

# **Instructional leadership and academic performance: Eastern Cape educators' perceptions and quantitative evidence**

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## **ABSTRACT**

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Since 1994 there have been policy shifts around school leadership in South Africa. The 1997 amendment of the South African Schools Act provided legislative space for accountability in the delivery of education. The Act stipulates that the principal must account for the learners' academic performance. However, international and national assessments' results indicate that South African learners do not perform as expected. There is evidence that low achievement among learners in especially historically-disadvantaged schools might be attributable to inadequate instructional leadership.

The study aimed to explore the experiences and perceptions of school educators on how school principals monitor curriculum delivery. It sought to investigate the principal-agent problem and accountability in education in the Eastern Cape. Two types of data were used: qualitative data from interviews with school principals and teachers, and quantitative data from an international educational evaluation.

The interview data was collected in 2015 at selected primary schools within the province's three education districts. Respondents at each school included the school principal and three foundation-phase teachers.

To triangulate findings from interviews, the association between school leadership and student academic scores in the Trends in International Mathematics and Science Study (TIMSS) 2015 dataset was examined. The association between measures of instructional leadership (e.g. academic support and school discipline) and student scores for mathematics and science was explored using linear probability models.

Preliminary findings confirm the existence of the principal-agent problem in education since many school respondents indicated that curriculum delivery monitoring was not conducted as expected. From the multivariate analysis, the instructional leadership variables such as academic support and school discipline appear as important determinants of learner achievement, though academic support is non-significant. Policy implications point to a need to hire, empower and support principals to create a culture of accountability in schools.

**Key Words:** *Instructional leadership, Principal-agent problem, Accountability, Education production function, Economics of education, South Africa, TIMSS, Student achievement*

**JEL Classification:** I20 I21 I28.

## 1. Introduction

South Africa lags far behind other countries on learner achievement and even some upper-middle income countries in Africa, although the country spends more on education than its peers (Taylor, Van der Berg, & Mabogoane 2013). Dysfunctional leadership in many schools may be an important reason for the low academic performance of South African learners.

The main purpose of the paper is to provide a qualitative account of one type of school leadership, instructional leadership, in South African schools, as well as present descriptive and multivariate evidence on the association between leadership quality and education outcomes across schools that participated in the Trends on Mathematics and Science Study (TIMSS) 2015).

The South African Department of Basic Education's Action Plan to 2019 envisages a school principal who ensures that teaching in the school takes place as expected and in accordance to the national curriculum. The principal is also expected to have insight on "... his or her role as a leader whose responsibility is to promote harmony, creativity and a sound work ethic with the community and beyond." (Republic of South Africa, 2015: 9). The country's National Development Plan (NDP) foresees a schooling system with highly motivated learners and teachers by 2030. The NDP also envisages school heads who are effective in providing administrative and curriculum leadership at school (Republic of South Africa 2011). In a nutshell, the task of a principal in a school is to create a conducive environment for teaching and learning to take place. The role of the principal as described in the NDP captures the main elements of instructional leadership as defined in greater detail in section 2 below.

The theoretical framework of the current study is the principal-agent problem and accountability. Bruns, Filmer, and Patrinos (2011) argue that incentive systems in education face a principal-agent problem that is prevalent in most sectors and firms. The authors state that in the education context, the principal might be the department of education who would like its agents (school directors and teachers) to implement the school's curriculum for learning to take place. However, due to information asymmetry and the nature of the education service, the objectives of the principal and agents are not always synchronised. The principal-agent problem is

further complicated due to the existence of multiple principals and multiple agents. On the one hand, the department of education is also the agent of the parents and learners, while on the other hand the school heads are the principals to their teachers who are acting as the agents of the heads. The authors argue that this sequential set of principal-agent problems requires a more complex system of incentives and accountability than currently present in most school systems internationally.

In this study, I refer to the senior officials as principals and refer to the school heads as their agents. In the qualitative part of the study I investigate the instructional leadership in selected primary schools in the Eastern Cape Province. More specifically, my objective is to gather experiences of headmasters and foundation phase educators on how instructional leadership is implemented across different types of primary schools in different social settings. Later on, in the quantitative section I examine the association between leadership quality and education outcomes across schools that participated in TIMSS 2015.

I commence the study with a brief overview of South African literature on school leadership and management. Thereafter, I present international research on instructional leadership. I then discuss the research approach and method, data analysis and interpretation of results firstly for the qualitative part, before proceeding to the same for the quantitative part of the study. Lastly, I present my conclusions and recommendations.

## **2. Literature review**

### *2.1 Conceptualisation of instructional leadership model*

Since early 1980s, instructional models emerged from the research on effective schools (Hallinger, 2003; Robinson, Lloyd and Kowe, 2008; Hallinger and Heck, 2010). The focus of instructional leadership is on the role of the school principal who should coordinate, control, supervise and develop curriculum and instruction in the school (Hallinger, 2003). Some of the other features of instructional leadership and leaders include the following:

- Instructional leadership means creating a conducive environment for teaching and learning to take place in pursuit of the academic and social school goals (Robison et al., 2008).
- Instructional leaders are goal-oriented and their focus is on the improvement of learners' academic achievement (Hallinger, 2003).
- Instructional leaders are also perceived as culture builders who create an 'academic press' which instils high academic expectations and standards among learners and teachers (Mortimore, 1993).

Hallinger (2005) describes an effective principal as one who can find the correct balance among political, managerial and instructional roles. School leaders should be accountable to improve their schools and they are expected to function as instructional leaders. Principals as instructional leaders should focus on coordinating and developing the curriculum (Hallinger 2005a) and pay more attention to creating a favourable teaching environment (Ruebling et al. 2004). Hallinger and Heck (2010) concur that school leadership should mainly direct its energy to improving learner outcomes and the pursuit of other goals should be secondary.

There are various conceptual definitions of instructional leadership, but the model that this paper will focus on is that proposed by Hallinger and Murphy (1987). Hallinger and Murphy (1987) suggested three dimensions for the instructional leadership role of the principal. The three dimensions are as follows:

- defining the school's mission,
- managing the instructional programme, and
- promoting a positive school learning climate (Hallinger, 2005).

Each dimension consists of multiple variables or functions with potentially strong associations on learner outcomes. For instance, the first dimension, defining the school's mission, incorporates two functions, framing the school's goals and communicating these goals. The second dimension, managing the instructional programme, contains three leadership functions: supervising and evaluating instruction, coordinating the curriculum, and monitoring learner progress. And finally, the third dimension, promoting a positive school learning climate, consists of the following functions: protecting instructional time, promoting professional

development, maintaining high visibility, providing incentives for teachers, and providing incentives for learning.

Several studies on school leadership look at how school leadership influences learner learning. Studies on the effects of school leadership on learner achievement vary between those that focus on a broad range of mediators (Robinson et al. 2008) to those that specifically look at a narrow set of mediators to student learning (Leithwood, Patten, and Jantzi, 2010; O'Donnell and White, 2005). In their review of 27 studies that investigated the impact of leadership on learner outcomes, Robinson et al. (2008) highlighted five key dimensions of school leadership, of which only the dimension which promotes teacher development activities had a larger positive association with learner achievement. The other four dimensions included the following: establishing goals and expectations, resourcing strategically, planning, coordinating and evaluating teaching and the curriculum, and ensuring an orderly and supportive environment. It is also important to highlight that in contrast to Philip Hallinger, (2005b) who found a small but significant influence of principals on learner outcomes, Robinson et al., (2008) found a substantial contribution of instructional leadership to learner outcomes.

Using Hallinger and Murphy's (1987) Principal Instructional Management Rating Scale (PIMRS), O'Donnell and White (2005) found that teachers viewed the creation of a positive school climate by principals as the most important predictor of learner achievement. However, results from the authors' multivariate analysis indicated insignificant positive results regarding principal instructional leadership and learners' performance as perceived by both principals and teachers.

## *2.2 South African context*

### *Education policy changes*

Since the dawn of democracy in 1994 there has been considerable policy shift in school leadership and management in South Africa. The 1997 amendment of the South African Schools Act gave impetus for increased accountability in the delivery of education. The Act states that the principal has to account for the academic performance of learners in the school (Republic of South Africa 1996). In the area of

school management, the Department of Basic Education (2015) notes some progress with regard to the attainment of this goal. The NEEDU (2012) report highlights an increase in the percentage of schools with improvement plans and class registers. However, several interviewees in most provinces expressed dissatisfaction with the time provided to implement the plans despite overall improvement in carrying out the plans. The increase in the number of schools with improvement plans may merely indicate a rise in nominal compliance rather than an actual improvement in school management.

The transition from a racially divided education system to a unified non-racial one has significantly transformed the policy context for school leaders and managers (Bush 2011). Ngcobo and Tikly (2010) note that since 1994 the South African government managed to put in place initiatives aimed at transforming education from its segregated past. Despite this, South Africa disappointingly lags behind in education performance relative to international comparators and has not succeeded in substantially improving the performance of historically disadvantaged learners. Researchers from school effectiveness studies (Taylor, Van der Berg, and Mabogoane 2013) also point out that learners who attend historically white schools perform considerably better than their counterparts in historically black schools. A full transformation of the education system has thus not yet been achieved.

#### *Reasons for poor academic performance*

In a paper applying multivariate analysis to identify the factors associated with academic performance using NSES data, Taylor (2011) found that while school resource variables were not important correlates of learner performance, indicators of effective school management were related to learning outcomes. At the same time the study revealed that South African schools differ greatly with respect to aspects such as good management practices, commitment of teachers, planning, teacher knowledge and curriculum coverage. Moreover, these factors are highly correlated to learner achievement.

There are multiple reasons for the lack of responsiveness of the schooling system to various government reform efforts. Some of the reasons advanced by researchers

include persistent shortage of physical and human resources, lack of professional training among educators (Jansen 2005), socio-economic problems, family structure breakdown, poverty, vandalism and lack of respect for teachers (Kamper, 2008; Ngcobo and Tikly 2010; Jacobs, 2014). But there is growing evidence that systematic variation in school performance might contribute to low academic learning in historically disadvantaged South African schools rather than poverty (Van der Berg, 2007; Spaull, 2011). The latter researchers, using SACMEQ 2000 data and SACMEQ 2007 data respectively, found that poor South African children perform worse relative to equally poor children in neighbouring countries. From their separate findings, the authors argued that there are factors besides poverty that might be preventing effective learning in historically disadvantaged schools in South Africa.

Using the National School Effectiveness Study (NSES) data in comparing curriculum coverage across historical parts of the school system, Taylor (2013: 67) found that "... weak instructional leadership and classroom practices ..." affect the lower achievement among learners in historically disadvantaged schools. In the NEEDU (2013: 19) report instructional leadership features very strongly in the recommendations. It is phrased as follows:

"It is the responsibility of the principal to lead curriculum delivery. While tasks and responsibilities should be formally distributed to members of the SMT and teachers, the principal must direct the overall strategy. A division of labour must be established within the school, with important tasks defined, planned and allocated to senior members of staff."

### *Principals and their role as instructional leaders*

Some aspects of school leadership and management in South Africa, notably managing teaching and learning, remain inadequately researched. Wills (2015), in her study on the labour market for South African principals, reaffirms previous remarks by Hoadley et al. (2009) that our school leadership research base is limited. Studies on instructional leadership seem to provide conflicting evidence regarding principals' understanding of their key role in promoting curriculum delivery in their schools. The NEEDU (2013) report, which focused on 133 primary schools throughout the country, notes that generally principals were quite aware of the



centrality of their responsibility and that of instructional leadership in leading the programme of the schools. The report, however, noted that despite such awareness of the importance of instructional leadership, the schools' implementation of instructional leadership was not in line with policy as outlined in the curriculum and assessment policy statements (CAPS). In contrast, an earlier study by Hoadley et al. (2009), using data from a stratified sample of 142 high schools in the Eastern Cape and Western Cape provinces, found that principals understood their primary tasks as administration and chastising learners. Principals were oblivious to the importance of their leadership role in curriculum monitoring. Another earlier study in Gauteng came to a similar conclusion, as principals were shown to be ignorant of their role as instructional leaders (Bush and Heystek 2006).

Bush and Glover (2016), in their review of literature on school leadership and management in South Africa, discern a rising recognition that instructional leadership might be a proper route to follow for school improvement in South Africa. Bush & Glover (2016) cite Robinson, Lloyd, and Rowe (2008) who maintain that for school leaders to have a positive influence on learner outcomes they should pay more attention to the core business of teaching and learning. This, according to Bush & Glover (2016), may be conducted through appropriate class visits and phase and learning area discussions among educators. Other researchers (Taylor, Mabogoane, and Akoobhai, 2011) highlight, more specifically, instructional time management as an important aspect of instructional leadership. These researchers note inefficiencies in the way time is utilised in many of South African schools. This manifests at three levels, namely: arriving at school, getting to class and covering the curriculum while in class. In their mixed method study undertaken in high schools from the Eastern Cape and Free State provinces, Taylor et al., (2013) found the prevalence of weak management practices together with very low levels of teacher subject knowledge and destructive union activity. An earlier study (Chisholm, Hoadley, Kivulu, Brrokes, Prinsloo, Kgobi, Mosia, Narsee and Rule, 2005) commissioned by the Education Labour Relations Council concluded that there was a gap between policy and practice when comparing hours that educators spent on their different activities to that recommended or implied by national policy. The study found that South African educators spend far less time in actual teaching than the amount of time specified in policy.

### *Managing instructional time*

Several South African studies (Carnoy and Chisholm 2008; Reddy et al. 2010; Moletsane et al. 2015) have, however, found that less than half of the officially scheduled lessons are taught. In a study evaluating 58 schools in the North West province and 58 schools in Botswana, Carnoy, Martin., Chisholm, and Chilisa (2012) found that Grade 6 teachers in North West had only taught 40 percent of the scheduled lessons by beginning of November, while their counterparts in Botswana taught 60 percent of the lessons. In the same study, it was found that principals from North West did not have a problem with teacher absenteeism, but rather noted that in most cases where teachers were present in school they failed to teach learners due to lack of confidence in Grade 6 mathematics content.

In another study commissioned by the Human Sciences Research Council, Reddy, Prinsloo, Netshitanga, Moletsane, Juan and van Rensburg (2010) argue that the time spent on teaching and learning activities in school is among the reasons ascribed to low quality education provision in South African schools. The researchers found that the estimated conservative leave rate of teachers in South Africa was between 10% and 12%<sup>1</sup>, which translates to 20 to 24 days out of the official total of 200 school days. The Employment of Educators Act 76 of 1998 stipulates that educators are regarded as being on annual leave during the institution closure periods that are outside of scheduled working time. The exception is when the educator is required to perform some of his or her normal duties (such as preparation for the new school term or the marking of internal examination scripts). It should be noted that in South Africa educator leave policy is not clear as to the acceptable number of days educators should be absent from school, but there is general agreement that 10% should be used as a benchmark (Republic of South Africa 2013b). Moletsane, Prinsloo and Reddy (2015) point out that while educators' leave policies are meant to enhance teachers' conditions of service, their objective is also to safeguard the rights of learners to good quality education by ensuring that teachers remain on task, and that teaching and learning is not disrupted. This means that the principals are duty-bound to ensure that while promoting teachers'

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<sup>1</sup> The Human Sciences Research Study defines educator leave as including the following leave categories: (i) times taken according to leave measures; (ii) when educators are on duty but away from school attending professional development workshops; and (iii) when educators participate in school activities like sports, excursions and festivals.

conditions of service, they at the same time do not deprive learners of their right to education.

A more recent survey of 2005 schools conducted by Social Surveys on behalf of the Department of Basic Education found that nationally 6.1% of educators were absent on an average day, with the highest absentee rate in KwaZulu-Natal at 8.2% (Republic of South Africa 2013b). This finding means that an educator on average was absent for 12<sup>2</sup> teaching days per year in South Africa and this refers to those educators who had not signed the educator leave register and are not in school due to ill-health, attending to family matters or are studying. Other related findings of the survey include the following:

- High vacancy levels in permanent teaching posts in some provinces;
- A low percentage of schools that cover the required number of Language and Mathematics exercises per week in all provinces;
- A low number of visits by district officials for monitoring and support purposes in the Eastern Cape schools – 74% compared to the national average of 87%;
- Low satisfaction among principals with the district support services.

An earlier study commissioned by the United Nations International Children's Emergency Fund (UNICEF) on behalf of the Department of Education, found that between 10% and 12% of educators were not at school on any day (Reddy et al. 2010). In addition, this latter study, in its literature review, found that in high-income countries teacher absence rates were between 3 and 6% and that there was a system of substitute teachers to compensate for teacher absence. Contrary to this, less developed countries did not have provisions for substitute teachers and in these countries teacher absence rates averaged at 19%.

### *Summary*

The South African literature above is suggestive of the elements that should comprise the line of enquiry of the current study. The first element is instructional time and this has been highlighted in a number of studies (Taylor 2013; Reddy et al.,

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<sup>2</sup> The total number of school days in South Africa is 200.

2010; Republic of South Africa, 2013; Chisholm et al., 2005). The second element is the role of principals in curriculum monitoring which has been tackled by several studies (NEEDU 2013; Hoadley et al., 2009; Bush and Glover, 2016). Other elements from the literature include teacher union activity (Taylor et al., 2013), managing teacher vacancies and district support (Republic of South Africa 2013b). These factors have been incorporated in the design of the qualitative aspect of the present study. Some factors have also been included in the quantitative part of the study.

### **3. Study context**

The Eastern Cape is primarily a rural province characterised by huge levels of unemployment and illiteracy (ECDOE, 2015). Among the features of the province resulting from the legacy of apartheid are glaring disparities about infrastructure services. These disparities are more pronounced in the eastern part of the province. The ECDOE (2015) describes the eastern part of the province as more economically impoverished with a terrain that makes its accessibility to services far more difficult than in the western part. The skills profile of the province is also affected by migration to other regions, evidenced by the low nominal growth of population in the 20-49-year group. This is the economically active age group that typically moves to other areas in search of job opportunities. Even within the Eastern Cape there is evidence that the population is slowly moving into the 60-100 km wide coastal belt, a more economically active area, which now contains almost half of the provincial residents.

Over a long period, the education administration of the province has been confronted with major challenges, despite an overabundance of national interventions that includes even the implementation of Section 100 (1) (b)<sup>3</sup> of the Constitution at one stage. The Section 100 (1) (b) was implemented with effect from March 2011. It is not clear when the section was lifted but according to the national Department of Basic Education Section 100 was still carried out during 2016. The administrative leadership of the provincial education department acknowledges that the department

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<sup>3</sup> Section 100(1)(b) of the Constitution is a provision that allows the national executive to take over the responsibility of education delivery due to the provincial authorities' failure to do so.

is faced with “a deep-rooted discord between policy intentions and policy implementation, resulting in failure to meet minimum norms and standards in the delivery of education services.” (ECDOE 2015: 55). The current acting head of the department, Ms Sizakele Netshilaphala, noted that the dire state of affairs in the department is associated with a lack of policy implementation and a problem of dysfunctional schools (Nkosi 2015).

#### *Socio-economic status of the province*

As alluded to above, the Eastern Cape province is characterised by high levels of unemployment, poverty, illiteracy and infrastructural backlogs. Using indices such as the socio-economic deprivation index (SEI), composite infrastructural index (CII) and composite services index (CSI) to compare education districts across the province, it emerges that a significant number of worst performing districts are from the eastern part of the province. All these indices were constructed based on the 2011 Census. Table 1 below shows the performance of the 23 education districts in the Eastern Cape regarding the above indices. From the table, the education districts situated in the eastern part of the province are worse off than those situated in the western part of the province. This picture depicts the legacy of apartheid where areas situated in the former homeland<sup>4</sup> of Transkei, based in the eastern part of the province, experienced greater poverty and deprivation.

The eight poorest education districts in the country in terms of their ranking on the socio-economic index, with high levels of functional illiteracy, low income per capita and fewer households with electricity, are all situated in the eastern part of the Eastern Cape, either in cluster<sup>5</sup> B or C. Again, the six districts with worst infrastructure and access to household services are also found in the eastern part of the province. This pattern also holds for school districts with the highest proportion of learners studying in quintiles 1 and 2 schools (the poorest schools). Out of 86 education districts in the country, six of the 10 districts with the largest proportions of poor learners (those attending quintile 1 and 2 schools) are in the Eastern Cape. The

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<sup>4</sup> A homeland or a Bantustan was a territory set aside for black people of South Africa and South West Africa (now Namibia), as part of the policy of apartheid.

<sup>5</sup> The 23 education districts are demarcated into three clusters, namely, clusters A, B and C. Included in clusters A and B are districts situated in the ex-Transkei, while Cluster A consists of districts situated in the ex-Ciskei and those that were managed by the Department of Education & Training.

remaining four (out of 10) districts are in KwaZulu-Natal (two), Limpopo (one) and Mpumalanga (one). (Republic of South Africa 2013a).

**Table 1: Eastern Cape education districts per socio-economic status**

<b>Education Districts</b>	<b>Socio-economic index<sup>6</sup> (0=most poor)</b>	<b>Composite Infrastructural Index<sup>7</sup> (0=worst)</b>	<b>Composite Services Index<sup>8</sup> (0=worst)</b>
Butterworth	0.27	0.22	0.24
Cofimvaba	0.18*	0.33	0.19*
Cradock	0.47	0.62	0.82
Dutywa	0.07*	0.26	0.07*
East London	0.57	0.86	0.78
Fort Beaufort	0.47	0.43	0.59
Graaf-Reinet	0.49	0.75	0.88
Grahamstown	0.53	0.62	0.84
King William's Town	0.50	0.64	0.58
Lady Frere	0.25	0.27	0.34
Libode	0.21	0.17*	0.11*
Lusikisiki	0.09*	0.11*	0.05
Maluti	0.18*	0.27	0.26
Mbizana	0.15*	0.12*	0.07*
Mount Fletcher	0.11*	0.19*	0.25
Mount Frere	0.20*	0.19*	0.19*
Mthatha	0.36	0.35	0.39
Ngcobo	0.17*	0.27	0.25
Port Elizabeth	0.68	0.96	0.92
Queenstown	0.52	0.57	0.78
Qumbu	0.30	0.08*	0.20*
Sterkspruit	0.37	0.52	0.58
Uitenhage	0.59	0.85	0.88

*Source: Republic of South Africa 2013a*

<sup>6</sup> The socio-economic deprivation index for education districts combines various social and economic criteria from the 2011 Census. The following criteria were used to create the index: 1. Functional literacy, i.e. the percentage of adult population that has attained at least Grade 6 schooling divided by the total number of adults (aged 20 and above). 2. Per capita income, i.e. total monthly income divided by the total population, and 3. Percentage of household with electricity (supplied by Eskom or a local municipality). (Republic of South Africa 2013a)

<sup>7</sup> Composite Infrastructural Index is composed of percentages of schools with access to water, electricity, fencing and gates, schools with sewage disposal, schools with flushing toilets.

<sup>8</sup> Composite Services Index was created using data from Census 2011. Four variables were used to construct the index, namely, type of toilet facility, sources of water, refuse disposal method and type of energy used for cooking. (Republic of South Africa 2013a)

### *Educators profile*

In addition to the structural resources referred to above, the quality of education is also dependent on other school resources such as learner-educator ratios (LERs), teacher qualifications and experience, as well as other factors including the availability of learning materials, level of organisation of the school (timekeeping, management, etc.), the socio-economic background of the learners and motivation of the teachers. The learner-educator ratio refers to the average number of learners per educator and it is assumed that the lower this number the better the potential quality of education, since contact time can be improved and learning enhanced. The learner-educator ratios for education districts include School Governing Bodies (SGBs) appointed educators (Table 2). From the information in the table it can be concluded that there is substantial intra-provincial variation in learner-educator ratios, with the highest ratios found in the Libode, Lusikisiki and Mbizana education districts.

**Table 2: Eastern Cape education district learner educator ratios, 2012**

Learner: educator ratios	Education districts
22 – 25	Butterworth; Cofimvaba; Fort Beaufort; Grahamstown; King William's Town
26 – 28	Cradock; Dutywa; East London; Lady Frere; Mt Fletcher; Port Elizabeth; Queenstown; Qumbu
29 – 30	Maluti; Mt Frere; Ngcobo; Sterkspruit; Uitenhage; Mthatha
31 – 33	Graaf-Reinet
34 – 36	Libode; Lusikisiki; Mbizana

Source: Republic of South Africa 2013b

In South Africa, the qualifications of educators range from REQV 10 (matric, no-training) to REQV 17 (matric + 7 years of training). The lowest REQV (REQV 10) represents unqualified educators, while educators with REQV 11-12 are regarded as underqualified. To be qualified to teach in South Africa an educator must have REQV

13 and above. These higher REQVs denote that the educator has completed Grade 12 and has attained three or more years of tertiary study. In 2012 the Eastern Cape had a mere 1% of educators who were unqualified and underqualified by these criteria, while the proportion of educators who were qualified (REQV 13) and well qualified (REQV 14-17) was 29% and 69% respectively, thus 98% of educators met the minimum qualification standard. The districts with higher proportions of well-qualified educators were more urban and densely populated ones, i.e. Port Elizabeth, Grahamstown, East London and Mthatha. This indicates that generally the educators in the Eastern Cape are considered well qualified to teach, based on formal qualifications. (Republic of South Africa 2013a).

Regarding the average age of educators, the province does not have an even distribution of educators. The western part of the province is characterised by older educators, with Graaff-Reinet being the education district with the highest average educator age at 50.1 years. In contrast to this, the educators in the more under-developed eastern part of the province are relatively younger. The average ages of educators in the eastern districts are 46.4 and 45.2 respectively. (Republic of South Africa 2013a)

In the following section I describe the data collection for the qualitative part as well as the dataset for the quantitative part of the study.

#### **4. Qualitative section of the study**

This section provides a description of the data for the qualitative part of the study.

##### *4.1 Research approach*

The main part of this study adopted a qualitative case study methodology in line with the focus of investigating the underlying processes of instructional leadership within the context of South African schooling system. Yin (2009: 18) defines a case study as: "... an empirical enquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between the phenomenon and the context are not clearly evident".

My research assistants and I interviewed a total of 15 principals and 42 foundation phase primary teachers at 15 primary schools in three selected districts of the



Eastern Cape. The target was to interview 15 principals but at one school in one district we interviewed a head of department (HOD) who was an acting principal in the school, and at another school in the same district the principal was not at the school and consequently we interviewed a HOD. Since HODs are also in the school management teams they are assumed to be familiar with the leadership and management responsibilities of the principals, and therefore this would pose no problem for the quality of the data obtained. The involvement of different individuals per school provides for data verification and triangulation of responses to questions regarding the management of the curriculum (Hoadley et al. 2009).

We purposively selected fifteen primary schools based on several criteria, including academic performance, socio economic status and cultural environment. The criteria were used to obtain a balanced sample of schools across academic performance. We used the annual national assessments (ANA) Grade 6 results for 2013 to determine academic performance of schools. This is consistent with Taylor et al., (2013) who used ANA test scores for 2010 to identify two pairs of schools in rural KwaZulu-Natal and rural North West. In selecting the schools, convenience sampling was used. For instance, we selected schools in districts that are closer to where we reside. This was done to reduce transport costs for data collection. Moreover, the researcher had well established contacts with the districts in which the schools were located.

We collected data through a vignette integrated into an interview guide, along with open-ended questions about the case of a poorly-managed school in a rural South African context. Vignettes are defined as "... short stories about hypothetical characters in specified circumstances to whose situation the interviewee is invited to respond ..." (Finch, 1987: 105). A vignette, therefore, is a useful research instrument in cases where the interviewees may be reluctant to disclose information about their conduct and viewpoints (Gourlay et al. 2014). Research on how school principals lead and manage teaching and learning is a sensitive topic and it is assumed that some principals and teachers may not be willing to reveal the truth about their specific school situations. Vignettes may assist in eliciting more truthful responses from school principals and teachers. The vignette is based on a rural primary school principal whose school is characterised by low learner numbers, a high rate of absenteeism and late arrival at school among both teachers and learners (see

Appendix A for the full vignette). The academic performance of learners at this hypothetical school is very weak as reflected in the annual national assessments results for the past three years.

The semi-structured format of the interviews enabled interviewers to use prompts to explore issues more deeply wherever necessary. Interview questions for both principals and teachers were focused on respondents' perceptions of leadership in curriculum delivery, as well as matters relating to managing the school's instructional time. In addition to these broad themes, the interviews also sought basic information statistics such as enrolment, class sizes, and teacher-pupil ratios, teaching qualifications and teaching experience to account for school context. In this regard photographs of the schools, copies of documents such as attendance registers, time-table, and teachers' work programmes were gathered; and there were unstructured observations of the schools' culture and climate.

Before we asked the questions, we provided each participant an extract to read. The first set of questions was directly based on the extract where the participants were asked what they think the character in the vignette should do to address the problems in her school. Thereafter, we asked questions specific to the contexts of the respondents' schools and we also asked the respondents to provide answers about their own conduct and experiences.

The interview school districts are in East London, Fort Beaufort and King William's Town. As a departure from other earlier South African case studies on instructional leadership at schools that focused on schools serving very poor communities (Malcom, Keane, Hoohlo, Kgaka, and Ovens, 2000; Christie, Butler, & Potterson, 2007; Taylor et al., 2011), this study is based on schools that serve communities of different socioeconomic status within a single province. The selected schools differ in the following respects: enrolment and number of staff; learner performance; former departments of education status; socioeconomic conditions; cultural environment; and political economy. For instance, some schools are former Model C<sup>9</sup> schools; others are based in black and coloured townships, while still others are drawn from rural areas. Four of the schools are categorised as quintile five (richest group of

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<sup>9</sup> These are government schools that are partially administered and funded by parents and a governing body. During Apartheid, these schools were known as "Model C" schools and the name has stuck since then.

schools), one is quintile four and the rest belong to quintile three. The shared similarities between the selected schools are that they are all administered by a single provincial Department of Basic Education (ECDOE) and they are all monograde schools.

We visited the schools in August and September 2015 after obtaining permission from the Eastern Cape Department of Education and the respective district heads. We interviewed all the principals and the foundation phase teachers in the sample schools individually. All interviews took place as per the agreement between the principal and the principal investigator.

### *3.2 Method*

In analysing the interview data, I used computer-assisted qualitative data analysis software: NVivo 11. NVivo is a powerful qualitative analysis software in situations where the researcher has substantial amounts of qualitative textual, audio and visual data. Among the benefits of NVivo are that it assists with the development of consistent coding schemes and that comparison can be made between coded elements (Robson 2011).

The thematic analysis approach followed is known as theoretical thematic analysis. A theoretical or deductive thematic analysis, in contrast to an inductive approach, tends to be driven by the researcher's theoretical interest in the area (Braun & Clarke 2006). This implies that the coding of data has been tailored for specific research questions.

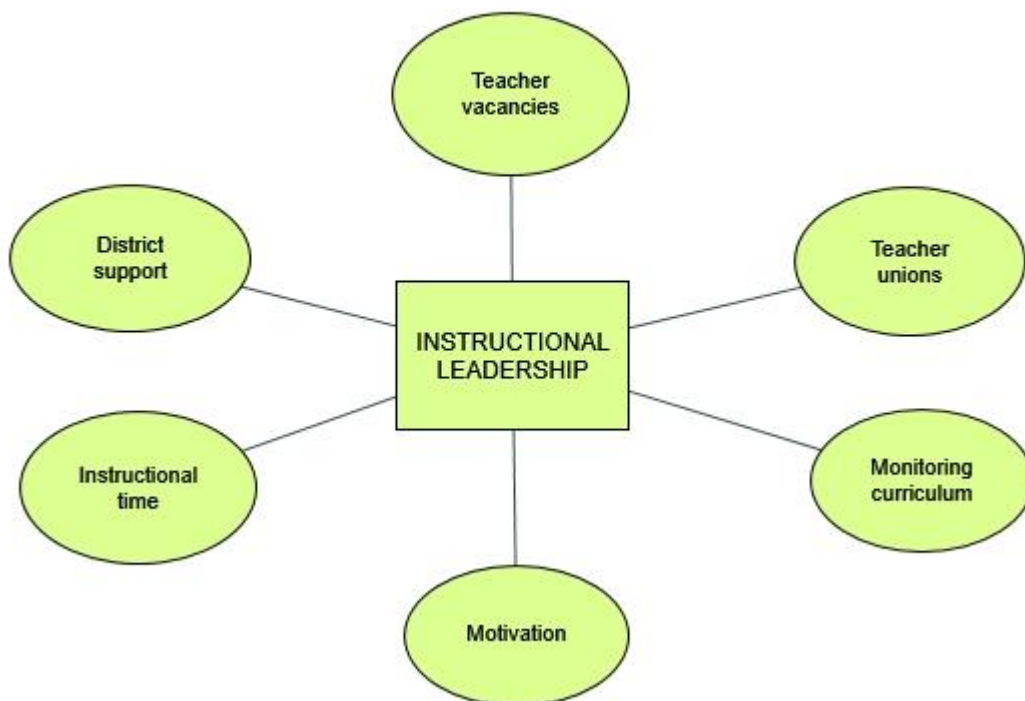
As reported earlier, during the data collection stage, we took notes during the interviews and recorded all interviews on tape. As the interviews progressed we transcribed the data into written form to conduct a thematic analysis. The transcription assisted in getting the researcher to be more familiar with the data. During this process, there was repeated reading and listening as a way of searching for meanings and patterns. Most of the transcription was conducted by the researcher and where the transcription was done by an assistant, the transcriptions were checked for accuracy by going through the recordings again. Having transcribed the data, I then initially coded the data by identifying features of the data that I considered relevant to the research question. The NVivo 11 software was used

for this purpose. Coding in NVivo is done by tagging and naming selections of text within each data item. Since my approach is theoretical thematic analysis I had to approach the data with specific questions in mind (Braun and Clarke 2006), hence the use of the interview questionnaires.

During the initial coding process, the whole data set was given equal attention so that full consideration could be given to repeated patterns within the data.

After the initial coding, had been done, I sorted the different codes into themes. All initial codes that related to the research question were combined into a theme. This enabled me to put all the relevant coded data extracts within identified themes. There are six broad themes under which different codes were grouped (Figure 4). Some of these themes have been broken down into sub-themes.

Figure 1: Thematic map



As mentioned, data analysis was informed by the research literature and my research questions.

### *3.3 Ethical clearance*

The study was approved by the ethics committee of Stellenbosch University (DESC/VanderBerg/Jul2015/3) and the ECDOE provided permission to interview respondents in the selected 15 primary schools. Permission was also received from the district directors at the three education districts. Written informed consent was obtained in English for all respondents in the study and before each interview a verbal consent was granted for tape recording of the interviews.

### *3.4 Research findings*

In this section I begin by discussing the composition of the sample of schools interviewed. This is followed by a discussion of findings. The findings are discussed based on the six broad themes as shown in the thematic map in figure 3.

#### Sample composition

A summary of the demographic composition of the sample is provided in Table 3 below. The sample consisted of eight (8) township schools, four (4) rural schools and only three (3) suburban schools (Table 3). Most of the schools interviewed (10 schools) were from the low quintile, which is quintile 3, and the sizes of the schools were fairly spread from medium to very large, with only one small school in the sample. It is also interesting to note that only four out of 15 schools in the sample were headed by female principals.

**Table 3:** Composition of the sample of schools

	Rural schools	Township schools	Suburban school	Total
	4	8	3	15
	Quintile 3 schools	Quintile 4 schools	Quintile 5 schools	Total
	10	1	4	15
Small schools <sup>10</sup>	Medium schools	Large schools	Very large schools	Total
1	5	4	5	15
		Female headed	Male headed	Total
		4	11	15

*Source:* Author's own calculations from interview data

#### (1) Instructional time

The school heads and teachers were asked questions related to management of instructional time in their schools. The questions asked related to the management of absences from school for both teachers and learners, as well as punctuality.

Generally, most principals reported that teacher attendance in their schools was good and manageable. There were just instances where a teacher would be absent for one or two days, but that was considered as normal. However, few school principals admitted that they experienced problems regarding attendance by teachers. In addressing teacher absenteeism one school principal reported that as a school they have adopted a policy where teachers would pay somebody from the community to act as a substitute during a teacher's absence. This practice was used in one other school, and both principals commended this policy, stating that it was effective in curbing teacher absence. It should be noted that in the rest of the schools there was no system of replacement teachers. During a teacher's absence, the

<sup>10</sup> School sizes as determined in the National minimum norms and standards for school infrastructure (2009). A small school has a minimum of 135 learners and a maximum of 320 learners; a medium school has a minimum of 321 learners and a maximum of 620; a large school has a minimum of 621 learners and a maximum of 930 learners; a very large school has learners that are beyond 1000.

burden was on the remaining teachers who teach the same grade to look after learners whose class teacher is absent.

Some of the reasons cited by both principals and teachers for teacher absence include sickness, family responsibility and examinations. Several principals pointed out that, except for sickness, other types of absence are planned. In terms of the Employment of Educators Act 76 of 1998, family responsibility leave is granted in cases where “an educator’s spouse or life partner gives birth, the educator’s child, spouse or life partner is sick, the educator’s child, spouse or life partner dies or the educator’s immediate family member dies”.

One question asked to teachers was what happens to the class during his or her absence. It is interesting to highlight that responses to this question varied depending on socio-economic status of the school. Most teachers in township and rural schools responded by stating that another teacher teaching the same grade normally takes care of their classes while they are absent. In cases where there are teacher absences, learners are left alone while the remaining teacher comes occasionally to supervise them. Contrary to the above, teachers from affluent schools said that their schools employ relief teachers from the community to supervise learners when there are absent teachers. For instance, one school principal from a former model C school had this to say when asked about his school arrangements when a teacher had to come late to school:

“We get a replacement teacher ... we have a list of replacement teachers ... those teachers are contacted and they come in and take that class for the period of time.”

### *Teacher and learner absence*

Based on the vignette they were requested to read, respondents were asked the following question: *What do you think Mrs Banayi, the principal, should do to curb teacher and learner absenteeism?* A variety of responses were provided by participants to this question. The responses are organised into the following sub-themes: meeting and talking with teachers; meeting with parents; motivating teachers and parents and implement leave policy.

(a) Meeting and talking with teachers

Several respondents, mostly teachers, cited the need for the principal to convene meetings with teachers to discuss the problem of absenteeism. It is at such meetings that solutions can be found. Even consultations with individual teachers have been highlighted as a good way to instil confidence among teachers. A teacher from a King William's Town school stated that the principal should remind teachers that they are role models to the children. The importance of convening meetings with teachers to find solution to the problem of absence from school was also cited by 47% of headmasters. The headmaster of EL3 pointed out that the principal should "sit down with teachers and talk to them" to address the issue of teacher absenteeism. Another headmaster had the following to say:

"She must sit down with the teachers and talk with them around this issue of distance. They are residing very far from the school, and she must find out from them how they are going to make it in order that they are punctual at school."

(b) Meeting with parents

A small percentage of respondents (20%) cited the importance of convening meetings with parents. The respondents highlighted that parents need to know the activities of the schools and they ought to support the headmaster in directing the school in the right direction. For instance, the principal of EL 1 stated that the headmaster should convene parents' meeting to explain the crucial importance of education.

(c) Motivating teachers and parents

When participants were expressing their opinions on teacher and learner absence, the themes of motivating teachers and parents came out very strongly, especially from the headmasters. A substantial number of headmasters felt that to improve the situation in the school the principal should motivate her teachers. One headmaster stated his opinion as follows:



“I think she as the headmaster should motivate her teachers ... possibly change the focus that they have to the children, because they are the most important folk in this whole setup ...”

Some respondents even suggested ways that can be used to motivate the teachers, ranging from teacher awards and motivational workshops. For instance, one school headmaster said:

“... you’ll have to start with the teachers, maybe a motivational workshop can do things ... there is no quick fix in things like this ... it comes with hard work and leading by example.”

Some headmasters also felt that for improvement of the school, the parents of the children should be on board. The headmaster as the school leaders should strive to win the support of the parents. In illustrating this, one headmaster said that:

“... it doesn’t matter whether it is rural or urban, if I was that principal I would to get the parents behind me so that they support me in redirecting that school towards the right direction.”

And to achieve that a substantial number of headmasters agreed that parents need to be motivated. They should be made to appreciate the value of education for their children.

#### (d) Implementing leave policy

There were some headmasters and teachers who were of the view that a more formal-rule-bound approach was needed to improve the culture of teaching and learning. They said that the headmaster needed to be a bit more authoritative and enforce the school leave policies. A teacher from one of the schools said that:

“The principal should use the school policy since it covers things like school working times. If a teacher is absent there should be a concrete reason, like if someone is not well he/she should submit a doctors’ certificate.”

## *Punctuality*

When asked about the state of punctuality both the principals and the teachers provided mixed responses. Generally, most respondents reported that teachers were always punctual, while the problem was with learners. It is only in a few schools that both teachers and learners were said to be always punctual, and this is due mainly to proximity on the part of learners, as well as the availability of scholar transport for those who stay far. Some principals cited the signing of the school attendance register as effective in promoting early arrival by teachers. One principal reported that previously he had to lock the gate so that teachers and learners who were late remained outside for some time. This is what the principal said about this:

” I was mentioning embarrassment ... close the gate ... and the teachers stand with the children who are late ... it will happen once or twice but not the third time. I'm talking about experience now ... we did it and there was a change.”

There were principals who appeared to have no strategy to deal with teacher punctuality. One principal, for instance, pointed out as follows:

‘You get a certain percentage of educators – about 3% – who are constantly late. You speak to them, you try to be collegial, you don't want to take the route of the book and the teacher lands in trouble, so you reason with that teacher, but sometimes you see that your efforts are in vain, with some of them ...’

In another school the principal attributed the problem of late coming of teachers to public transport. The school is situated in a rural area and most teachers stay far away in towns and some are dependent on public transport to attend school.

## (2) Motivation

When asked whether their teachers are motivated or not, most principals (9 of them) said that they think their teachers are motivated. Two principals described at length the strategies they use to get their staff motivated. These strategies involved the creation of a good environment for the staff to be happy. In these schools, teachers

are sent to courses or workshops on various aspects of schooling including information technology, discipline, administration or specific subjects. Moreover, according to the principals these schools are characterised by having staff functions where staff members go on outings to have fun. One principal had this to say on teacher motivation:

‘One of my first jobs is to make sure they’ve got a friendly and safe environment to work in and to keep them motivated, that’s my job. I enjoy praising them and make sure I know what they do, so when they do it, I give them acknowledgement for that.’

However, other school principals highlighted several problems that make their teachers feel unmotivated. These include high teacher workload due to understaffing, redeployment, class sizes, lack of individual attention, ill-discipline among learners and lack of support from the Department. One principal was very critical of class size especially in the case of class size in dual-language medium schools. In these schools, there is often a large disparity in class size between the same grade classes for different languages. He cited a case where there are a total number of 100 learners and three teachers in Grade 5 where two Afrikaans classes have 40 learners each, while the English class has only 20 learners. The official learner teacher ratio of 35:1 was thus not approximated in any of these classes.

The issue of teacher redeployment<sup>11</sup> can also be experienced as demotivating by teachers. On teacher redeployment one of the principals said the following:

‘The problem of redeployment is tampering with the welfare of educators. You are not certain of what is going to happen tomorrow, so redeployment is not good. Although it helps the department in terms of finances, it affects the educators. Today I am here; tomorrow I don’t know where I am going to be.’

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<sup>11</sup> Teacher redeployment is a rationalisation system based on the redistribution of posts to schools. Teachers with less learner numbers experience less allocation of posts while those with higher number get more allocation of posts, and this leaves schools with either excess teachers who should move to schools where there is shortage of teachers.

### (3) Monitoring curriculum

According to NEEDU (2012: 11) an in-depth investigation into the complex ecological nature of the school can "... yield insight into both the substantive practices that underlie formal compliance and the causal relationships between these practices and student learning". Among the characteristics of good instructional leadership highlighted in NEEDU (2012), planning and coordination, assessment<sup>12</sup> and professional development are very important. All three of these components relate to curriculum monitoring and implementation in some way. Below, I discuss the themes of planning and assessment and the supervision of curriculum implementation.

#### *Planning and assessment*

When asked about assessment at the foundation phase level, most principals and teachers were knowledgeable about the requirement as stipulated in the Curriculum and Assessment Policy Statements<sup>13</sup> (CAPS). Most teachers reported that they have annual plans that are broken into terms and weeks. These assessment plans were set in accordance with the CAPS document for the foundation phase. Moreover, the assessment tasks that are administered to learners correspond to the assessment plans. Describing planning one of the teachers had this to say:

"We have a year planner, term and weekly plans, and they are monitored by grade heads."

However, there was inconsistency in the way principals understood the programme of assessment stipulated in the CAPS documents. One school principal seemed not to be aware that at foundation phase level there are a specified number of formal tasks that have to be administered each term. The principal had this to say:

"It's still tricky with the foundation phase when it comes to assessment because they do assessment continuously. They do not do it like we do in senior phase and intermediate phase where there are tasks that are

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<sup>12</sup> The Curriculum and Assessment Policy Statement (CAPS) document defines assessment as a continuous planned process of identifying, gathering and interpreting information about the performance of learners, using various forms of assessments. Assessment should be both informal (Assessment for Learning) and formal (Assessment of learning).

<sup>13</sup> This is a single comprehensive curriculum and assessment policy document that was developed for each subject to replace Subject Statements, Learning Programme Guidelines and Subject Assessment Guidelines in Grades R-12.

set for each term. So, it's still tricky but we are trying because they have those tasks that they do continuously. There are CAPS documents for foundation phase but you don't get something that says these are the tasks for this term in the foundation phase ... they do everything daily, so it's something that continues every day."

Another principal expressed his reservation about the nature of assessment in CAPS. He was critical of the frequency of assessments that teachers are required to administer as per the CAPS document. According to him, CAPS encouraged teachers to assess more than what is desirable. The following is an extract of what the principal said:

"CAPS will have you do 25 assessments in a term, I suppose, but we would have in the region of five to eight of 10 formal assessments ... and then there would be informal assessments along the way ... but obviously, we have major assessments twice a year after the second term and end of the year when they do their major examination."

#### *Supervising curriculum implementation*

Several principals and teachers reported that monitoring of teachers' work was done by checking that the teacher's plans and lesson plans were corresponding. These were checked whether they reflected the written work found in learners' exercise books and that there was alignment with CAPS requirements. A principal from one school reported as follows:

"Fortunately, just now I was requesting their tasks because when there is a problem it is the principal that is accountable. There should be submission of documents in time, assessment should be done. We have an assessment programme that indicates completion of assessment tasks by teachers. This allows us to enter learners' marks as soon as assessment tasks are completed. Since ANA will be written soon, from now people should complete their tasks in time."

#### (a) Checking teaching portfolios

The CAPS document and the teacher's lesson plans allowed the principals to be able to supervise the implementation of the curriculum. At some schools, it

was a routine that teachers had to submit teaching portfolios to the principal on a weekly basis, as one teacher said:

“Every Monday morning our files have to go to the principal to see how we are going to teach and for how long we will be doing it and what we were teaching on that particular day.”

A principal from a separate school as the teacher above also described a similar approach regarding curriculum implementation monitoring. The principal said:

“We look at our guide where you will see that from this term this is the work that the teacher was supposed to do. You look at the formal task whether is there any correspondence between the formal task and the work that the teacher was supposed to do.”

#### (b) Direct supervision versus delegation

When most of the principal reflected on supervision of curriculum implementation, I noticed that they delegated this function to their head of departments. In few schools, the principals seemed to be involved in curriculum monitoring in some way and in some schools the principals were not directly involved. From the two extracts below, it is evident that these two principals used different approaches on supervision of curriculum implementation.

First principal:

“The HOD will do her duties, but monthly I will go to the classroom, and check, sometimes not reporting to the HOD, just going there to check whether what the HOD reports is actually happening.”

Second principal:

“We have two HODs at that phase and they are the ... I don't want to say experts, but they know what is expected. And when we go to any report, I will sit with them and say explain, explain, explain. I'm not

going to know it all, especially when it comes to foundation phase ... so I take from what they are saying.”

(c) Class visits

One way of supervising curriculum implementation is conducting class visits while the teacher is teaching to check the classroom interaction with the learners. Class visits are among the requirements for teacher appraisal as stipulated in the Integrated Quality Management System (IQMS). When asked whether class visits are conducted in their schools, principals provided different responses. At one school, it was clear that class visits as a component of IQMS was not strictly followed, as one principal had the following to say on this subject:

“We carry class visits, mostly informally, because there is little time for formal class visits. I always tell my teachers; I am here to assist, to guide and not to judge.”

At another school, the principal indicated the extent into which class visits were conducted at his school. He indicated that class visits were not only implemented to comply with IQMS, but were conducted to monitor teaching and learning. The principal said the following:

“It’s unfortunate that you came here on a Friday. From Monday to Wednesday the HOD, Mr Phatshane, visited classes. He schedules visits for observation in class, not for IQMS, but for monitoring of teaching and learning in class. Mr Silani does the foundation phase and Mr Phatshane does the intermediate and senior phases. Those class visits motivate teachers because they are developmental. If they come into your class, after that you get feedback ... it motivates you to do more. He praises you when you do something good ... so it keeps the morale of the people high. These class visits are done monthly.”

(d) Teacher opinions on class visits

A substantial number of teachers expressed their positive attitude towards class visits. They viewed them as a developmental tool to improve their teaching. However, some teachers from affluent schools felt that class visits

were not necessary unless someone had a challenge on a certain aspect. One teacher said the following:

“I think this would develop me, so yes I don’t have a problem.”

Two teachers from two separate affluent schools indicated their stance against class visits as follows:

First teacher:

“No, I don’t think so; unless you are really struggling. Then you can have someone to check on you to see if you are on the line, especially for a first teacher with no experience.”

Second teacher:

“I don’t think in this environment. And also, what would the benefits be in that? Like yes, if they come to your class and see you doing this, maybe they could give you advice on certain things, but I think it would be quite difficult. We should be all be in a certain line. It could make some teachers feel they are better than others. We are striving to be better and having someone watching you is not really necessary.”

#### (4) District support

There was mixed reaction among the school principal regarding their satisfaction about the support they receive from the district education officials. Eight out of fifteen school principal highlighted several areas they were not satisfied about the district support. The areas of dissatisfaction that were reported include human resource (HR), infrastructure and curriculum support. A principal from one rural school had mixed perceptions on district support as he said:

“Yes, we can give them 80%. My education development officer (EDO) is a cheerful person, humble, has lots of positivity and I am closer to him. He tries to fulfil my needs. In the department, the side that is pulling us down is the HR side.”

Some school principals were ambiguous on the subject of district support. Although they understood that the support of district officials was not adequate, these principals seemed to have empathy towards the officials.



They pointed out challenges faced by the district offices including understaffing and lack of finances. One principal said:

“I think that they are having an uphill battle with finances and stuff, but I get along with my EDO very well. They help us where they can. The other stuff is more legal stuff, they can’t just give you teachers, there is a whole process son in general we can’t complain.”

However, other school principal revealed their frustrations with the level of support they receive from the district offices. A principal from one township school had this to say:

“I am satisfied to a certain level. We’ve been asking for a general worker; we don’t have a caretaker and a night watchman here. The school gets broken into time and again. Last year we had three break-ins. We have been asking for classrooms. We have been waiting for 15 years for the school to be built.”

Another school principal from an affluent school also expressed his dissatisfaction and frustration with the level of district support as follows:

“Not satisfied. The support is non-existent. Even schools in the rural areas have the same problem that they don’t have the support. I hadn’t had an official in the school for 15 years. I don’t think the department has the capacity of assisting the school. They have enough problem of their own. They are either in a funeral or they are on strike or they’ve got too few EDOs for instance. Our EDO has got, for instance, 15-20 schools to service ... how can you do that ... it’s impossible. As EDOs leave they don’t replace them. So, when you had 15 EDOs, now you have five EDOs, and the schools are being split among them. It’s very frustrating in one respect, but we’ve learnt to live with them now ... we get on with what we have to do ... we are proud of what we do, we are proud of what we produce and we can do it on our own.”

#### (5) Teacher vacancies

Teachers are the core staff for the Department of Basic Education and the schools since they are at the fore-front of curriculum delivery. Without a teacher in the classroom, the teaching and learning will be negatively affected. At times schools lose their teachers due to several reasons. Some teachers leave for better opportunities elsewhere, others retire or resign, while others become incapacitated due to ill-health or death. When a school has lost a teacher, the principal should find a replacement as soon as possible. Several school principals indicated their understanding of the process they should undertake for the filling of teacher vacancies, but there seemed to be differences in addressing the problem of vacancies. Most the principal were critical about the pace in which the department of education responded to teacher vacancies. They cited the infrequency of departmental advertisements as their major area of concern.

However, from the principals' responses it is evident that the schools do not deal with teacher vacancies in a similar way. For instance, school principals from the historically disadvantaged areas would wait for the departmental advertisements before they could appoint a teacher into the school. In these schools when a vacancy appears, the workload of that teacher is divided among existing teachers until the department appoints someone. This scenario is clearly illustrated by the following extract from one of the rural school principals:

“We share the work among ourselves, like myself I'm overburdened. We still have vacancies and they are known by the department and we are waiting for interviews.”

However, principals from former Model C schools approach teacher vacancies differently. When there is a vacancy they process all the necessary documents to the department, but they publish own advertisements through the media and make SGB appointments. Once the department finally publishes the advertisements, the SGB-appointed teacher would be absorbed permanently into the departmental post. One former Model C principal described the process as follows:

“It would be very nice if the department had gazettes regularly, which they don’t ... so in most cases when somebody, from a department post, leaves, we have got to fill that post with a governing body person. So, we would advertise in the local press and we would then interview those shortlisted folks and we would appoint the best person we know.”

From the above, the effects of teacher vacancies would be more pronounced in the historically disadvantaged schools. The long lag between identification of a vacancy and the ultimate filling of such vacancy by the department would imply that teaching and learning in these school is hampered. It is not yet clear whether the problem is with inability of the schools to plan or it has to do with inadequate funding that these schools receive from the department.

#### (6) Teacher unions

The post-apartheid South Africa has experienced a rise in political activism and union activism. This development is not surprising given the political history that the country comes from. The education fraternity has not been spared from unionism. Trade unions are legal entities in South Africa that are meant to protect the rights of workers. Even in the education sector, teachers, as workers have unions that fight for the right of teachers such as salary increments, better working conditions, etc. There are several unions that represent teachers and they include the South African Democratic Teachers Union (SADTU), the National Professional Teachers’ Organisation of South Africa (NAPTOSA), Suid Afrikaanse Onderwys Unie (SAOU) and others.

In recent years, there have been perception in the media that the activities of some dominant unions, especially SADTU, which is affiliate of the Congress of South African Trade Unions, have been detrimental to teaching and learning in schools. The sampled principals and teachers were asked to report their perceptions and experiences of union activity in their schools.

As expected there were mixed responses on this subject, but with most respondents indicating that there were disturbances that were caused by SADTU activities, especially meetings during working hours. One principal from a township school said:

“Let me be open here. In this district, when the unions are having meetings, they start from 12. We break at 12 and go to our union meeting and that is one problem that we have. These are the things that hamper teaching and learning because we break two hours before time.”

Another principal from a township school also expressed her dissatisfaction about the conduct of SADTU members:

“I was a chairperson of SADTU far back. Then we used SADTU as a sharp knife in both sides. To be a SADTU member then, you should be an example at school. But now, you’ll find that a SADTU member is a spoiler in the school, especially if she is site steward. Every day, SADTU, SADTU, going to meetings, etc. She will not even care what provision is done to cover her during her absence. If you go to SADTU to ask, they will turn against you.”

The interference of SADTU with the tuition time was also admitted by one of the school principal who was also a branch executive member. The principal responded as follow:

“I am secretary of SADTU. When I am addressing teachers, I tell them that when we release you from schools you do your own business in town. Our resolution was that teachers should not leave schools before 12.”

Another principal expressed his frustration about SADTU’s less regard for tuition time. The principal indicated that in his school half of the teachers belong to SADTU and the other half to NAPTOSA. He went on to say:

“So, if SADTU has a meeting, it’s impossible to carry on with teaching and learning if half of the staff is gone. Meeting start at 11; they will come and say we want to leave at 10. I will just phone the department and say ‘What do I do now? I cannot run the school with half of the staff.’”

This principal also indicated that some SADTU member in his school were even refusing to be visited in class for monitoring purposes, saying that they first needed to consult with their union.

However, another principal who had teachers that belong to both unions i.e. SADTU and NAPTOSA, had a way to manage the issue of meetings by insisting that the teachers leave at 1 o'clock. He stated this as follows:

“I think that there is a place for unions but they shouldn't interfere with the day-to-day running of schools. I won't mention names, there unions that want to have meetings during school hours. That we don't allow and we share information with members of our staff and we tell them, look you can go at that time but you can't go at 10. SADTU is very fond of that. I think most principals won't have a problem letting their SADTU members go, say, at 1 o'clock to attend, but we can't allow 10 o'clock, you understand? What about the classes. My staff understand that I can't let them go at 10 ... they must teach.”

Based on the six themes above, one can conclude that there is a principal agent problem in the education. The instructional time was not honoured as per the stipulation of the policy. And also, most principals used their discretion in dealing with non-adherence to instructional time, as there were rare instances where rules and policy were enforced. Generally, the principals demonstrated understanding of processes for monitoring the curriculum implementation. However, it appeared as if the supervisors were more interested to see congruence of teacher plans with the content taught without paying much attention to quality of what was taught. In this regard, evidence suggests that some principals abdicated the responsibility of monitoring to their HODs and did not understand what was happening in the classrooms. District support was also a challenge and this indicates that the problem is not isolated at school level. Finally, it was clear that accountability lines are not clear. Most principals appear to be accountable to union leadership instead of departmental officials.

The following section examines instructional leadership using quantitative techniques.

## **5. Quantitative section of the study**

The data used in this study is the sixth administration of the Trends in International Mathematics and Science Study (TIMSS) assessment conducted in 2015. TIMSS is an international assessment of mathematics and science knowledge of fourth and eighth grade learners. It was developed by the International Association for the Evaluation of Educational Achievement (IEA) to allow participating nations to compare learners' educational achievement across countries. TIMSS was first administered in 1995, and every four years thereafter – 1999, 2003, 2007, 2011 and 2015. The assessment is designed to align broadly with mathematics and science curricula in the participating countries. The results suggest the extent to which learners have mastered mathematics and science concepts and skills that are supposed to have been taught in school. (LaRoche, Joncas & Foy, 2016).

In this large-scale assessment, learner performance in mathematics and science in Grades 4 and 8 was tested using multiple-choice questionnaires. Performance results in TIMSS are reported on a scale that has an average of 500 and a standard deviation of 100 points (Dong and Craven, 2011). TIMSS also collects background information on learners, teachers and schools to allow for comparison among countries of educational contexts that may be related to learner achievement. The advantage of TIMSS for this study is the extensiveness with which it collects data on school leadership and management, instructional time and professional development of teachers. (LaRoche, Joncas & Foy, 2016).

The TIMSS 2015 sample for South Africa's Grade 9 learners was drawn from the Department of Education's 2013 list of all schools in the country. The list comprised of 10 009 schools (9 099 public and 910 independent schools) that offered Grade 9. The South African sample is stratified based on the province, school type (public and independent) and language of learning and teaching (Afrikaans, English and dual medium). Altogether a total of 12 514 grade 9 learners were sampled from 292 schools in South Africa with 334 and 331 mathematics and science teachers participating respectively. The large size of the dataset makes TIMSS 2015 very suitable for analysing the association between instructional leadership variables on learner performance outcomes. After accounting for missing data, the final sample consisted of 10 681 learners in 283 schools taught in 255 classrooms. (LaRoche, Joncas & Foy, 2016).

Internationally, the TIMSS target population at the lower grade is all learners in their fourth year of formal schooling, and at the upper grade, all learners in their eighth year of formal schooling. TIMSS uses UNESCO's International Standards Classification of Education (ISCED) 2011 which provides an internationally acceptable classification scheme for describing levels of schooling across countries. The first year of ISCED Level 1<sup>14</sup> corresponds to a transition point in the education system which marks the beginning of systematic teaching and learning in reading, writing and mathematics. Four years after the first year of ISCED Level 1 would be the target grade for fourth grade TIMSS, and is the fourth grade in most countries. Similarly, eight years after the first year of ISCED Level 1 is the target grade for eighth grade TIMSS and is the eighth grade in most countries. However, TIMSS wants to avoid testing very young learners given the cognitive demands of the assessments. Therefore, if for the fourth-grade learners, the average age at the time of testing would be less than 9.5 years and, for the eighth-grade learners, the average age would be less than 13.5 years, TIMSS recommends assessing the next higher grade (i.e., fifth grade for fourth grade TIMSS and ninth grade for eighth grade TIMSS) (LaRoche, Joncas & Foy, 2016).

In South Africa, the school admission policy provides that children must be 5 years old and have their 6<sup>th</sup> birthday by June 30<sup>th</sup> of the following year to be accepted in grade R (South African equivalent of first year of ISCED Level 1) during the current year. For the fourth grade TIMSS, the average age of many learners in South Africa four years after grade R would be less than 9.5 years, and for the eighth grade TIMSS, their average age would be less than 13.5. In earlier TIMSS assessments when testing was grade 4 and 8 learners were tested, the South African data showed that a high number of learners did not attempt to answer many of the items, which made estimating achievement scores very difficult. Thus, to provide better estimates and to follow TIMSS' recommendations, in 2003 South Africa tested grades 5 and 9 learners (in addition to grades 4 and 8), and in 2011 and 2015 only grades 5 and 9 learners were assessed. For the purposes of this study, only grade 9 mathematics and science scores are considered. The reason is that TIMSS allowed a higher grade than the eighth grade to participate in the assessment if the average

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<sup>14</sup> ISCED Level 1 corresponds to primary education or the first stage of basic education

age of most learners for the eighth grade would be less than 13.5 years. And South Africa was in this category.

At the eighth grade level a total of 39<sup>15</sup> countries participated in TIMSS 2015, and three countries took part at the ninth-grade level (Norway, Botswana and South Africa). Of the total participating countries, South Africa was the second lowest performing country in mathematics with an average score of 372 points, and the lowest performing country in science with an average score of 358 points<sup>16</sup>. For both subjects, South Africa scored more than one standard deviation below the midpoint.

Table 3 summarise the average scores for mathematics and science for TIMSS 2015 by gender and language of test as spoken at home. The information in table 3 reveals that female learners outperformed their male counterparts in both mathematics and science, but the difference is not statistically significant.

**Table 4: Mathematics and science scores by gender and language of test spoken at home**

Variable		<u>Mathematics scores</u>	<u>Science scores</u>
		(n=6422)	(n=6084)
Female	M	370.79	355.07
(n=6422)	SD	(81.27)	(100.29)
Males	M	372.16	356.35
(n=6084)	SD	(82.23)	(103.17)
Always speak English	M	402.34*	403.19*
(n=4355)	SD	(89.31)	(104.70)
Sometimes speak English	M	355.40*	330.85*
(n=8062)	SD	(72.04)	(90.14)

**Statistically significant in asterisk (\*)**

<sup>15</sup> Countries that participated in the TIMSS 2015 assessment are listed alphabetically as follows: Australia, Bahrain, Botswana, Canada, Chile, Chinese Taipei, Egypt, England, Georgia, Hong Kong SAR, Hungary, Iran (Republic of), Ireland, Italy, Japan, Jordan, Kazakhstan, Korea (Republic of), Kuwait, Lebanon, Lithuania, Malaysia, Malta, Morocco, New Zealand, Norway, Oman, Qatar, Russian Federation, Saudi Arabia, Singapore, Slovenia, South Africa, Sweden, Thailand, Turkey, United Arab Emirates, United States.

<sup>16</sup> Singapore had the highest scores for both mathematics and science, with 621 points for mathematics and 597 points for science.



Also, table 3 shows that learners who always speak English at home significantly outperform those who sometimes speak the language of the test at home. The descriptive finding is in line with earlier studies on language and numeracy for grade 3 and 4 (Taylor, 2009). It is important to highlight that there is a high correlation between language, race and socioeconomic status (Spaull, 2011). Learners who speak English as a first language are highly likely to be white or Indian and rich. It is, therefore, not correct to attribute all the differences between wealthier learners and poorer learners to SES, because some of this difference may be ascribed to linguistic advantage.

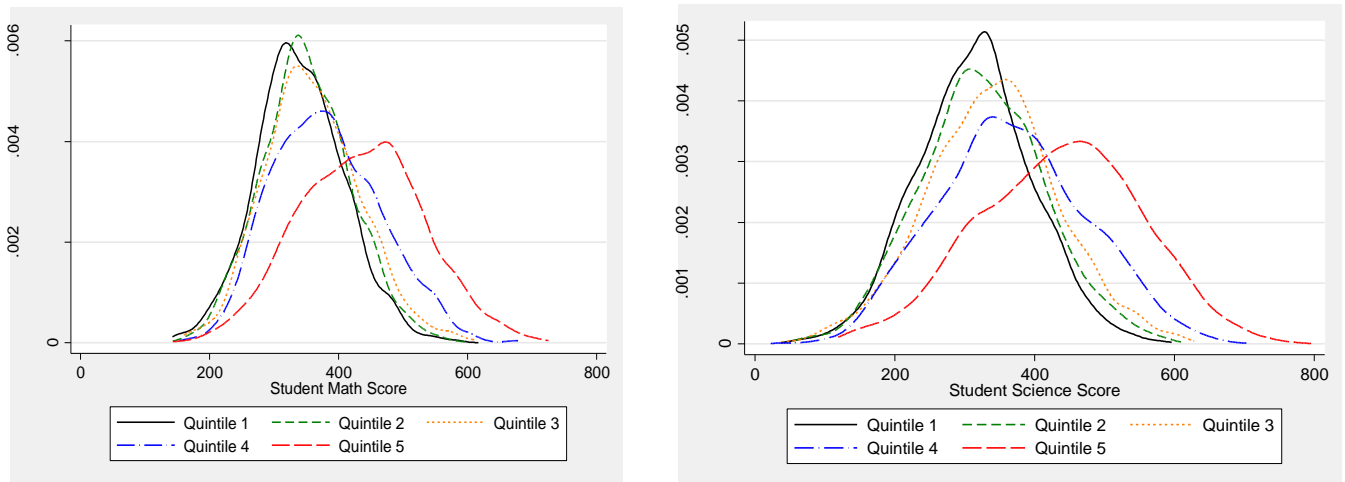
### *Variables created*

Since the seminal Coleman report (Coleman et al., 1966) there has been a great emphasis on how the socioeconomic status (SES) of the learners collectively in the school can influence individual learner achievement. There is empirical evidence that schools with a relatively high number of socioeconomically disadvantaged learners perform poorly due to weaker teaching and learning cultures (TIMSS 2015). There is also agreement among scholars that educational achievement amongst South African children is strongly associated with SES (Taylor, 2011; Taylor and Yu, 2009; Van der Berg, 2007). A large survey such as TIMSS does not contain information about household income or expenditure since learners are not expected to provide reliable information on these variables. It is therefore a common practice to derive household asset-based measures of SES. In the TIMSS 2015 the learner questionnaire asked Grade 9 learners about the presence of several possessions or assets in their homes. Multiple correspondence analysis (MCA) was applied to these household constructs to derive weights for each variable in a learner SES index. MCA is recommended for construction of an index using only categorical variables (Spaull, 2011:7).

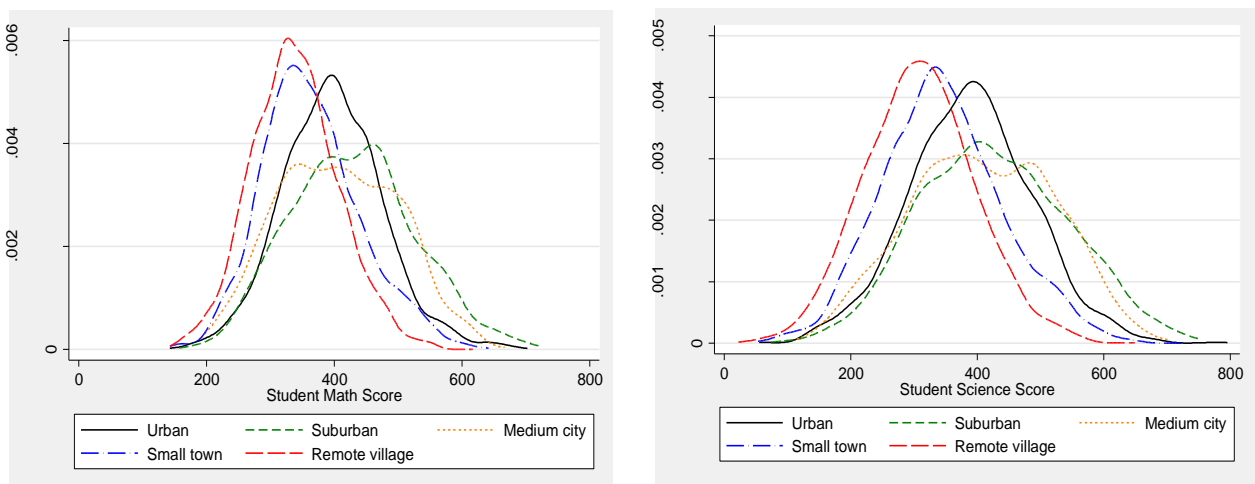
An additional variable (school-SES) was derived from learner SES by taking the average of all the learners' SES scores in each school and assigning this average to each learner as school-SES. Figure 1 and 2 show kernel density curves of mathematics and science for five SES quintiles based on average school SES and area of school location. The information in Figure 1 shows that learners studying in

schools belonging to the highest quintile (quintile 5) perform relatively better than those in schools belonging to the lower quintiles. In an earlier study, Spaul (2011), using SACMEQ III data, also concluded that the learner performance distribution was bi-modal, i.e. there was a distinct split in scores between the top quintile compared to the bottom-four quintiles, indicating a possibility of two data-generating processes at play. Information in figures 2A-B also attests to the thesis of two data-generating processes. In South Africa learners that stay in urban, suburban and medium-sized cities/towns are likely to be in upper-quintile schools, while those situated in small towns and remote rural areas are likely to study in quintile 1-4 schools. Similarly, learners who always and almost always speak English at home are likely to study in the upper-quintile schools, while those who only sometimes speak English and never speak the language are likely to be in the lower four quintiles.

**Figure 2A-B: Kernel density curves of Mathematics and Science scores by quintile of school mean SES**



**Figure 3A-B: Kernel density curves of Mathematics and Science scores by area of school location**



Since the study’s aim is to examine the association between instructional leadership and learner achievement it was essential to identify variables that deal with the leadership role of the principals. In this regard, it should be noted that TIMSS 2015 school and mathematics teacher questionnaires included several identical questions regarding school learning conditions. Based on the theoretical literature, I grouped selected variables and grouped them into five measures of learning conditions that are likely to be influenced by instructional leadership: (a) standards for learner learning, (b) curriculum and instruction implementation, (c) teacher professional

community, (d) external community, and (e) performance accountability following the example of Dong and Cravens (2011).

I then created three instructional leadership indices, namely, a principal-reported academic success index, a teacher-reported academic success index<sup>17</sup> and a principal-reported school discipline index.

In addition to SES and school-SES I included control variables for the background of schools, teachers and learners (see summary statistics on Appendix). These variables were carefully selected based on literature.

The dependent variable for the analyses was the first of five plausible values<sup>18</sup> for mathematics and science scores for each learner from TIMSS 2015. The explanatory variables were derived from contextual questionnaires administered to the school principals, mathematics teachers, and learners sampled for South Africa. These variables will be discussed further in this paper.

Questions on school leadership and management involved asking school principals the extent to which teachers understand the school's curricular goals, the extent to which teachers are successful in implementing the school's curriculum and how teachers work together to improve learner achievement. The school principal's responses to these questions provide an indication of the extent of instructional leadership he/she provides in the school. Other questions that are related to school leadership include questions on parental involvement in school activities, parental commitment to ensure that learners are ready to learn, parental support for learner achievement, as well as parental pressure for the school to maintain high academic standards. The same set of questions on school leadership was also asked to teachers. The mathematics teacher questionnaire also included questions on participation of teachers in professional development initiatives.

Below I discuss the analytical strategy for the multivariate analysis using the TIMSS 2015 dataset.

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<sup>17</sup> These two indices are made up of similar questions but the principal-reported one comprises of responses from school principals while the teacher-reported index has responses from teachers.

<sup>18</sup> Plausible values are multiple values representing the likely distribution of a student's proficiency. They are based on student responses to the subset of items they receive. They are not individual scores in the traditional sense, and should therefore not be analysed as multiple indicators of the same score (Davies, Gonzalez and Mislevy, undated).

### *Regression analysis*

In an education production function, various learner, teacher and school characteristics are used to explain learner achievement. My analytical strategy encompassed an iteration process where I included various variables that proved to be importantly related to learner achievement. The variables that are found in TIMSS are continuous, categorical, or binary variables. For ease of interpretation, I standardised all the continuous variables to take a value between 0 and 1 and I coded the categorical variables as dummies, i.e. taking on a value of either one or zero.

Cognisant of the bimodal distributions of learner scores for mathematics and science as reflected by the descriptive statistics, I ran two sets of regression models to establish if similar factors pertaining to school leadership are equally important for each of the sub-sets of learners. The nature of basic education system in South Africa can be described as consisting of two sub-systems. On the one hand, there is a high achieving functional system that comprises historically privileged schools, while on the other hand we have a low performing dysfunctional system that primarily consists of historically disadvantaged schools (Van der Berg 2007; Taylor 2011; Spaull 2011). When one analyses any characteristic that affects learner performance, it is therefore imperative that one considers this dual education system to avoid bias. Reliance on a single model might persuade a researcher to believe that there is a relationship between learner performance and a variable, whilst that 'relationship' is propelled by differences between the two systems (Taylor, 2011). The two sets of models are as follows:

- 1) The first model is a general regression model without any restrictions imposed.
- 2) SES restriction: The second model consists of two regression models restricted to different SES quintiles. The first specific is restricted to the top SES quintile, while the second specification is restricted to the bottom four quintiles.

I used the learner weight (pweight) and the primary sampling units (PSUs) being the classrooms. The use of classrooms as the PSUs enabled the taking into account of sample stratification and the clustering of standard errors. The unit of analysis

throughout the study is learners. Using learners as the unit of analysis allows for an analysis that is representative of the population. When analysing the instructional leadership variables on learner achievement the aim is to examine how learners' performance varies in response to presence or absence of these variables at schools.

In the next section I present a combination of results for both the qualitative and quantitative parts of the study.

### *Results and discussion*

As Spaul (2011) pointed out, the isolation of the impact of different variables during quantitative analysis has its own complications. The complications arise because of interdependence of variables and the subsequent difficulty in disentangling the multi-directional causation between them. For instance, in an instructional leadership study, a significant teacher qualification variable "completed first degree or honours" might be interpreted as that the variable was the cause of the positive impact on learner achievement. If that is the case, the large coefficient might be more attributable to higher teacher qualification or school leadership, i.e. highly qualified teachers are attracted to teach in well-managed and well-led schools).

To determine the association of instructional leadership variables on learner performance, I regressed multiple groups of control variables on learner mathematics and science scores. Table 5 reports the results of two ordinary least squares (OLS) regression models that predict mathematics and science achievement in Grade 9. Both models are for the full sample of learners without restrictions. As in Taylor (2011:75), the way to interpret each coefficient depends on whether the considered explanatory variable is a continuous variable or a binary (or 'dummy') variable. For instance, learner SES is a continuous variable with a standard deviation of one. In the Science, full-sample model reported in Table 5 the coefficient on 'Learner SES' is 1.755. This means after controlling for all the other explanatory variables in the model, a one standard deviation increase in Learner SES is associated with an improvement of 1.8 percentage points in Grade 9 Science achievement. The 'Female teacher' variable, on the other hand, is a binary dummy variable taking a value of either one (the learners are taught by a female teacher) or

zero (the learners are taught by a male teacher). In Table 5 in the Mathematics full-sample model, the coefficient of 5.208 indicates that being taught by female teachers can be associated with Grade 9 mathematics achievement that is 5.2 percentage points more than that for learners taught by male teachers.

**Table 5: Whole sample of school leadership without restrictions**

Dependent variable: Mathematics test score	Coefficients (cluster robust standard errors)			
	<i>Model 1</i>			
	<i>No restrictions</i>			
	<i>Mathematics scores</i>		<i>Science scores</i>	
<b>Teacher level variables</b>				
Female teacher	5.208	(4.023)	8.692*	(5.088)
Teacher qualifications				
Completed Grade 12	23.70	(14.41)	40.37**	(19.72)
Completed Post-matric certificate	18.00	(12.18)	28.26*	(16.31)
Completed a diploma	25.39**	(11.46)	33.58**	(15.62)
Completed first degree or honours	51.54***	(18.87)	62.05**	(24.23)
Teacher age				
25 to 29 years	14.32*	(7.971)	17.43	(12.18)
30 to 39 years	8.799	(8.975)	7.030	(12.88)
40 to 49 years	-4.411	(8.127)	-5.179	(12.38)
50 to 59 years	-2.110	(7.979)	-3.019	(12.07)
60 or more years	22.62	(19.09)	16.85	(19.25)
Academic success index	0.890	(1.818)	3.045	(2.181)
<b>School level variables</b>				
Principal qualifications				
Bachelor's or equivalent	14.05**	(6.090)	20.60**	(9.588)
Master's or equivalent	19.57**	(8.044)	20.50*	(10.53)
Doctor's or equivalent	-10.79	(12.27)	-12.49	(15.43)
Principal years of experience				
Experience altogether	-4.555	(3.009)	-3.754	(3.231)
Experience at this school	3.958	(3.338)	3.145	(3.553)
Academic success index	3.115	(2.525)	3.008	(3.058)
School discipline index	7.331***	(2.192)	5.694**	(2.695)
Learners SES	-0.692	(1.043)	1.755	(1.314)
Learner SES squared	-1.317**	(0.640)	-1.267	(0.846)
School SES	67.82***	(4.976)	83.00***	(5.824)
School SES squared	39.51***	(4.254)	46.02***	(4.605)
Constant	300.6***	(13.76)	266.2***	(19.24)
Observations	10,814		10,814	
Classrooms (clusters)	283		283	
Number of schools	255		255	
R-squared	0.540		0.544	

Other controls: presented in summary statistic table  
Standard errors in brackets

It is surprising that the learner socio-economic status was not significantly associated with both mathematics and science achievement in TIMSS 2015. The learner SES coefficient for mathematics (in all models) was negative, meaning that one standard deviation increase in learner SES was associated with a decline in mathematics achievement. For Science, the learner SES coefficient was negative for both the full model and the lower quintiles, but was positive for learners in quintile 5. However, the school socio-economic status (and the square thereof) contributed a substantial impact towards learner achievement for both mathematics and science in all the models.

Out of the three instructional leadership indices only the school discipline index was statistically significantly associated with both mathematics and science achievement in all models. Learners in schools in which school discipline was enforced achieved significantly higher in both mathematics and science scores in all the models, except for science in quintile 5 schools where the association was positive but not significant. The behaviour of school discipline index coefficients seems to be in line with O'Donnell and White's (2005) assertion that the creation of a positive climate by principal was the most important predictor of learner achievement. Also, learners in schools in which academic success was emphasised as reported by both school principals and teachers, achievement was higher in both subjects for all the models but insignificant.



**Table 6: School leadership variables by SES quintiles – Mathematics scores**

Dependent variable: Mathematics test score	Coefficients (cluster robust standard errors)			
	Model 1			
	No restrictions			
	Quintile 5		Quintile 1-4	
<b>Teacher level variables</b>				
Female teacher	9.576	(6.245)	4.250	(3.907)
Teacher qualifications				
Completed Grade 12	27.94	(17.33)	24.79	(15.96)
Completed Post-matric certificate	11.84	(13.32)	20.09	(13.84)
Completed a diploma	16.67	(12.07)	(27.64**)	(13.15)
Completed first degree or honours	48.92***	(17.86)	52.72**	(20.64)
Teacher age				
25 to 29 years	20.34*	(12.16)	11.39	(8.330)
30 to 39 years	15.50	(13.62)	6.641	(8.904)
40 to 49 years	-4.002	(12.12)	-4.209	(8.498)
50 to 59 years	-15.70	(11.68)	2.016	(8.521)
60 or more years	14.68	(14.59)	37.95	(31.55)
Academic success index	3.396	(3.054)	0.133	(1.874)
<b>School level variables</b>				
Principal qualifications				
Bachelor's or equivalent	11.93	(9.135)	14.72*	(6.538)
Master's or equivalent	17.94	(11.28)	22.60***	(8.191)
Doctor's or equivalent	-12.30	(11.42)	-16.41	(16.19)
Principal years of experience				
Experience altogether	-8.108*	(4.655)	-3.746	(3.137)
Experience at this school	15.72**	(6.533)	2.265	(3.335)
Academic success index	5.012	(4.407)	2.045	(2.331)
School discipline index	8.124**	(3.574)	7.361***	(2.196)
Learner SES	-69.55	(54.38)	-3.627**	(1.526)
Learner SES squared	33.26	(25.40)	-2.638***	(0.796)
School SES	71.38***	(7.243)	65.56***	(5.901)
School SES squared	35.05***	(9.634)	38.05***	(4.629)
Constant	319.0***	(31.19)	298***	(15.07)
Observations	2,136		8,678	
Classrooms (clusters)	258		281	
Number of schools	231		253	
R-squared	0.639		0.398	

Other controls: presented in summary statistic table

In both the mathematics and science models a significantly positive effect was obtained for learner achievement in which teachers had completed first degree or honours. Similarly, for the case in which teachers had completed a diploma learner achievement was significantly higher. This means that principals that hire highly qualified teachers contribute to a substantial impact in learners' academic achievement.

For the full sample and lower-quintiles in both mathematics and science models, a significant positive effect was obtained for learner achievement for schools at which principals had attained bachelor' and masters' qualifications. Higher principal qualification might be correlated with instructional leadership in well-directed and well-managed schools with clearly defined curricular goals and mission.

**Table 7: School leadership variables by SES quintiles – Science scores**

Dependent variable: Mathematics test score	Coefficients (cluster robust standard errors)			
	Model 1			
	No restrictions			
	Quintile 5		Quintile 1-4	
<b>Teacher level variables</b>				
Female teacher	11.72	(7.446)	7.519	(5.067)
Teacher qualifications				
Completed Grade 12	40.46	(28.79)	42.69**	(20.49)
Completed Post-matric certificate	27.48	(17.84)	30.28*	(17.86)
Completed a diploma	30.57*	(16.62)	36.04**	(17.14)
Completed first degree or honours	66.13**	(24.90)	(63.85**	(26.18)
Teacher age				
25 to 29 years	21.37*	(12.82)	14.89	(12.86)
30 to 39 years	10.10	(14.86)	5.249	13.24)
40 to 49 years	-5.748	(12.70)	-4.870	(13.20)
50 to 59 years	-16.11	(12.17)	1.057	(13.10)
60 or more years	12.55	(14.21)	28.04	(30.11)
Academic success index	5.999	(3.697)	2.619	(2.264)
<b>School level variables</b>				
Principal qualifications				
Bachelor's or equivalent	4.643	(11.18)	25.65**	(10.34)
Master's or equivalent	12.13	(12.96)	24.86**	(11.64)
Doctor's or equivalent	-24.84*	(14.71)	-13.30	(19.29)
Principal years of experience				
Experience altogether	-9.101*	(5.290)	-2.353	(3.438)
Experience at this school	16.50**	(7.010)	1.004	(3.619)
Academic success index	5.577	(4.736)	2.457	(2.926)
School discipline index	6.703	(4.063)	5.723**	(2.771)
Learner SES	-26.27	(78.94)	-2.121	(1.851)
Learner SES squared	10.96	(37.17)	-2.875***	(1.071)
School SES	89.74***	(9.314)	81.96***	(6.698)
School SES squared	35.21***	(11.01)	46.22***	(5.116)
Constant	305.9***	(44.14)	256.8***	20.80
		2,136		8,678
Observations		258		281
Classrooms (clusters)		231		253
Number of schools		0.622		0.405
R-squared				

Other controls: presented in summary statistic table

Learners in schools in which the principal's experience in the current school was longer obtained higher mathematics and science scores in all the models. The achievement was, however, significant only the model restricted for higher quintile. Principals in quintile 5 schools tend to stay longer in the same schools, and

consequently there is more stability in these schools which is reflected in the schools' more conducive culture of teaching and learning.

## **6. Conclusion**

This paper provided a qualitative account of instructional leadership in South African schools, as well as a quantitative analysis on the association between instructional leadership and learner achievement using the TIMSS 2015 dataset. I interviewed primary school principals and foundation-phase teachers on their perceptions and practices of instructional leadership in their schools. In the qualitative part of the study, I presented the main themes identified during these interviews. In the quantitative part I conducted descriptive and associational analysis on the impact of instructional leadership variables on learner achievement in South Africa.

Findings from the interviews highlighted disparities in some of the instructional leadership practices based on the socio-economic status of the schools. For instance, most of the former model C schools provided teacher replacements when teachers were on leave, while schools in the townships and rural areas did not have the same provision. When schools do not provide teacher replacements or ensure that teachers with free periods stand in for absent teachers, the teaching and learning programme of the school is compromised. This points to weak instructional leadership on the part of school management. Most of the schools interviewed mentioned the disrupting effect of union activity on the culture of teaching and learning in their schools. The perception was predominantly expressed in township and rural schools, with some principals expressing a sense of powerlessness regarding the issue.

Even on monitoring of curriculum implementation there appeared to be elements of weak instructional leadership. Curriculum monitoring was conducted largely for compliance purposes without regard to quality control. Some school principals were not directly involved in supervision of curriculum implementation. They left this function solely on their heads of departments. Regarding teacher vacancies, most schools in historically disadvantaged schools only relied on the department for employing teachers. Unlike the former Model C schools, they did not use the SGB funds to fill in vacancies while waiting for permanent appointments by the department.

The results of the multivariate analysis from the TIMSS 2015 dataset showed that socio-economic status remains the most important determinant of learner achievement in South Africa. The models presented indicated that the mean socio-economic status within the school attended by a learner was more important for learning than the learner's home background. This can mean that learner socio-economic status plays a screening role where it determines the quality of school where learners attend. After the learners have been selected into schools, the role of learner socio-economic status becomes overshadowed by the school's socio-economic status. The school now becomes the main predictor of learner achievement.

The instructional leadership variables were also important determinants of learner achievement. Although some of the variables such as academic success were not significant, other variables such as school discipline were significant predictors of learner achievement. It is also important to point out that the effects of instructional leadership on learner achievement were expressed in other related variables. For instance, the higher level of qualification that the principal had was an important correlate of learner achievement. It is expected that principals with higher qualifications possess high instructional leadership skills, and this should translate into higher learner achievement. Also, higher teacher qualifications (with first degree or honours) were strong predictors of learner achievement. This could be interpreted as that highly qualified teachers have a greater understanding of and ability to implement the curricular goals and mission of the schools. Teachers' understanding and implementation of curricular goals is one of the important components of instructional leadership.

An effective path for policy would be to explore ways to hire, empower and support principals and heads of departments (HODs) and to create a culture of accountability in order to improve instructional leadership and teaching in schools.

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