be done?
- Teacher: That is the big thing, if you know they are going to triple your salary if you go to another industry.
- Researcher: How are you science teachers being managed in the school and what do you want to see changing?
- Teacher: There is little one thing. Why do people go to work? They go to earn money. To receive an award or to receive a certificate that means nothing to me because I know this is just a piece of paper in can print off my printer. Yeah, you know what that means, it is easier for somebody to say 'oh let us quickly make a certificate and make them happy' that doesn't count. The verbal appreciation is nice but how lasting is it? And how genuine is it? Ehm! People might have a good opinion of you, but that's the end how long lasting is it? It is unfortunate I say this. What has a lasting impact? Is money because everything is about money. If I knew there was going to be higher incentives in terms of pay, in terms of privileges. I can't think what kind of privileges at the moment, it could steer me to say I'd rather, instead of teaching Life Science, I'd rather steer towards Physical Science because of those tangible incentives.
- Researcher: Learners discipline. What is your experience on that?
- Teacher: Do you know what. The problem is the children are becoming lazy. We are supposed to feed them with information. We're supposed to basically give them exam. Your exam looks like this and may I please give you nice marks. As opposed to giving them information and they earn the marks. They want us to give them the marks. They haven't got enquiring minds anymore. In the past children asked questions. What about this, what about that? Interesting, it went off. It's very scary. Another thing in terms of learning, especially for grade 10, 11 and 12 sometimes I find that if you are in grade 8 or 9 and you ask what subjects do you want to take? The child will say "I want to take maybe accounting, maybe physical science", why? and mathematics also because you've got choice, why? Oh! I'm taking science and they feel like they are clever. But later they realize that they weren't prepared for the subject and what happens is that they become de-motivated.

Researcher: Are you not guiding them in terms of subject choice?

Teacher: There's a problem. Ok this school does give them guidance but ultimately it is up to the child and their parents. You can't say this child is going to become XYZ. I studied at university to be what I want to be one thing. I ended up going to teaching. And so, things change in life. How can a child foresee they are going to be a doctor.

Researcher: Can things happen differently for those not good in mathematics and science as other parents want them to be doctors?

Teacher: That's the problem. The child will end up fitting in the pattern of the parents. The problem is we all got ideals but through life, things change.

Researcher: You studied mathematics and science, but you ended up teaching science mainly. What happened to your mathematics?

Teacher: Only science. I no longer teach mathematics. I actually lost the mathematics ability obviously. The great thing is mathematics is, if you have to go back into it you can on very quickly with the concepts. I've children coming to me for extra lessons and I might not know what the concept is but as soon as I go into it with them, I'm quickly I'm able to.

Researcher: Whose choice was it that you'll stick with Physical Science?

Teacher: I got phoned. The science teacher left at short notice and the school phoned me and said: "You want you to come and teach science."

Researcher: In Johannesburg?

Teacher: In Johannesburg I was teaching in a primary school, so primary school is different. You teach different subjects. I think I taught natural science, I taught maths and technology. So it was science related subjects but I'm glad that I taught in a primary school because it taught me that I'm not a primary school teacher. I'm more suited to high school and as I look at myself now I'm not suited to grades 8-9, I'm more suited to grade 10-12 because my mind is more academic. How can I get these children to perform academically, I love to explain. I love to get into the why of what.

Researcher: Does the school conduct class visits?

Teacher: They are supposed to. Officially I suppose they should. I've never seen them coming to my class. Officially, they've got cameras, they've got HoDs but as HoD passes the class they can see what's happening. There's book control, there's a full control. And also what has to be done is done. I think I'm trusted enough to get the work done.



Researcher: Why are you trusted?

- Teacher: Because I'm honest. And if I do something bad, if something wrong I'll tell it. Honesty is important to me. You can see. You learn to know people. You can see who is spanning a story to you, who is not spanning a story. You can sift out what the reality is of a situation.
- Researcher: Do you feel you need professional assistance with your work?
- Teacher: Not anymore. I feel I've got experience. You give me work and I'll be able to do it. Initially, I actually asked for assistance, not from the school because there was nobody. I went. I outsourced assistance from outside with different concepts. I didn't get help from the school itself. They just left it up to me to get it done.
- Researcher: What do you think they did that? Is it because you are trusted?
- Teacher: I don't know. I think it was a very, maybe short sighted of them because I haven't, I don't come from a science background. I come from a maths background. My subjects are maths and life sciences, so I was thrown in the deep end and they just assumed I'll swim. I think the other reason is they didn't have another option at that moment and I was the best option. Now I'm grateful for that but I think it was short sighted where we should get assistance for this guy.
- Researcher: How should science teachers be assisted?
- Teacher: That's the big thing. You've got to see where is the person struggling. Then you have to discuss then what your approach is going to be to teach this topic, to solve this problem. You brainstorm together, you work as a team. I can bring this to the party and what can you bring them we look forward. What reasons have we got? What resources can we get because I think so often, not only science teachers but all of us are treated as an island. You are isolated in your island. What about coming together and working with each other? The only other problem there is that a lot of people get offended you know. Let's come together but other people will say but you are undermining me now.
- Researcher: Role of HoDs. Don't they call you to work together as teams?
- Teacher: No, because there are only two science teachers so the HoD is not a science teacher. So what happens is that she says 'you guys are you ok?' and we say 'yes'. Then she says: 'Aah! wonderful!'
- Researcher: Even if you are not Ok?
- Teacher: The thing is, you know, in the past it was like that, even if we were not Ok because what can that person bring to the table as an HoD. They are not teaching the subject. So what experience do they have in that field? You know, so what can they bring to the party? And that's when the cluster meetings are so important. That's where the forum is for science teachers to get together and say I've an issue with this, how can we solve it? Instead of having meetings for the sake of meeting.

Researcher: Thank you for your time and the information you shared with me. This concludes the interview.

Teacher: You are welcome.

**APPENDIX L**

|  |                              |                |   |
|--|------------------------------|----------------|---|
|  <b>basic education</b><br>Department:<br>Basic Education<br>REPUBLIC OF SOUTH AFRICA | For use by NSFAS Head Office |                |  |
|  | ACC No                       | Bursary Number |   |
| <b>FUNZA LUSHAKA BURSARY PROGRAMME<br/>                 BURSARY AGREEMENT</b>  |                              |                |   |
| Being a Credit Agreement as contemplated in the National Credit Act No. 34 of 2005 ("the Credit Act")  |                              |                |   |

This Agreement is to be read together with the Implementation Protocol in terms of the Intergovernmental Relations Framework Act, 2005 (No. 13 of 2005) a copy of which may be consulted by the Student on application to a Student Financial Aid Office or NSFAS.

**NATIONAL STUDENT FINANCIAL AID SCHEME**

(Referred to in this agreement as "NSFAS")

and

(Referred to in this agreement as "the STUDENT")

**Important Note**

Attach a certified copy of your South African Identity Document.  
 Please use black ink when completing the Loan Agreement Form.  
 Use of correcting fluids, (e.g. Tippex) will invalidate this Loan Agreement Form.  
 Any alterations must be countersigned by the student and the institution.  
 All pages must be initiated by the student and the institution.

**About The Funza Lushaka Bursary Programme**

The Department of Basic Education (DBE) has established the Funza Lushaka Bursary Programme to attract able and committed men and women into teaching by providing them with a full-cost bursary to enable them to qualify as teachers in priority areas of learning. In return **recipients will be placed** by a provincial education department to teach in a public school in which a teacher is needed, thereby repaying the nation in service for the benefit of their higher education. **Bursars cannot choose where they will be placed. Bursars cannot apply directly to a school for a teaching position. Bursars can be placed anywhere in the province, or in the country.**

Each year of service will repay one full-time year of bursary-assisted study. The bursar is obliged to take up placement immediately on completion of the initial teaching qualification. **Placement cannot be deferred** for any reason. For example, bursars who complete their initial qualification cannot defer placement in order to continue study in an honours programme. If a course of study is not successfully completed or the mandatory teaching service period is not satisfactorily completed the remaining value of the bursary will be converted into a loan which defaulters will be required to repay according to the provisions of this Agreement.

Funza Lushaka bursaries are available to eligible **South African** students who choose a course of study in any of the following programmes and are preparing to teach in a designated priority area:

**BEd** (students in years 1, 2, 3 or 4)

**BA/BSc/BCom/BTech** (students with majors suitable for admission to a PGCE, which students must commit themselves to enter after graduating)

**PGCE** with a teaching major in one of the priority areas.

The designated priority areas are:

*Grades R-9:* Foundation Phase; African Languages; English Language; Mathematics; Natural Science; Technology.

*Grades 10-12:* African Languages; English Language; Mathematics; Mathematical Literacy; Agricultural Sciences; Life Sciences; Physical Science; Agricultural, Civil, Electrical, Mechanical, Information Technology, Computer Applications Technology; Engineering Graphics and Design, Accounting, Economics and Geography

NSFAS has been appointed by the Minister of Education to administer the Funza Lushaka Bursary Programme and will undertake the recovery from defaulters of the loan principal and interest in terms of this Agreement. It is of great importance that loans are repaid as soon as possible. A rate of interest is charged which is sufficient to preserve the value of the loan funds, with due regard to inflation.

.....  
Student Initial

.....  
Institution Initial

**APPENDIX M**

**Pseudonyms for sites and participants**

| <b>Sites</b>      | <b>Rank of Participant</b> | <b>Pseudonyms</b> |
|-------------------|----------------------------|-------------------|
| School A          | Principal                  | Principal-A       |
|                   | Teacher                    | Teacher-A1        |
|                   | Teacher                    | Teacher-A2        |
| School B          | Principal                  | Principal-B       |
|                   | Teacher                    | Teacher-B1        |
|                   | Teacher                    | Teacher-B2        |
| School C          | Principal                  | Principal-C       |
|                   | Teacher                    | Teacher-C1        |
|                   | Teacher                    | Teacher-C2        |
| School D          | Principal                  | Principal-D       |
|                   | Teacher                    | Teacher-D1        |
|                   | Teacher                    | Teacher-D2        |
| Provincial Office | Education Official         | Official-ED1      |
| District Office   | Education Official         | Official-ED2      |