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# Factors influencing organisational effectiveness of poor and wealthy primary schools in South Africa

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# Factors influencing organisational effectiveness of poor and wealthy primary schools in South Africa

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**A research report submitted to the Faculty of Commerce, Law and Management, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Business Administration**

**Johannesburg, 2015**

# ABSTRACT

This study was aimed at better understanding what factors are associated with organisational effectiveness in “poor” and “wealthy” primary schools within South Africa using the PIRLS 2011 dataset. A measure of socio-economic status was created using household possessions and this was used to create the “poor” and wealthy” subsets of data. In this study literacy was used as a proxy for organisational effectiveness. Correlations between school level factors and organisational effectiveness are provided and a stepwise regression was run for student level variables for both the “poor” and “wealthy” subsets. This study illustrated that organisational effectiveness varied across socio-economic lines, with “wealthy” schools achieving a higher degree of organisational effectiveness in comparison to “poor” schools. Factors that were found to be significant for the “poor” school subset included general resource shortages, a school’s involvement with parents, a student’s confidence in reading as well as bullying in school. For the “wealthy” subset, factors that were found to be significant include teacher satisfaction, a student’s confidence in reading, bullying in school and the parent’s attitude toward reading. At a school management level, it is recommended that improvements in resource management, teacher autonomy and a school’s involvement with parents could be used to improve the organisational effectiveness of a school. Furthermore it is recommended that school programmes aimed at reducing the prevalence of bullying employ strategies that involve parents as well.

# DECLARATION

I, Denira Varma, declare that this research report is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

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Denira Varma

Signed at Parktown

On the 12th day of June 2015

# DEDICATION

I would like to dedicate this research to the woman who gave me life and to the man I have chosen to spend it with; my mother, Shamim Varma and my husband, Mogisen Iyer.

Every day I am humbled by your strength, selflessness and capacity for love. Your belief in me has shown me that nothing is impossible.

# ACKNOWLEDGEMENTS

The following people or groups of people were of significant assistance to this research work

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- The International Association for the Evaluation of Educational Achievement (IEA) as well as the Centre for Evaluation and Assessment at the University of Pretoria for conducting the PIRLS assessment in South Africa and for making the data freely available for secondary research

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# CHAPTER 1. INTRODUCTION

This chapter presents the purpose of this research, a brief insight into the context of the study before the problem statements are presented. This is followed by highlighting the significance of the study and an indication of the delimitations. This chapter closes with a description of the definitions that are relevant to this research.

## 1.1 Purpose of the study

The purpose of this research is to gain a better understanding of what factors are associated with the organisational effectiveness of poor and wealthy South African primary schools using the Progress in Reading Literacy Study (PIRLS) 2011 data.

## 1.2 Context of the study

South Africa, a land rich in diversity and heritage, abundant with natural resources is both a land of opportunity and turmoil; great strides have been made throughout the past 20 democratic years, however South Africa is encumbered with persistent inequality, unemployment and poverty. Perhaps what is even more alarming is the staggering youth unemployment figures. According to Statistics South Africa (2014b), approximately half of the working age population are classified as youth and the unemployment rate within this subgroup is around 40 to 45 percent, close to double the South African unemployment rate. The Organisation for Economic Co-operation and Development (2013) cites education as a key driver to ameliorate these critical issues, however, the question of how effective South African schools are have come into question. While South Africa has seen nearly universal enrolment rates for primary school children (Department of Basic Education, 2011), an essential step towards equal access to education, it is simply not sufficient (The Organisation for Economic Co-operation and Development, 2013).

Understanding and improving organisational effectiveness has long dominated management literature; however exploring organisational effectiveness of certain social and non-profit institutions such as education have not been as prolific. As illustrated by Mihanović, Pavičić, and Alfirević (2014), this could be due to the difficulty in measuring the effectiveness of institutions like education, which requires a complex metric. The usual measure of effectiveness lies in some measurement of the output created through the education process, such as test scores. Tucker (2010) cautions however, that it is rare that a single metric would be sufficient to completely capture organisational effectiveness in an educational institution.

There is an axiomatic need to better understand what makes South African schools work and in the case of this study literacy achievement, as measured by standardised test scores, is used as a proxy for organisational effectiveness. Literacy is a key skill and has been recognised by many authors as imperative for development (Donaldson, 1992; Lee, Zuze, & Ross, 2005; UNESCO, 2006) yet the majority of South African learners are still grappling with achieving even basic literacy (Howie, Staden, Tshele, Dowse, & Zimmerman, 2012; Mullis, Martin, Foy, & Drucker, 2012).

The Department of Basic Education (2011) acknowledges that improving the quality of education is a priority for South Africa as both national and international studies have illustrated that the majority of South African learners have failed to master both literacy and mathematics skills appropriate for their grade. The 2009 Annual National Assessment (ANA) (Department of Basic Education, 2011) indicated that grade six learners were achieving a result of, on average, 31 percent for language with a 20 percent pass rate, a clear indication that the South African schooling system is falling short.

There are, unfortunately, various reasons why some researchers (Fleisch, 2008; Southern and Eastern Africa Consortium for Monitoring Educational Quality, 2011; Spaull, 2013; van der Berg, 2007) believe the South African schooling system is more complex than in other parts of the world with one key factor being the vast discrepancies of achievement within the country, illustrating the severity of inequality in educational outcomes. As noted by

Fleisch (2008), the issue of poor performance becomes more grim when schools are split down socio-economic lines, highlighting that for the elite few a world class education is available but for the masses, even functional skills are not attained. It has become abundantly clear that the South African education system is failing the masses (Spaull, 2013; van der Berg, 2007).

This report will utilise the PIRLS 2011 study as a base for the data analysed and discussed. PIRLS is an international assessment of fourth grade literacy that is conducted every five years by The International Association for the Evaluation of Educational Achievement (IEA). The first study was conducted in 2001 and in 2011 South Africa had participated twice in the study. According to Mullis, Martin, Kennedy, Trong, and Sainsbury (2009) the benefits of assessing data from this robust international study includes the fact that the study not only measures literacy achievement (as opposed to attainment), but more so that the study measures behaviours and attitudes towards reading, which is something very few studies have done, thereby providing a holistic approach to understanding the education system.

Heyneman (1984) alluded to the fact that the learnings from the developed world is not always transferable to a developing world. If the education system is better understood, with measures suited for a South African context, the better equipped South Africa would be not only to understand and improve it's education system, but more importantly to better the lives of it's people. As reflected by Lee et al. (2005) a country's educational status is representative of the resources required for both economic and social growth and studies affecting policies are especially useful to countries that are developing social infrastructure. It then becomes clear that more research and a better understanding of how to improve the quality and policies related to the education system within a South African context is pertinent.

## 1.3 Problem statement

### 1.3.1 *Main problem*

The research problem is to identify what school, student and parental factors, are associated with organisational effectiveness in poor and wealthy primary schools in South Africa using PIRLS 2011 data.

### 1.3.2 *Sub-problems*

Due to the nature of the data employed for this study, the sub-problems are split at school level and at student and parental level.

The first sub-problem is to identify what school level factors are associated with organisational effectiveness in poor and wealthy primary schools in South Africa

The second sub-problem is to identify what student and parental factors are associated with organisational effectiveness in poor and wealthy primary schools in South Africa.

## 1.4 Significance of the study

There is no denying that most education systems in developing countries are playing “catch up” to their more developed counterparts and as Hanushek and Woessmann (2007) rightfully note, it makes sense that many developing countries have focused attention on raising the level of education of their people, a strategy well aligned to the Education for All (EFA) and the Millennium Development Goals (MDG). Some authors describe education as “an institution of transformation” (Taylor & Yu, 2009, p. 3) and highlight the element of equalisation that education may bring, allowing those who were previously disadvantaged the opportunity to stand on equal footing with their more fortunate counterparts. In this vein, various studies (Benos & Zotou, 2014; Chowa, Masa, Wretman, & Ansong, 2013; Hanushek & Woessmann, 2007) have shown that school success is often linked to success as adults; as students who do better as school tend to get better tertiary education and often

into better paying jobs. As illustrated by Hanushek and Woessmann (2007), in developing countries where there are opportunities for economic growth, a fundamental shift in educational systems is paramount to economic success, a sentiment that is echoed by the The Organisation for Economic Co-operation and Development (2013) in addressing some of South Africa's key issues.

This study will provide guidance towards understanding what factors influence organisational effectiveness once schools and students are spilt down socio-economic lines. Looking at literacy as the proxy for organisational effectiveness, it is easy to argue that literacy enables participation in society and that it is a fundamental component to enriching the capability of people to live a life they chose to value, a concept illustrated by Sen (1999). Beyond this element, as indicated by Heyneman (1984), the factors that contribute to success in the developed world may not necessarily hold true to developing countries and this research is aimed at adding to the body of knowledge within a developing world context.

As previously mentioned the question of unequal distribution of achievement has come into play in South African literature and with very few studies exploring this gap, this study aims to shed greater light on what factors impact organisational effectiveness and if these factors differ once controlled for socio-economic status.

## 1.5 Delimitations of the study

- The study uses literacy as a proxy for organisational effectiveness
- The study includes information for grade five students being taught in English or Afrikaans
- The study includes cross sectional research
- The study does not measure parental income as an indication of socio-economic status
- The study does not attempt to provide generalisations of the entire student population, but rather to establish factors that influence achievement with a subsector

## 1.6 Definition of terms

### 1.6.1 *Literacy*

According to Campbell et al. (2003) literacy is defined as “the ability to understand and use those written language forms required by society and/or valued by the individual. Young readers can construct meaning from a variety of texts. They read to learn, to participate in communities of readers, and for enjoyment” (Campbell et al., 2003, p. 18). As this is the definition adopted for the PIRLS studies, this paper adopts the same definition. A further exploration of the definition of literacy is presented in the following chapter

### 1.6.2 *Socio-Economic Status (SES):*

Many SES variables are constructed from some measure of wealth and parental education, however it is often difficult to obtain income data from children, so a measure of household contents is often employed (Spaull, 2013). In this study the proxy measure for SES (classified as “wealthy” or “poor”), was derived from the students description of household contents. The calculation and explanation of this measure is presented in Chapter 4.

# CHAPTER 2. LITERATURE REVIEW

## 2.1 Introduction

This chapter provides a review of the literature related to this exploratory study into organisational effectiveness in primary schools using the PIRLS 2011 dataset. A brief introduction is provided to set the scene regarding education within South Africa and to highlight some of the lingering challenges caused by the apartheid before a description of literacy as a measure of organisational effectiveness is provided. Following this, an overview of factors influencing organisational effectiveness is presented. The introduction closes with information regarding the PIRLS 2011 study.

Even though two sub problems have been presented in the previous chapter, the literature is the same for both sub problems and as such this chapter will present the literature as though dealing with one sub problem.

## 2.2 The education crisis

### 2.2.1 *Legacy of the apartheid*

"We, the people of South Africa, recognise the injustices of our past; honour those who suffered for justice and freedom in our land; respect those who have worked to build and develop our country; and believe that South Africa belongs to all who live in it, united in our diversity."(*Constitution of the Republic of South Africa*, 1996)

According to many authors (Fleisch, 2008; Lee et al., 2005; Spaull, 2013; van der Berg, 2007) South Africa now faces the harsh reality that it's education system is failing the vast majority that it is meant to serve and that the education system appears to be highly dysfunctional. In order to better understand how South Africa has gotten to this point one must look at South Africa's history, and understand that even today, over 20 years into South Africa's democracy, South African's are still healing from the injustices and inequalities of the past.

It has been noted by researchers (Collins & Gillespie, 1993; Fleisch, 2008; Lee et al., 2005; Spaull, 2013; van der Berg, 2008) that the legacy of the Apartheid system has left the South African educational landscape off-balance with the historically disadvantaged schools producing poor outcomes, while the historically advantaged schools continuing to churn out better student outcomes. As noted by Collins and Gillespie (1993) the apartheid regime separated departments of education, with different departments receiving varying quality of resources and a different curriculum based on the perceived role that specific race group had within society. This systematic process of race based discrimination created a fertile ground for discontent and as Spaull (2013) notes that schools were often seen as institutions of oppression as opposed to those of education and learning. As noted in the 1994 ANC Policy framework for education and training, in the areas most affected "apartheid education and its aftermath of resistance has destroyed the culture of learning" (ANC, 1994, p. 1) leading to a complete breakdown of trust between students, teachers and education authorities. Adding to the argument of vast inequities, Collins and Gillespie (1993) further state that while education for white students surpassed first world measures, the rest and the majority of the South African population experienced an education system that typifies many third world countries.

On the 4th of December 1996, in a constitution and a bill of rights that is considered progressive worldwide, South Africa declared that education is a basic human right (*Constitution of the Republic of South Africa*, 1996). Looking forward into a democratic South Africa, it is admittedly not all bad news, great leaps have been made in terms of access to education, with South Africa having nearly universal enrolment rates (Department of Basic Education, 2013). The 1996 Schools Act (Republic of South Africa (RSA), 1996) which has made schooling mandatory from ages 7 to 15 (or grade seven) has ensured that the amount of children out of school has decreased radically. However, even though South Africa has made great strides towards access to education, the quality and effectiveness of the education system has come under severe criticism. In the second official report in the post-apartheid South Africa on primary school achievement, The Department of Education (2005) indicated

that over two thirds of grade six learners were performing a level lower than expected of their grade, a shockingly disturbing statistic that points to the ineffectiveness of the schooling system. As noted by Heyneman (1984) and Lee et al. (2005) improving access to education often comes at the cost of reduced education quality, specifically for developing countries. Access to education, while a fundamental first step to progress, is necessary but not sufficient. There have also been considerable fiscal shifts to previously disadvantaged schools aimed at improving basic infrastructure and school resources and The Organisation for Economic Co-operation and Development (2013) has highlighted that South Africa's spending on education as a percentage of GDP is, if not comparable, then favourable in comparison to other developing countries like Brazil or Mexico.

It seems clear that the twenty years that have passed since South Africa's inception of democracy have brought with it significant changes, but that there still remains a racial and social divide in terms of academic achievement and school effectiveness. As noted by van der Berg (2007), the South African education system is one that does not serve the majority of it's students, with varied academic success across racial lines and a significantly large number of White students outperforming Black students. van der Berg (2007) further states that in 2003, approximately one in one thousand black students received an A aggregate in public schools, a shockingly low number compared to White and Indian students. Furthermore, almost half of these Black students attended schools where racially, they were the minority, indicating that this could possibly have been previously classified as White or Indian schools. From these findings, it becomes clear that Black students are clearly not performing at a level consistent with their White counterparts and that in the few cases that Black students are performing well, it is at schools that would have most likely been classified as White or Indian schools. The dichotomy of achievement is a topic that has gathered interest in recent years with authors such as van der Berg (2007), Fleisch (2008) and Spaull (2013) contributing significantly to the line of thought that South Africa has not one, but two distinctly different schooling systems. This topic is explored further in the next section of this chapter.

### 2.2.2 *Bimodal distribution of achievement*

Beyond the racial disparities in school effectiveness and achievement that some researchers have illustrated, the fact that South Africa displays such extreme variation in achievement scores is an important characteristic of the education system. For example, results from Southern and Eastern Africa Consortium for Monitoring Educational Quality (2011) illustrated that of all the countries that participated in the study, South Africa's results showed the greatest distribution or spread, indicating that not only did South African's score poorly but that the results were very widespread. What this indicates is that an average of achievement scores is more than likely not a true representation of the calibre of students or of the effectiveness of the schools that they attend. Fleisch (2008) further illustrates this point and explains that while the statistics that describe average achievement for South Africa appears bleak, the situation is far more severe when considering the inequality of achievement as there may be a few students with very high scores that push up the average. In the work done by van der Berg (2007) the notion of bimodal achievement in dealing with matric pass rates was made clear, again highlighting that the inadequacy of the average measure. Spaull (2013) echoed this sentiment in a study that illustrated that once schools were split along socio-economic lines, achievement scores are clearly bimodal, eluding to the possibility of two separate school systems one functional and the other in complete contradiction. It is interesting to note that while some researchers have split students down socio-economic lines (Fleisch, 2008; Spaull, 2013) and others by race (van der Berg, 2007), the result remains the same, that of a small, functional system with students scoring close to international standards, and the other larger, dysfunctional system with abysmal achievement scores. As noted by Taylor and Yu (2009) the complexities of South Africa's past make it difficult, and as the authors would argue, ill advised, to separate race from class or socio-economic status.

In 1994 the ANC wrote in their policy framework for education and training that the education system is one that is dynamic and beyond all else, a human and social institution; role players within this institution could not be fed certain inputs produce a predictable output (ANC, 1994). The education production

function, which has been used fairly widely in education literature, is defined by Taylor and Yu (2009) as the identification of inputs that have a significant impact on educational outcomes (such as test scores). However, Spaull (2013) highlights that in the South African case, the transformation of inputs into outputs is not that straight forward. Hanushek (2003) has also critiqued the input based model, stating that in many developed countries, little evidence has been provided for a resultant increase in outcomes due to an increase in inputs, he does however concede that in developing countries, the input/outcome relationship is less clear. What is clear in the South African case with the two distinct schooling systems (Fleisch, 2008; Spaull, 2013; van der Berg, 2007) is that if the production function is employed, the inputs provided may very well produce varying outcomes in the two different school systems, highlighting the potential flaws in treating the education system as one homogenous whole.

Leading on from the previous point, Fleisch (2008), along with others, has criticised the use of an average score to indicate achievement as the distribution of education outcomes appears to be bimodal as opposed to being normally distributed. In most reports of South African primary school achievement, an average score is presented which, as argued by the authors highlighted above, may lead to spurious results. In the paper presented by van der Berg et al. (2011) the dangers of representing two schooling systems as one are explained further by illustrating that inputs such as teacher practices or resources may affect one subset differently to another. Additional resources in a school system that is well functioning may produce very different results as compared to a malfunctioning school system. van der Berg et al. (2011) also raises the point that estimating one model for the two school systems may in fact suggest invalid relationships. In the 2011 Trends in International Mathematics and Science Study (TIMMS), out of 14 countries, South Africa was ranked eighth based on average reading achievement (Human Sciences Research Council, 2011) however, when the same sample was spilt by wealth quartiles van der Berg et al. (2011) showed that the poorest 20 percent students, on average, would rank fourteenth instead. This study does not delve into why bimodality exists; it simply accepts the possibility of dual schooling systems in South Africa.

### 2.2.3 *Drawing comparisons internationally*

Thirty years ago Heyneman (1984) wrote of the clichéd term “education world crisis” with an emphasis on developing countries and while many developing countries have made significant progress in terms of education access, the quality of basic education within South Africa appears to fall short even in comparison to poorer countries (Human Sciences Research Council, 2011).

When South Africa’s achievement scores are compared internationally, an even more grim picture of academic achievement is painted, even when South Africa is compared to poorer African countries (Lee et al., 2005; Southern and Eastern Africa Consortium for Monitoring Educational Quality, 2011; The Organisation for Economic Co-operation and Development, 2013). If educational quality and school effectiveness can be measured by standardised test scores, then various studies have shown that South African learners gain fewer skills, per year of schooling, even when compared to poorer countries (Human Sciences Research Council, 2011; Mullis et al., 2012; Southern and Eastern Africa Consortium for Monitoring Educational Quality, 2011). In the 2011 TIMMS study, South Africa scored in the bottom six countries and of all the countries participating in the study, South Africa demonstrated the widest educational outcomes between the $5^{th}$ and $95^{th}$ percentile (Human Sciences Research Council, 2011). As noted by Mullis et al. (2012), South Africa performed just as poorly in the PIRLS study. The Southern and Eastern Africa Consortium for Monitoring Educational Quality (2011) study also illustrated a similar trend of dismal academic achievement for South Africa.

## 2.3 Organisational effectiveness in context

With the South African school system churning out more matric (grade 12) passes each year, the question of whether this increased throughput actually translates into increased learning is an important one. As shown by Statistics South Africa (2014a), attainment of a grade 12 certificate had increased from 21.9 percent in 2002 to 27.7% in 2013, however the question of whether this is a true reflection of organisational effectiveness of the education system

remains. This study takes the approach, that the matric pass rate is in fact not a clear indication of the effectiveness of the schooling system within South Africa, a view that is supported by van der Berg (2007) who argues the point that measuring educational attainment as opposed to educational achievement (or quality) may be a misleading indication of progress. In looking at educational attainment as a measure of effectiveness, van der Berg (2007) states that grade progression appears to be relatively easy hence the use of this measure may overstate the actual levels of school effectiveness. In the work done by Hanushek and Woessmann (2007), it was shown that educational quality was actually a far better predictor of factors such as income distribution, economic growth as well as individual earning potential. It is for this reason that a measure of educational quality (test scores depicting literacy levels) is employed as a measure of organisational effectiveness.

### 2.3.1 *Defining literacy*

Before the interconnected system that typifies the education system is presented in the next section, a brief description of literacy is provided, illustrating why this definition was adopted for this study. The concept of literacy or what it means to be literate may seem fairly straightforward; however, various countries or organisations define literacy differently so establishing a common frame of reference is important in the context of this study. As indicated in the UNESCO (2006) report, a country's concept of literacy is dependent on a number of factors ranging from academic research to cultural values. The UNESCO (2006) report further states that literacy is most commonly understood to be a tangible cognitive skill set of reading and writing and defines literacy as "the ability to read and write, with understanding, a short simple sentence about one's daily life" UNESCO (2006, p. 158).

The Department of Basic Education (2013) has highlighted the challenges and complexity with measuring literacy and states that often a proxy measure is employed to simplify matters. This proxy measure for literacy is educational attainment. Statistics on literacy provided by Statistics South Africa (2014a) uses the proxy of "no formal education" as a measure of illiteracy, while

functional literacy is defined through the completion of primary school (grade seven). The Department of Basic Education (2013) notes that the flaw in this approach lies in the fact that actually literacy may be improved without an increase in actual educational attainment. South Africa faces a situation where schools across the country vary in terms of resources and educational outputs and in accordance to the School's Act there is a mandatory period of schooling for every learner. In this light, considering the "quantity" of education within the country may not serve as a good indicator of gains in human capital. Benos and Zotou (2014) recommend that measures of education quality, such as test scores, are considered to overcome the qualitative differences that exist across schools.

According to Campbell et al. (2003) literacy is defined as "the ability to understand and use those written language forms required by society and/or valued by the individual. Young readers can construct meaning from a variety of texts. They read to learn, to participate in communities of readers, and for enjoyment" (Campbell et al., 2003, p. 18). In comparison to the UNESCO (2006) definition, Campbell et al. (2003) definition encompasses a child's ability to reflect on what he/she has read and then move forward to use that as a tool to achieve certain goals. Furthermore although this definition may serve all ages, it has been tailored to refer to "young readers" and this definition presents literacy as a "constructive and interactive process" (Campbell et al., 2003, p. 11). This study adopts this definition of literacy as this is the definition that is utilised for the PIRLS studies.

## 2.4 Factors influencing organisational effectiveness

The following section provides insight into the factors affecting literacy achievement (hence organisational effectiveness) in primary schools. As illustrated by Heyneman (1984), when considering achievement, and in the case of this study organisational effectiveness, one can consider two different realms of influence, one outside of the schools control and one that is within, with the former including aspects of student gender, socioeconomic status, home environment as well as student and parent attitudes. The following

section begins by highlighting the interconnected stakeholder system within education before school level factors, such as access to resources and teacher satisfaction are discussed. It is significant to understand in this context, what factors influence organisational effectiveness and if these factors are within a school's control or not.

### 2.4.1 *Stakeholders within the education system*

The education system is complex and dynamic, as Hanushek (2003) aptly notes "The educational process is also cumulative, so that both historical and contemporaneous inputs influence current performance" (Hanushek, 2003, p. F74). However the complexity does not only lie in the dynamic nature of the education process, the education system itself also has a wide variety of stakeholders with differing levels of influence and interest. Walberg and Haertel (1984), highlight key role players within this complex system as the government, the community, the school as well as students and parents. As noted by Avvisati, Gurgand, Guyon, and Maurin (2014), involvement with parents and parents attitudes can contribute to the educational outcomes produced by a school. In terms of the role of the community, Walberg and Haertel (1984) further state that the community plays an important role in establishing values and beliefs and is an important contributor to learning, even if only in an indirect manner. This sentiment is echoed by Leibbrandt and Zuze (2011) as well as Howie et al. (2012), who highlight the fact that literacy and learning simply do not exist in a vacuum or begin at school; there are instead a variety of external factors that shape a child's ability to learn. Fundamentally, this implies that, using the measure of literacy to understand school effectiveness, one must consider the influence of these external factors as well. As noted by Sliwka and Istance (2006), parents are now considered important stakeholders in the education process, not merely just recipients of learning. Furthermore, in a study conducted by Avvisati et al. (2014) it was shown that schools could positively influence involvement with parents and that once parents were sufficiently involved, this resulted in students having a more positive attitude towards learning. This indicates that schools may have the capacity through management initiatives to increase parental involvement and perhaps promote

positive behaviours in their students. Caution must be exercised in this realm of influence as there is potential for a circular relationship between socio-economic status and parental involvement, as Marschall (2006) and Patacchini and Zenou (2011) have highlighted that parents of higher socio-economic status are usually more involved with their children's school. Additionally, while a positive impact on behaviour may occur from increased parental involvement, behaviour change is not always easy to translate into improved outcomes at a school. As Avvisati et al. (2014) has shown, there is very little evidence to illustrate a relationship between a student's attitude and a school outcome. However, as noted by Marschall (2006), there is strong evidence to suggest that improving school management practices aimed at enhancing parental involvement may be beneficial to students, teachers and parents alike and that a conducive learning environment may lead to improved organisational effectiveness, irrespective of race or class.

Figure 1 taken from Mullis et al. (2009) illustrates the relationship between various factors that influence achievement and hence school effectiveness. The PIRLS instrument is based on this framework and the instrument consists of two distinct elements, the reading achievement assessment which will be used to establish organisational effectiveness and the background assessments which will be used to factor in the external factors that may influence a school's effectiveness. As can be seen from the figure below a student's behaviour and attitude, which may be influenced by various factors, may also influence reading achievement. In the same vein a student's performance may also influence reading behaviours and attitudes. In the case of this study, three key factors are related to organisational effectiveness, the parent's attitude towards reading, the school's involvement with parents as well as the student's attitude towards reading. As reported by Mullis et al. (2012) and Howie et al. (2012) a strong positive relationship between home environment and reading achievement was present in both an international and South African context. Positive parent behaviours and attitudes towards reading positively impacted learner achievement, as did learner confidence and motivation(Howie et al., 2012). As illustrated by Mullis et al. (2012) and Friedlander (2013), it is expected that students whose parents offer a supportive home environment and have

favourable literacy practices, will in fact achieve better outcomes and hence enhance the measure of organisational effectiveness employed in this study.

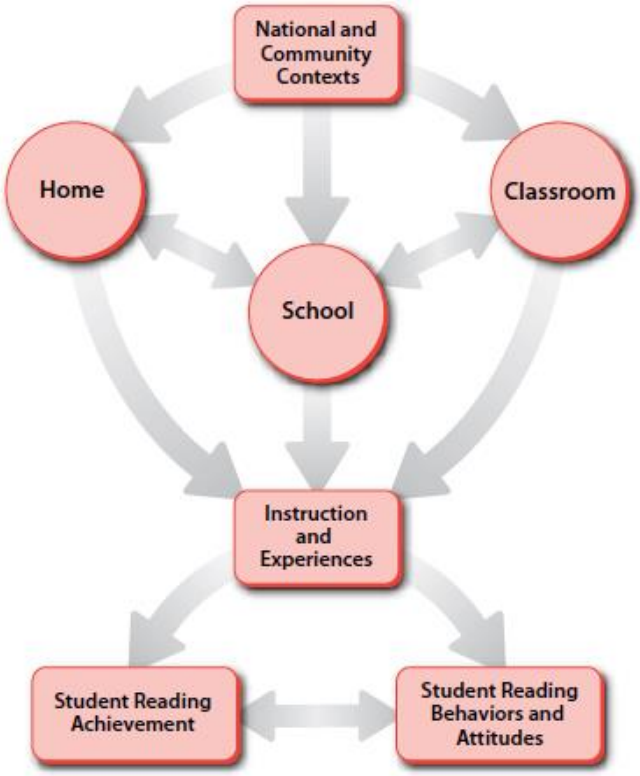



**Figure 1 Factors that influence reading achievement (Mullis et al., 2009, p. 35)**

### 2.4.2 *Resources*

The PIRLS 2011 study (Mullis et al., 2012) showed that the most successful schools tend to have students that are relatively economically affluent, speak the language of instruction, and begin school with early literacy skills. Successful schools also are likely to have better working conditions and facilities as well as more instructional materials, such as books, computers, technological support, and supplies. This finding conforms to the work done by Lee et al. (2005) which used data from the Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ) study and found that better resourced schools (“wealthy” schools) outperformed their counterparts.

In the work done by Heyneman (1984), it was argued that factors internal to school's control such as resources and teacher quality played a greater role in learner achievement in developing countries as opposed to developed countries. Heyneman (1984) also provided a counter to the argument regarding the impact of SES on achievement, regarding internal school factors as being far more potent for developing countries than a measure of SES. Although this approach has been criticised by various authors since (Chowa et al., 2013; Fleisch, 2008; Lee et al., 2005), the role of internal school factors in achievement and school effectiveness should still be considered. As noted by Howie et al. (2012) it is only schools that are well resourced and managed that can offset social conditions or backgrounds of learners. Poorly resourced and managed schools were shown to have a strong negative relationship with achievement and hence shown to be inefficient. Howie et al. (2012) also note that internationally, South Africa has the lowest level of library provisions even when compared to poorer countries.

While the The Organisation for Economic Co-operation and Development (2013) highlights that educational expenditure as a portion of GDP is comparable to other third world countries, if not higher, South Africa is cautioned against believing that this is sufficient as The Organisation for Economic Co-operation and Development (2013) draws attention to the fact that South Africa has a comparatively larger proportion of the population inside of the mandatory school age bracket. The Organisation for Economic Co-operation and Development (2013) recommends that the public resources per student at primary school level, would need to increase by 30 per cent to equal other countries with a lower proportion of 0-14 year olds in the population. However, Donaldson (1992) cautions that an increase in spending does not always translate to an improvement in outcomes. In an American study conducted by Hanushek (2003), it was shown that an increase in resources failed to improve school outcomes, however, in a developing world context basic resources within schools are important to drive educational achievement, but this in itself, is not enough. Hanushek (2003) is supported by similar findings through the work of van der Berg (2007) who illustrated that in a South African context, substantial shifts in resources mean little if certain basic preconditions

are not met. Leibbrandt and Zuze (2011) show through their work, that even within a developing world, a threshold for resources exists and beyond that threshold, an increase in resources yields very little improvement. This finding could illustrate that, while basic resources are necessary, adding resources beyond that point may not serve to increase school effectiveness.

The use of textbooks have been shown to have a positive impact on learning (Human Sciences Research Council, 2011; Southern and Eastern Africa Consortium for Monitoring Educational Quality, 2011) and van der Berg (2007) states that in the case of ill-equipped teachers, textbooks may also play an additional role in helping teachers understand the material better. While the act of providing more textbooks or greater resources may seem to fix the problem in poor performing schools, various authors (Howie et al., 2012; Pretorius & Currin, 2010; van der Berg, 2007) caution against this as a panacea for the challenges that the education system faces. As noted by Pretorius and Currin (2010) literary resources if not used properly will not solve the problem at hand as many teachers in disadvantaged schools see reading as a technical skill and reading for pleasure is uncommon. Pretorius and Currin (2010) further state that in any intervention aimed at improving literacy, an element of increasing teacher capabilities should be included.

In the vein of increasing capabilities, South Africa's unionised education system has prevented competency testing of teachers in standardised tests, as evidenced by Southern and Eastern Africa Consortium for Monitoring Educational Quality (2011) and as such the PIRLS 2011 study did not include a measure of teacher competence either. While it is greatly believed that an increase in teacher capabilities is necessary (Fleisch, 2008; Pretorius & Currin, 2010), the Department of Basic Education (2011) questions how effective teacher education programmes are at assessing the competence of teachers as although there has been a significant increase in the number of qualified teachers from 64 percent in 1994 to 95 percent in 2010, a substantial increase in student outcomes has not manifested as a result.

### 2.4.3 *Teacher satisfaction*

Understanding job satisfaction of the teachers involved in the education system is an important factor, as it would stand to reason that better satisfied teachers produce better learning outcomes and hence are part of more effective schools. According to Runhaar, Konermann, and Sanders (2013), the increasing demands placed on schools to either increase outcomes or to deal with an increasingly diversified environment is a challenge that requires teachers to go above and beyond what is normally required of them. To overcome the challenges and achieve the goals of their schools, teachers need to be motivated, involved and willing to “go the extra mile”.

Locke (1969) defined job satisfaction as a resultant state from having alignment between personal and perceived job related goals. Similarly dissatisfaction occurred when there was a misalignment between these two elements. As illustrated by Skaalvik and Skaalvik (2011) demotivated or dissatisfied teachers are more prone to burnout, absenteeism and attrition, whereas teachers that feel as though their values are echoed by the school in which they work in are motivated and have a sense of “belonging”.

As highlighted by Basak and Ghosh (2011), a positive school environment, in which teachers are motivated and satisfied, leads to better student outcomes. This study also illustrated that teachers whose values indicated a disposition towards accountability for their circumstances were more satisfied than those who did not. This view of autonomy leading to greater satisfaction is not a new one and this finding was illustrated in the work done by Kreis and Brockopp (1986) and various authors since.

In a study conducted by Ryan and Deci (2000) an important distinction between “intrinsic” and extrinsic” motivation was drawn highlighting that “intrinsic” motivation was an important facet in educational outcomes as intrinsically motivated students tended to do better at school. Intrinsic motivation is defined as “the doing of an activity for its inherent satisfactions rather than for some separable consequence” (Ryan & Deci, 2000, p. 56) and this is a factor that this study measures as “student’s confidence towards reading”. A key finding from

the work done by Ryan and Deci (2000) is that teachers and their levels of satisfaction play a fundamental role in establishing the fertile soil for the promotion and growth of intrinsic motivation. As highlighted by Kocabaş (2009), positive behaviours towards learning are often shaped by a teacher's attitude and level of motivation and Moè, Pazzaglia, and Ronconi (2010) raise an interesting point that dissatisfied teachers may in fact pass their frustrations onto students who then may become demotivated as well and hence impair the learning outcomes or effectiveness of the school.

According to the work done by Downey, Hellriegel, Phelps, and Slocum Jr (1974) the relationship between job satisfaction and organisational climate is not that straight forward. The authors argue that while there is a relationship between the two constructs, it may not be that simple to use one construct in place of another. Hence this study does not intend to use job satisfaction as a measure of organisational climate, this study assumes that there is a latent relationship between the two constructs but does not propose that the measure of job satisfaction is in totality, a representation of organisational climate.

### 2.4.4 *School safety and bullying in schools*

Many researchers (Brown & Taylor, 2008; Ponzo, 2013; Strøm, Thoresen, Wentzel-Larsen, & Dyb, 2013) have illustrated that that there is a strong negative relationship with bullying within a school and learning, highlighting that weaker outcomes could be expected in schools were bullying was prevalent as compared to schools where bullying was not an issue. As illustrated by Brown and Taylor (2008) and Mundbjerg Eriksen, Skyt Nielsen, and Simonsen (2014), bullying in schools may have long lasting effects on a student even after he/she has left school. Bullying in school could lead to students feeling unsafe in the school environment and as indicated by Howie et al. (2012) an unsafe school environment can translate into poor school outcomes. In this study it is of particular importance to understand what a school can do to reduce the prevalence of bullying in the school as Mundbjerg Eriksen et al. (2014) indicate that school policies and practices may be able to reduce the prevalence of bullying by up to 20 percent. In the work done by Cross et al. (2012), it was

shown that schools that adopt a holist approach to bullying interventions have greater success in alleviating the problem and it is recommended that these types of programmes include parental involvement.

### 2.4.5 *Impact of socio-economic status on achievement*

The question of the degree to which SES influences achievement and in the case of this study, organisational effectiveness, is debatable; from ‘‘schools bring little influence to bear on a child’s achievement that is independent of his background and general social context’’ (Coleman, McPartland, & York, 1966, p. 325) to other literature stating that the effect of internal school factors, such as teacher quality and school resources, are better able to explain academic achievement in a developing country(Heyneman, 1984).

Fleisch (2008) notes that while poverty itself may not directly cause poor outcomes, poverty actually creates a barrier to a school’s ability to produce outcomes, through the various practices that are associated with poverty. South Africa has seen that poorer children on average produce worse academic outcomes than their richer counterparts and some literature suggests that this is due to the “restricted set of practices” (Fleisch, 2008, p. 54) that poor children learn which inadequately prepare children for school. Fleisch (2008) goes on to explain that culture and socialisation that shape literacy practices in poverty stricken households may create a foundation that disadvantages poorer children from their richer counterparts. In a study done by Glewwe, Maïga, and Zheng (2014) focusing on Sub-Saharan Africa, a strong positive relationship between GDP and school enrolment was indicated, with the explanation that low school enrolment leads to a less productive workforce and hence a lower GDP.

Fleisch (2008) observes that in South African academic literature, there has been a consistent positive correlation between socio-economic status and academic achievement and this link has been confirmed by the PIRLS and PISA studies that found strong positive correlations between parents education or occupation and their children’s achievement (Mullis et al., 2012). Fleisch (2008) does however caution that due to the unreliability of information

regarding family background, South African literature on the whole has not been able to measure the effects satisfactorily. Standard indicators of SES are parent education, home language and the number of books in the home (Fleisch, 2008). The work done by Lee et al. (2005) it is noted that in most studies involving educational outcomes, a factor of family background is included, however the manner in which it is measured is fairly inconsistent across countries.

Lee et al. (2005) also noted that in the case of SES studies that show an impact on achievement, the policy decisions to be made as a result are perhaps more difficult as the policies put in place may actually worsen the situation. Poorer households (lower SES) may not be able to afford to send their children to school, as highlighted by Colclough, Rose, and Tembon (2000), apart from the direct cost of fees, the indirect and opportunity costs may be too significant. Leibbrandt and Zuze (2011) state that households that have greater level of socio-economic status can afford greater resources and can invest more heavily in their children's education thereby advancing their children's achievement. Lee et al. (2005) also found that school location is tied in with socio-economic status and educational outcomes; in the more rural areas schools under perform as compared to the urbanised areas, a result that was replicated in the PIRLS 2011 study (Howie et al., 2012).

Many authors have brought to light the difficulty in measuring SES and the uses of proxies are often employed. Chowa et al. (2013) state that often, due to the unreliability of measures for SES, the proxy of household possessions is used. Chowa et al. (2013) further notes that the proxies considered in measuring SES have evolved from the initial stance of including only a parents education and occupation to now include other measures such as parental involvement, educational resources in the home and family structure.

## 2.5 Background into PIRLS 2011

PIRLS is an international assessment of fourth grade of literacy that is conducted every five years by The IEA. The first study was conducted in 2001 and 2011 marked South Africa's second participation in the study.

Mullis et al. (2012) state that 49 countries and approximately 325 000 students participated in the study, with 45 countries assessing students at grade four level and remainder of the countries testing learners at higher grades. In order to encourage participation in the 2011 study, developing countries were allowed to test learners at grades five or six if the test proved too difficult for grade four learners.

PIRLS 2011 data shows that 51 percent of the students tested were male and that the difference between male and female achievement was statistically significant in favour of girls. The overall global trend with the PIRLS 2011 results is that girls outperform boys in terms of literacy achievement (Mullis et al., 2012).

In the South African context PIRLS 2011 tested grade four learners in the 11 official languages using the newly developed Pre-PIRLS instrument and grade five learners in Afrikaans and English using the PIRLS instrument. As reported by Mullis et al. (2012) The PIRLS 2011 South African study tested 92 schools and assessed 3515 students in grade five. South Africa showed a slight improvement in results from 2006 to 2011, however, these results were not statistically significant.

The IEA has recognised that in certain countries students may not have developed the required reading skills to be successful on the PIRLS test. According to Mullis et al. (2012) these circumstances have been partially alleviated by the introduction of a shorter, easier version of the test called Pre-PIRLS as well allowing developing countries to test learners at higher grades (grades five or six).

Pre-PIRLS was developed as an introduction to the PIRLS assessment and in 2011 nine benchmarking countries including South Africa conducted the assessment. Pre-PIRLS is an easier version of the PIRLS assessment and although South African students scored on average 120 points higher on the assessment as compared to the PIRLS version, these results were still well below the international benchmark (Mullis et al., 2012).

Mullis et al. (2012) describe the PIRLS assessment of reading achievement as focusing on two aspects of reading comprehension, that being reading for literary purposes and reading for informational purposes and the testing has a scale range from 0 to 1000 with the centre-point set at 500 for all assessments.

According to Mullis et al. (2012) South Africa scores between the intermediate and low international benchmark in the PIRLS 2011 testing. The description of the skills demonstrated at these levels is:

“At the Intermediate International Benchmark, students could retrieve information, make straightforward inferences, use some presentational features, and begin to recognize language features. Lastly, students at the Low International Benchmark demonstrated the ability to retrieve information from a text when it is explicitly stated or easy to locate” (Mullis et al., 2012, p. 74).

While it is interesting to note that on average South African students are placed below average internationally in terms of literacy achievement, approximately 18 percent of students tested scored within the high or advanced international benchmark (Mullis et al., 2012), this could possibly indicate that the South African schooling system is working for some but clearly not the vast majority.

## 2.6 Conclusion of Literature Review

As has been discussed in this chapter it appears that South Africa has come to terms with resolving access to basic education however the question regarding the quality of education and the effectiveness of the schooling system still hangs in the balance. Many researchers have put forward the notion that South

Africa has not one but two school systems and that presenting average results merely hides the degree of inequality pervasive in the country.

As shown in the literature, the education system is both complex and dynamic with many role players influencing the outcomes produced by a school. The role of parents and the community and their influence on school outcomes have been reviewed. It has been illustrated that while spending has increased within the education sector, supplying more resources is simply not the solution. Furthermore teacher satisfaction was also seen as an important factor, as it is believed that more satisfied teachers produce better student outcomes and foster a positive attitude towards learning within their students. It is expected that both a student's attitude and his/her parent's attitude towards reading positively influence school outcomes as well.

### 2.6.1 *Research Proposition 1:*

The availability of resources, teacher satisfaction and a school's involvement with parents influence organisational effectiveness in poor and wealthy schools

### 2.6.2 *Research Proposition 2:*

A student's confidence in reading, student and parental attitudes and bullying in school parents influence organisational effectiveness in poor and wealthy schools

# CHAPTER 3. RESEARCH METHODOLOGY

This chapter describes the methodology that was used to address the research questions posed in the previous chapter. The research paradigm is first discussed before moving on to the research design and population and sample. The research instrument is discussed as well as the approach to analyse and interpret the data. The chapter closes with a review of the validity and reliability of the research.

## 3.1 Research methodology /paradigm

This research report uses a quantitative methodology. Bryman (2012) defines the quantitative approach as a deductive strategy that focuses on testing of existing theories and this approach places emphasis on the quantification of data during collection and analysis.

De Beuckelaer and Wagner (2007) suggest that the choice between quantitative or a qualitative approach is not always straightforward, however most often the choice depends on the goal and nature of the research. De Beuckelaer and Wagner (2007) further elaborate that if the research was aimed at obtaining generalised concepts a quantitative approach would be more suitable. In the same light, if the research was aimed at exploring or explaining in detail, a qualitative approach would be more suitable. According to Fleisch (2008) the preponderance of quantitative research in education literature is due to the ability to make predictions based on an experience that has repeated itself, that is the “power of generalizability” (Fleisch, 2008, p. 141). Jacobs, Kawanaka, and Stigler (1999) state that the benefits of employing a quantitative strategy is that data can be aggregated and explored through statistical analysis and that if the data is from large representative samples, results can be generalised to similar populations. The writers do however caution that a quantitative approach is dependent on the availability of prior theories. De Beuckelaer and Wagner (2007) have also argued that in some cases a researcher’s bias comes into play when dealing with cross national quantitative studies.

Jacobs et al. (1999) raise the point that in recent years there has been a move towards seeing quantitative and qualitative research as complementary, an argument that is echoed by Fleisch (2008) in the view that what is required in the South African context is in fact complementary research, where qualitative research is able to complement the findings of a quantitative research and provide real insight that would enable better decision making.

While the view presented by both Jacobs et al. (1999) and Fleisch (2008) is important for future studies, the PIRLS 2011 data is still in it's infancy in terms of secondary analysis. In this regard, further quantitative analysis of the data could be beneficial prior to qualitative or mixed studies are undertaken.

## 3.2 Research Design

This research was conducted using secondary cross sectional data from the PIRLS 2011 study. According to Bryman (2012) a cross sectional design involves the collection of data at a single point in time on more than one case. As reported by Lee et al. (2005) many quantitative studies on education involve cross sectional research, placing a limit on the degree of causality that can be explained as opposed to studies using longitudinal data. Bryman (2012) echoes this point stating that if a relationship is observed between two variables, it would be difficult to ascertain if a causal relationship exists as the study will lack the features of experimental design. As highlighted above cross sectional data has its limitations, however, this study should not be considered in isolation and is intended to form part of the body of knowledge that has already been generated on this topic. Furthermore due to the large number of resources required to carry out even this cross sectional research(Howie et al., 2012), it is believed that this snap shot of organisational effectiveness is sufficient to paint the picture of school organisational effectiveness.

## 3.3 Population and sample

### 3.3.1 *Population*

Internationally the PIRLS test is administered at the fourth grade as Mullis et al. (2009) describe this time in a student's schooling as an important transitional point where students are starting to read for learning as opposed to learning how to read. Mullis et al. (2009) also state that PIRLS recommends that students are tested at a higher grade, if on average, grade four students are younger than 9.5 years at the time of the test.

In 2011, PIRLS expanded the testing to include grade five and six learners in countries that may have not yet developed the necessary skill to be successful in the tests. Mullis et al. (2009) state that testing student who have not yet developed the necessary skill would only serve to highlight that the test was too difficult for them as opposed to providing valuable insight into literacy achievement. In South Africa, both grade four and grade five students were tested with the grade four students taking the easier version of the test named Pre-PIRLS and the grade five students taking the PIRLS test. This research focuses on the grade five PIRLS sample.

### 3.3.2 *Sample and sampling method*

Joncas and Foy (2010) define the PIRLS 2011 sampling design study as a three stage stratified cluster. Schools were sampled in proportion to size during the first stage and in the second stage classrooms were randomly sampled. The third sample contained all the students selected through stage two sampling.

A sample of a 100 schools was selected from all South African schools that taught in English or Afrikaans, or both, up to grade five. Of the 100 schools, 92 schools participated and the South African PIRLS 2011 study assessed 3515 students in grade five (Mullis et al., 2012).

## 3.4 The research instrument

### 3.4.1 *Student Achievement*

This section defines how the instrument measures the dependant variable of the study which is a student level variable of reading achievement that will be used as a proxy for organisational effectiveness. According to Mullis et al. (2009), the two reasons that students read, be it within a school or not, are either to gain literary experience or to acquire information that can be used. These two purposes for reading form the overarching foundation for the PIRLS study and the study is divided evenly between the two purposes. Mullis et al. (2009) further state that within these two purposes for reading, four processes are measured, these include: “focus on and retrieve explicitly stated information, make straightforward inferences, interpret and integrate ideas and information, and examine and evaluate content, language, and textual elements” (Mullis et al., 2009, p. 13). The PIRLS instrument was developed in English and for the South African assessment, the instrument was contextualised and translated into Afrikaans as well (Howie et al., 2012).

As described by Mullis et al. (2009) the reading achievement test contains two booklets, each containing two passages with approximately 12 questions linked to each passage. Question response types are approximately equally divided between multiple choice questions and constructed response format. Mullis et al. (2009) further explain that the multiple choice questions carry a total of one point for every correct answer, while the constructed response type questions can carry anywhere from one to three points for a correct answer.

Beyond this foundation of what PIRLS calls “Reading Purposes and Processes” is the very important contextual element that the study takes into account. Mullis et al. (2009) describe this element of the study as the behaviours and attitude towards reading and this element is measured through background questionnaires that are administered to students, parents as well as teachers and principals. The background questionnaires are discussed separately in the following section.

### 3.4.2 *Background questionnaires*

The background questionnaires were used to establish the relationship between various factors and organisational effectiveness. The measure of student and hence school level SES will be drawn from the student questionnaire. To obtain a school level SES variable, an average of the students' SES measure will be taken.

Mullis et al. (2009) state that children acquire reading literacy through various activities that stem from different contexts, those beyond the school and the classroom to include the home and community context, with each context having different goals and resources. Mullis et al. (2009) also further state that the PIRLS 2011 research instrument takes into consideration the nesting of factors that promote or inhibit learning within schools, communities and homes.

The sections below provide a brief description of each of the background questionnaires, with the exception of the curriculum questionnaire that was completed by the South African Centre for Evaluation and Assessment.

*Student Questionnaire*

According to Mullis et al. (2009) the student questionnaire collects demographic information, information about the home and school environment as well as a student's reading behaviours and attitudes. The questionnaire is completed on the day of testing and was designed to take no longer than 30 minutes to complete.

The student SES score was derived from the availability of household items as indicated by the student, these items included basic services such as water and electricity as well as study support items such as a desk or a computer. As this element of the questionnaire shall be used to establish SES, it is only fair to acknowledge some failings in using this measure. As noted by Heyneman (1984) and many other authors since, measures constructed by the developed world may not always hold true for a developing country, especially when it comes to measures of SES. Friedlander (2013) echoes the sentiment of Fuller and Clarke (1994) and further argues the point by illustrating that certain

measures such as income may not fully express the contextual and cultural complexities that exist in a developing world and that due to this ineffective measure, in some countries a negative relationship between SES and achievement exists. Furthermore researchers often use the number of books in the home to gauge the level of literacy practices in the home and Fleisch (2008) cautions that the difference in achievement is not necessarily due to the absence or presence of books itself but rather the parent-child interaction with the books and the practices within the home.

### *Learning to Read Survey (Home Questionnaire)*

Howie et al. (2012) describe the home context as having reference to not only the language spoken at home and a child's access to resources but also the parents' education and occupation, emphasis on literacy development, reading behaviour and attitudes that are transferred to the child.. As indicated by Mullis et al. (2009), the questionnaire is designed to take no more than 30 minutes to complete.

### *Teacher Questionnaire*

As described by Mullis et al. (2009), the teacher questionnaire is given to the relevant grade five teacher and this questionnaire collects data on aspects of teacher background and education as well as the school climate for learning and classroom characteristics. Mullis et al. (2009) further state that the questionnaire also includes questions regarding the teacher's attitude and preparation time and student engagement as well teaching approaches, instructional time, homework and educational resources. The teacher questionnaire is designed to take no more than 30 minutes to complete.

### *School Questionnaire*

In describing the school context Howie et al. (2012) state that the study includes school resources, characteristics of parental involvement and teaching staff as well as school organisation and climate for learning and students' reading readiness. The school questionnaire, which should take no more than 30 minutes to complete, is completed by the school principle.

The school questionnaire along with the teacher questionnaire provides insight into the classroom context and its influence on student reading achievement. According to Mullis et al. (2009), the classroom context comes into play by understanding teacher education, attitudes and classroom characteristics as well as resources and instructional strategies.

## 3.5 Procedure for data collection

As described by Howie et al. (2012) data for the study was collected by a market research company appointed by the Centre for Evaluation and Assessment during the months of October and November in 2011. Reading achievement tests and the learner questionnaire were administered during a one day assessment, with the reading achievement test administered during two 40 minute sessions separated by a compulsory break. Howie et al. (2012) further explains that the learner questionnaire was administered at school during a scheduled 30 minute session and that students were provided with a small incentive if they brought back a completed parent questionnaire the following day. Teacher and principal questionnaires were given to the relevant parties upon arrival at the school and collected at the end of the day.

## 3.6 Data analysis and interpretation

The PIRLS 2011 data for South African grade five students consists of 3517 students nested in 92 schools. Data within the PIRLS 2011 study, as well as many other education related studies is nested. Data is collected at a school level (questionnaire completed by the principal), at a classroom level (questionnaire completed by the teachers) and at a student level (questionnaire completed by students and their parents). Hence student data is nested within classroom data and classroom data is nested with school data. The analysis of the data is conducted in two phases, the first being an analysis of the school level data and the second being an analysis of the student level data. The data was split into these categories to prevent the complication that usually results from nested data.

A total of 78 variables were selected for analysis from the PIRLS 2011 dataset. Of these 78 variables, 14 factors were created, as illustrated in

Table 1. The creation of the factors was dependent on the Cronbach alpha score of the factor exceeding 0.75 and in some cases certain variables were removed in order to ensure a sufficient Cronbach alpha score. Factors analysed at the school level include measures of resource shortages, involvement with parents as well as teacher satisfaction while variables and factors taken from the student level dataset included student gender, resources in the home (used as a proxy for socio economic status), how often the student spoke the language of the test at home, student's attitude and aptitude (confidence or difficulty) towards reading as well as bullying in school.

**Table 1 Variables selected from the PIRLS dataset that were used to create factors**

| Variable | Description |
|---|---|
| **School variables** | |
| *School location* | Variable was adjusted to indicate Urban/Not Urban |
| *Shortage of general instructional material*<br>*Shortage of general supplies*<br>*Shortage of general school buildings*<br>*Shortage of general instructional space*<br>*Shortage of generally technological staff*<br>*Shortage of computers for instruction*<br>*Shortage of teachers with specialization in reading* | Represented by the Resources shortages (General) factor |
| *Shortage of computer software for reading*<br>*Shortage of library books*<br>*Shortage of audio visual resources for reading instruction* | Represented by the Resources shortages (Reading) factor |
| *Shortage of teachers with specialization in maths*<br>*Shortage of computer software for maths*<br>*Shortage of library materials relevant to maths*<br>*Shortage of audio visual resources for maths instruction*<br>*Shortage of calculators* | Represented by the Resources shortages (Maths) factor |
| *Shortage of teachers with specialization in science*<br>*Shortage of computer software for science*<br>*Shortage of library materials relevant to science*<br>*Shortage of audio visual resources for science instruction*<br>*Shortage of science equipment and materials* | Represented by the Resources shortages (Science) factor |
| *Inform parents about individual child's progress*<br>*Inform parents about child's behaviours*<br>*Discuss parent's concerns regarding individual child*<br>*Support individual parents (schoolwork)* | Represented by the Involvement(C) factor. (C) refers to involvement based on individual child |
| *Inform parents of overall academic achievement*<br>*Inform parents of school accomplishments*<br>*Inform parents about educational goals*<br>*Inform parents about school rules*<br>*Discuss parent's concerns about school* | Represented by the Involvement (G) factor. (G) refers to general involvement |

| | |
|---|---|
| *organisation* | |
| *Provide parents with additional learning materials* | |
| *Organise workshops for parents* | |
| *Content with profession* | |
| *Satisfied with being a teacher* | |
| *Had more enthusiasm when I began teaching* | Represented by the Teacher dissatisfaction factor |
| *Do important work* | |
| *Plan to continue as a teacher for as long as I can* | |
| *Frustrated as a teacher* | |
| **Student measures** | |
| *Gender of student* | |
| *Lang of test* | |
| *Home possessions: computer* | |
| *Home possessions: study desk* | |
| *Home possessions: own room* | |
| *Home possessions: internet connection* | |
| *Home possessions: daily newspaper* | Used to construct the measure of Socio-economic status |
| *Home possessions: own cell phone* | |
| *Home possessions: calculator* | |
| *Home possessions: dictionary* | |
| *Home possessions: electricity* | |
| *Home possessions: running tap water* | |
| *Read only if I have to* | |
| *Enjoy talking about what I read* | |
| *Happy about a book as a present* | Represented by the Attitude towards reading(S) factor. (S) denotes student |
| *Reading is boring* | |
| *Would like more time for reading* | |
| *Enjoy reading* | |
| *Usually do well in reading* | |
| *Reading is easy* | Represented by the Difficulty in reading factor |
| *Interesting to read a difficult book* | |
| *Teacher praises me for reading* | |
| *Reading is harder for me than for others* | Represented by the Confidence in reading factor |
| *Trouble with difficult words* | |
| *Reading is harder than any other subject* | |
| *How often made fun of* | |
| *How often left out of games* | |
| *How often spreading lies about me* | Represented by the Bullying in school factor |
| *How often stealing something from me* | |
| *How often hurt by others* | |
| *How often forced to do something* | |
| **Parent variables** | |
| *Only read if have to* | Represented by the Attitude |

| | |
|---|---|
| *Read only for information*<br>*Like talking about reading*<br>*Spend spare time reading*<br>*Reading is important in my home*<br>*Like more time to read*<br>*Enjoy reading* | towards reading (P1) factor<br><br>Represented by the Attitude towards reading (P2) factor. (P) denotes parent |

The measure of SES employed in this study will consider an aggregate measure drawn from variables in the student questionnaire corresponding to the resources available in the home. This factor was created to measure the SES of each student and this measure was then averaged to establish a school level SES variable, enabling the split of the sample set into “poor” and “wealthy”.. This study aims to address all respondents within the study, so a cut off will be established to define the “wealthy” group and the rest of the group would be considered “poor”. van der Berg (2007) indicates that this distinction could be drawn based on race or even language of instruction, however the PIRLS 2011 study for grade fives was conducted in English and Afrikaans only. The distinction could also be considered based on location, however location as proxy may not be a true reflection of SES as poor parents may move children to “better locations” in the hope of achieving better results (Fleisch, 2008).

## 3.7 Limitations of the study

- Use of cross sectional data sets may make the description of causal relationships more difficult (Heyneman, 1984; Lee et al., 2005)
- Comparing cross national studies and research may not lead to conclusive results when culture and social conditions vary greatly (Friedlander, 2013; Lee et al., 2005; van der Berg, 2008)
- This study does not factor in elements of teacher capabilities, a construct that may strengthen the understanding of the organisational effectiveness.
- PIRLS 2011 tested only English and Afrikaans student as this was the same group tested in 2006. According to van der Berg (2008), many of the predominantly English and Afrikaans schools would be considered to be part of the “functioning” school set.

- 16% of students scored too low for assessment in the 2011 PIRLS assessment (Mullis et al., 2012)

## 3.8 Validity and reliability

### 3.8.1 *External validity*

As a quantitative approach is employed the degree to which one can generalise findings is greater than what would be the case for a qualitative approach (De Beuckelaer & Wagner, 2007). This study is similar to that conducted by Spaull (2013), however this study uses the PIRLS dataset as opposed to the SACMEQ dataset. In order to fully establish the validity of this study, it could be repeated by either using the 2006 PIRLS dataset or the next PIRLS dataset.

### 3.8.2 *Internal validity*

Bryman (2012) states that often cross sectional research lacks the internal validity that an experimental approach would provide and in the work done by Heyneman (1984) researchers are cautioned against mistaking a strong relationship for causation when using cross sectional research.

As noted by Fuller and Clarke (1994) context in developing SES measures in a developing country matter as simply using measures that were created to suit a developed country may lead to invalid results. This sentiment was echoed in a study conducted by Friedlander (2013), it was observed that “local” SES variables, that is variables created for the local context, were better predictors of achievement as compared to “global” variables that were defined for an international context. In this light there could be some concern regarding the fact that PIRLS is an international study, however according to Mullis et al. (2012) the PIRLS instrument is contextualised when it is translated and country specific measures of wealth are taken into account for each study. In this way the PIRLS measure of SES is understood to be country specific and includes South African measures of wealth within the questionnaires.

### 3.8.3 *Reliability*

As noted by Howie et al. (2012) PIRLS 2011 has strict guidelines that all participating countries abide by in order to create a standardised approach to the testing internationally. This approach was evident from the point of translation of the instrument into Afrikaans (and the ten other official languages for Pre-PIRLS) as professional translators were appointed and once the translation was complete, the instruments were put through an international verification process.

Howie et al. (2012) also reported that the all fieldworkers and fieldwork supervisors were trained in order to comply with the standards set by the IEA. In order to assure compliance to the IEA standards a monitoring system was put in place were unannounced spot checks would be conducted of the day of data collection.

Furthermore the scorers of the assessments attended three day training on the guidelines provided by the IEA and one in every five booklets were assured by independent quality assurers (Howie et al., 2012).

## 3.9 Demographic profile of respondents

As reported by Mullis et al. (2012) the average age of a grade five student at the time of testing was 11.4years, with 49 percent of the total sample being female. Of the total population, 42 percent wrote the test in their home language. Howie et al. (2012) reported that 93 percent of students wrote the Afrikaans test in their home language as compared to the 25 percent of students taking the English version.

According to Howie et al. (2012) 26 percent of learners were from the suburbs (with 10 percent in the urban category) and 24 percent were from remote rural areas.

# CHAPTER 4. PRESENTATION OF RESULTS

## 4.1 Introduction

This chapter presents the results pertaining to the study into factors affecting organisational effectiveness in South African primary schools using the PIRLS 2011 dataset. Due to the nature and the complexity of the data contained within the PIRLS 2011 study, this study explores and analyses the data at both the school and student level separately. Data collected at a school level (as completed by either the school principal or teachers) was used to conduct the school level analyses and data collected from students and their respective parents was used to conduct student level analyses. In this manner ecological fallacies are avoided, as inferences about students are only made with student level data, and school level data is not used to provide insight into individual student factors.

Reading achievement was used as a proxy for organisational effectiveness in this study and this variable was a continuous variable, however it was not normally distributed. As many authors have discussed (Fleisch, 2008; Spaull, 2013; van der Berg, 2007), achievement in South Africa appears bimodal as opposed to normal and the dataset for this study was no different.

## 4.2 Factors that influence organisational effectiveness at a school level for “wealthy” and “poor” schools

### 4.2.1 *Defining Socio Economic Status*

In order to create a distinction between “wealthy” and “poor” schools, a proxy was used. This proxy was developed from the resources in the home factor (consisting of six separate variables) to construct a measure of SES. The resource variables listed resources ranging from having an internet connection to having basic services such as electricity and running water and there were 11 such variables. From the 11 resource variables available, six variables were

selected to establish “wealth”, these were the possession of a computer, a study desk, an internet connection, a cell phone, electricity and running water. A student was considered “wealthy” if he or she possessed all six of the items on the list. All other students were classified as “poor”. This classification separated 390 “wealthy” students from the 3125 “poor” students. To establish school “wealth”, if a school consisted of 50% or more “wealthy” students, the school was deemed “wealthy”, all other schools were deemed “poor”. Under these conditions, 12 schools were deemed “wealthy” and 80 schools were deemed “poor”.

Once the classification of “wealthy” and “poor” was established, it was important to understand if the two sub groups differed in terms of reading achievement and as illustrated in **Error! Reference source not found.**, the different student subgroups have different means, with “wealthy” students achieving higher scores than their “poor” counterparts. A T-test confirmed that the difference in the means were statistically significant at one per cent. This illustrates that in this study, there is a distinct difference in the organisational effectiveness of “poor” and “wealthy” subgroups, with the “wealthy” subgroup achieving a statistically significant higher level of effectiveness.

**Table 2 “Wealthy” students attend schools that achieve greater levels of effectiveness as compared to “poor” students**

| | N | Mean | SD |
|---|---|---|---|
| **SES indicator** | | | |
| *“Poor”* | 2084 | 420.57 | 97.25 |
| *“Wealthy”* | 302 | 549.46 | 70.74 |

### 4.2.2 *Variables at school level*

The variables considered at school level were taken from the principal questionnaire; these included school location, school resources (which has four different factors, general resources, reading resources, maths resources and science resources) as well as the school’s involvement with parents. It is important to note that the classroom level variable (teacher satisfaction) is

aggregated to school level and for the purpose of this analysis, it is considered a school level variable.

### 4.2.3 *Correlations and descriptive statistics*

Unlike at the analysis of the student level variables, the school level variables were only analysed for correlations and descriptive statistics. The main reason for this approach as opposed to the stepwise regression is the smaller sample sizes when the data is aggregated to school level.

A Mann Whitney U test was carried out initially to establish if the difference between the reading scores between the “poor” and “wealthy” schools was significant. The result was a statistically significant at one per cent and “poor” schools had a mean on 405 as compared to the mean of “wealthy” schools of 545. This indicates that “poor” schools are less effective than the “wealthy” group defined in this study. As shown in

Table 3, the strongest, statically significant correlations for “poor” schools exist with the general school resources variable (Resources (G) = -0.35, $p<0.01$) and the general school involvement with parents variable (Involvement (G) = 0.29, $p<0.05$). While these correlations are strong relative to the other correlations to reading achievement, it must be noted that these are in fact only moderate correlations. The results of the study illustrate that within the “poor” subset of schools, organisational effectiveness may be influenced by elements of resources shortages and involvement with parents and that a lack of general resources may negatively influence organisational effectiveness, while involvement with parents may increase school effectiveness. The results also indicate that within the “poor” school subset, factors such as resources shortages for reading, maths and science, as well as involvement with parents based on an individual child and teacher satisfaction, did not influence the measure of organisational effectiveness, as no strong, statistically significant correlations were observed.

**Table 3 Parametric correlations illustrating the relationship between resource shortages (general, reading, maths, science), involvement with parents and teacher satisfaction with organisational effectiveness in "poor" schools.**

| Pearson Correlation | |
|---|---|
| Resources shortages (General) | -0.35** |
| Involvement(G) | 0.29* |
| Resources shortages (Reading ) | -0.03 |
| Resources shortages (Maths) | -0.01 |
| Resources shortages (Science) | 0.1 |
| Involvement(C) | 0.25 |
| Teacher dissatisfaction | -0.04 |

***significant at p<0.05, **significant at p<0.01, ***significant at p<0.001**

Non parametric correlations were run for "wealthy" schools and as can be seen from

Table 4, teacher dissatisfaction correlated fairly strongly with reading achievement and hence with this study's measure of organisational effectiveness. The negative correlation (-0.55, $p<0.05$) indicates that a decrease in teacher dissatisfaction has a positive impact on a student's reading score and hence on the organisational effectiveness of the school. This indicates that the factor used to measure teacher satisfaction has the greatest degree of impact on organisational effectiveness within the "wealthy" school subset. No other significant correlations were established within this study for the "wealthy" subset, this indicates that for "wealthy" schools, no other relationships could be illustrated between organisational effectiveness and resource shortages (general, reading, maths, science) or school's involvement with parents (either general or at an individual level).

**Table 4 Non parametric correlations illustrating the relationship between resource shortages (general, reading, maths, and science), involvement with parents and teacher satisfaction with organisational effectiveness in "wealthy" schools**

| | Kendall's tau_b | Spearman's rho |
|---|---|---|
| | Correlation Coefficient | Correlation Coefficient |
| Teacher dissatisfaction | -0.55* | -0.74** |
| Resources shortages (General) | -0.11 | -0.13 |
| Resources shortages (Reading ) | -0.15 | -0.23 |
| Resources shortages (Maths) | -0.254 | -0.34 |
| Resources shortages (Science) | -0.49 | -0.63 |
| Involvement(C) | 0.34 | 0.45 |
| Involvement(G) | 0.343 | 0.49 |

***significant at p<0.05, **significant at p<0.01, ***significant at p<0.001**

### 4.2.4 *Regression results*

While a regression could not be run for the individual school samples (i.e. for the "wealthy" and the "poor" schools), a regression was run out of interest on the identified factors that were selected for this study with a view to separate factors that were within a school's control and those that were not. This was done to establish what degree of control school's had over the measure of organisational effectiveness. This regression showed that the factors external to a school's control predicted a greater degree of the variance in achievement ($R^2$= 0.78 and the adjusted $R^2$= 0.77, ANOVA F significant at one per cent) as compared to factors internal to a schools control ($R^2$= 0.31 and the adjusted $R^2$= 0.24, ANOVA F significant at five per cent). This indicates that for the factors selected by this study, measures such as socio-economic status, student and parent attitudes as well as a student's confidence in reading proved to be better predictors of organisational effectiveness as compared to factors such as resource shortages, involvement with parents and teacher satisfaction. Overall, the regression run at school level proved to be a better predictor of effectiveness as compared to the regression run at student level, a result that was replicated by the study conducted by Gustafsson (2007). This result is discussed in the subsequent section.

In order to establish how many “wealthy” students were contained within “poor” schools and vice versa, a cross-tabulation was run. This illustrated that 150 “wealthy” students were in the “poor” school subset, and 240 “poor” students within the “wealthy” school subset. While this is not much of an issue within the “poor” school subset it may bring in an ecological concern in the “wealthy” school subset.

This study has shown that at the school level, “wealthy” schools are more effective than “poor” schools and that for “poor” schools, measures of general resource shortages and general involvement with parents have a relationship with organisational effectiveness. This study also highlights that for “wealthy” schools, teacher dissatisfaction has a strong, negative relationship with organisational effectiveness and that no other statistically significant correlations were established for “wealthy” schools. Furthermore, it was noted that factors outside of the school’s control were a greater influence on organisational effectiveness as opposed to factors within a school’s control at a school level.

## 4.3 Factors that influence organisational effectiveness at a student level for “wealthy” and “poor” schools

### 4.3.1 *Correlations and descriptive statistics*

To understand the association of the student level variables with organisational effectiveness, a correlation analysis was carried out at student level for both “poor” and “wealthy” schools, thereafter a regression was run using all variables that were found to be significant. For the “poor” students, the variables shown in

Table 5 below were found to be statistically significant and hence included in the regression.

**Table 5 Correlations illustrating the relationship between student and parent attitude, student's confidence or difficulty in reading and bullying in school with organisational effectiveness for "poor" students**

| Pearson Correlation | |
|---|---|
| Confidence in reading(S) | 0.502*** |
| Bullying in School | 0.319*** |
| Attitude towards reading(P1) | 0.285*** |
| Difficulty in reading(S) | -0.137*** |
| Attitude towards reading(P2) | -0.061** |
| Attitude towards reading(S) | -0.050** |

***significant at p<0.05, **significant at p<0.01, ***significant at p<0.001**

For the "wealthy" students,

Table 6 below indicates the statistically significant correlations. As can be seen from both

Table 5 and

Table 6, the strongest positive correlation with organisational effectiveness for both “wealthy” and “poor” students exists in the confidence in reading factor (0.502, $p<0.001$ for “poor” students and 0.509, $p<0.001$ for “wealthy” students). In a similar vein moderate correlations exist in both student subsets between the bullying in school (0.319, $p<0.001$ for “poor” students and 0.331, $p<0.001$ for “wealthy” students) and the parent’s attitude towards reading (0.285, $p<0.001$ for “poor” students and 0.389, $p<0.001$ for “wealthy” students) factors. The student’s attitude towards reading presented as the weakest negative correlation with organisational effectiveness (-0.050, $p<0.05$ for “poor” students and -0.059 for “wealthy” students). This is not unexpected, as a similar finding was illustrated by Avvisati et al. (2014).

**Table 6 Correlations illustrating the relationship between student and parent attitude, student's confidence or difficulty in reading and bullying in school with organisational effectiveness for "wealthy" students**

| Pearson Correlations | |
|---|---|
| Confidence in reading(S) | 0.509*** |
| Bullying in School | 0.331*** |
| Attitude towards reading(P1) | 0.389*** |
| Difficulty in reading(S) | -0.187*** |
| Attitude towards reading(P2) | -0.145** |
| Attitude towards reading(S) | -0.059 |

***significant at p<0.05, **significant at p<0.01, ***significant at p<0.001**

Looking at the categorical variables of gender and language of testing, both "poor" and "wealthy" girls outperformed boys, with a T-test indicating that the means for "poor" students, illustrated in

Table 7, are statistically different from one another. This indicates that girls in the “poor” school subset, experience greater organisational effectiveness than boys do as expressed by their literacy scores. A similar T-test performed on the “wealthy” students illustrated that the means illustrated in Table 8, may not be significantly different to each other. This illustrates that for the “wealthy” subset, gender differences may not be that pronounced in terms of how a student receives a school outcome. With regards to the language of testing, the difference in the means in “poor” and “wealthy” schools was shown to be statistically significant indicating that for both “wealthy” and “poor” students, always or almost always speaking the language of the test in the home resulted in higher test scores, indicating that students who always speak the language of the test had better school outcomes than those who did not.

**Table 7 Gender and language comparisons in relation to organisational effectiveness for "poor" students**

| | N | Mean | SD |
|---|---|---|---|
| **Gender** | | | |
| *Girl* | 1529 | 419.97 | 94.42 |
| *Boy* | 1579 | 389.18 | 99.41 |
| **Lang of test** | | | |
| *Always or almost always* | 1391 | 420.69 | 95.59 |
| *Sometimes/Never* | 1539 | 397.77 | 98.04 |

**Table 8 Gender and language comparisons in relation to organisational effectiveness for "wealthy" students**

| | N | Mean | SD |
|---|---|---|---|
| **Gender** | | | |
| *Girl* | 194 | 547.26 | 79.19 |
| *Boy* | 196 | 534.81 | 71.60 |
| **Lang of test** | | | |
| *Always or almost always* | 278 | 551.71 | 71.92 |
| *Sometimes/Never* | 110 | 514.46 | 74.01 |

### 4.3.2 *Regression results*

A stepwise regression approach was used to assess the explanatory power of the various independent variables against the dependent variable, reading achievement. As discussed in the previous section, only variables that were found to have statistical significance were included in the regression model. In the stepwise regression approach used in this study it is important to assess the collinearity of the independent variables as this could pose a problem to using this approach. In the case of both subsets of "poor" and "wealthy" students, the VIF's and condition numbers were well within the threshold ranges and hence the collinearity assumption has not been violated. The possibility of endogenity was ruled out due to poor, statistically insignificant correlations between independent variable and through the theory reviewed.

As shown in Table 9 below, the overall fit of the model for "poor" students is $R^2$= 0.350 and the adjusted $R^2$= 0.345, ANOVA F significant at one per cent as illustrated in Table 9. For "wealthy" students is $R^2$=0.413 and adjusted $R^2$=0.407, ANOVA F significant at one per cent. This indicates that the factors selected explain a greater deal of variation in organisational effectiveness for "wealthy" students than for "poor" students.

**Table 9 Regression fit for "poor" and "wealthy" students**

| | Poor | Wealthy |
|---|---|---|
| R squared | 0.350 | 0.413 |
| Adjusted R squared | 0.348 | 0.407 |
| Std. Error of the Estimate | 54.47 | 78.50 |
| F | 186.56 | 69.91 |

The regression for "poor" students illustrated that the six student level factors, being student's aptitude towards reading (both confidence and difficulty towards reading), parent's attitude towards reading, bullying at school, language of testing and gender predicted approximately 35 percent of the variance in organisational effectiveness. For "wealthy" students, the factors student's confidence in reading, parent's attitude towards reading and bullying at school predicted approximately 41 percent of the variance in organisational effectiveness. The unstandardized scores indicate the change in reading achievement for every one unit change in the independent variable. For example, as shown in Table 10, for "poor" students, a one unit change in the student's "confidence in reading" factor would increase the student's reading score by 39.97 points. Similarly a reduction in the prevalence of bullying in a school (indicated by an increase in the "bullying in school" factor) by one unit would increase a student's reading score by 23.30. The language of testing also seemed to be an important variable for "poor" students, indicating that if a student almost always spoke the language of the test at home, that student would also fair better in terms of reading achievement and hence would achieve better school outcomes.

**Table 10 Results for the regression for "poor" students**

| | *Effect on Reading Achievement* | | |
|---|---|---|---|
| | B | Standard error | β |
| Intercept | 226.60*** | 8.706 | |
| Confidence in reading(S) | 39.97*** | 1.888 | 0.400 |
| Bullying in school | 23.30*** | 2.270 | 0.191 |
| Lang of test | 20.88*** | 3.489 | 0.107 |
| Gender | 18.37*** | 3.465 | 0.094 |
| Difficulty in reading(S) | -15.79*** | 2.776 | -0.103 |
| Attitude towards reading(P1) | 14.86*** | 1.599 | 0.169 |

***significant at p<0.05, **significant at p<0.01, ***significant at p<0.001. Note: B= unstandardized effect, β = standardised effect**

AS ***significant at p<0.05, **significant at p<0.01, ***significant at p<0.001. Note: B= unstandardized effect, β = standardised effect**

below illustrates, for "wealthy" students, a one unit change in the student's "confidence in reading" factor would increase the student's reading score by 33.90 points and a one unit change in the parent's attitude toward reading factor would increase the student's reading score by 22.47 points. As was the case with "poor" students, a reduction in the prevalence of bullying in a school would also increase a student's reading score. The two common factors for both "poor" and "wealthy" schools include the student's confidence in reading and bullying in school.

**Table 11 Results for the regression for "wealthy" students**

| | *Effect on Reading Achievement* | | |
|---|---|---|---|
| | B | Standard error | β |
| Intercept | 316.10*** | 17.187 | |
| Confidence in reading(S) | 33.90*** | 3.680 | 0.425 |
| Attitude towards reading(P1) | 22.47*** | 3.326 | 0.305 |
| Bullying in school | 18.96*** | 4.175 | 0.207 |

***significant at p<0.05, **significant at p<0.01, ***significant at p<0.001. Note: B= unstandardized effect, β = standardised effect**

On the student level, this study has shown that certain factors are common to both "wealthy" and "poor" students in terms of influence on organisational effectiveness. These factors are the student's confidence in reading and bullying in school. The "wealthy" student subset outperformed the "poor" subset

and the gender difference with a bias towards girls was more pronounced for “poor” students. Overall, the factors selected for analysis provided a better explanation of the variance of organisational effectiveness in “wealthy” students as compared to that of “poor” students.

## 4.4 Summary of the results

The results presented in this chapter highlight a few key issues, one being that using the measure of organisational effectiveness; factors yield better predictive results on a school level as opposed to a student level. As discussed, this could be due to the fact that data from PIRLS study is better suited to a school level analysis as opposed to a student level analysis. In the separation of the schools and students into “wealthy” and “poor”, it was interesting to note that the different subgroups were illustrated to have different relationships with the factors provided and that the “wealthy” subgroup had showed a greater level of effectiveness, again highlighting the possibility of dual schooling systems in South Africa. Within the “poor” subset, general resource shortages and the school’s involvement with parents proved to be important factors and at a student level, a student’s confidence in reading, bullying in school and how often the child spoke the language of testing proved to be significant factors contributing to the organisational effectiveness of the school they were in. within the “wealthy” subset, teacher dissatisfaction proved to have a significant relationship with organisational effectiveness, and at a student level a student’s confidence in reading, the parents attitude towards reading as well as bullying in the school were found to have a significant relationship with the organisational effectiveness of the school that the student was in.

# CHAPTER 5. DISCUSSION OF THE RESULTS

This chapter discusses the results presented in the previous chapter. A discussion of the school level analysis is initially presented, highlighting key findings and exploring the business implications before the student level analysis is discussed.

## 5.1 Factors that influence organisational effectiveness at a school level for “wealthy” and “poor” schools

### 5.1.1 *Inferences about causality*

Early in this study it was stated that this study does not aim to draw causal relationships between organisational effectiveness and the factors selected for analysis. The regression model used at a student level however, assumes causality and in this regard, this study does not unequivocally treat these relationships as casual as the causal relationship implied would require further detailed research due to the complexity if the relationships and the nature of the education system. This study aims to explore and understand if there are relationships between the factors selected for analysis and organisational effectiveness.

### 5.1.2 *School resources*

As shown by Gustafsson (2007), school infrastructure is an important component to understanding achievement and hence in this context organisational effectiveness. In the case of this study, a shortage of general school resources in “poor” schools was shown to have a moderate, negative correlation to organisational effectiveness (-0.35, $p<0.05$) which indicates that an increase in the reported shortage of general school resources is associated with a decrease in organisational effectiveness. Hanushek (2003) and van der Berg (2007) make a strong argument that more important than resources allocated to a school are the effective use of those resources, however both

Gustafsson (2007) and Leibbrandt and Zuze (2011) put forward the argument that certain basic resources within a school are crucial. It is interesting to note that weak, statistically insignificant correlations exists between organisational effectiveness and a shortage of resources for reading, maths and science specifically, while general resources, as noted above seems to be of greater influence. This finding however, is not conclusive enough to state that certain types of resources influence organisational effectiveness while others do not, as weak correlations may also be due to the mismanagement of these resources (van der Berg, 2007). The finding that a lack of general resources has a strong effect on organisational effectiveness is an important one as South Africa has a strong focus on equalizing the imbalance of allocation of basic resources in schools.

The Organisation for Economic Co-operation and Development (2013) has highlighted that although South Africa's spend as a percentage of GDP is higher than similar countries like Mexico and Brazil, this should not be an indication that there is no current underfunding due to the comparatively larger size of the population aged 0-14years in South Africa. In this light, The Organisation for Economic Co-operation and Development (2013) recommends that the public resources per student at primary school level, would need to increase by 30 per cent to equalise other countries with a lower proportion of 0-14 year olds in the population. As discussed earlier, many authors have argued that simply increasing resources in itself cannot be the solution.

It is also important to note that the same correlation between general resource shortages and organisational effectiveness does not exist in the "wealthy" schools subgroup. As illustrated by The Organisation for Economic Co-operation and Development (2013) many wealthy schools are able to supplement resources through school fees, thus offsetting the balance between the "poor" and the "wealthy" schools. This finding fits in well with the findings from Gustafsson (2005) and Leibbrandt and Zuze (2011) as it illustrates the point that "wealthy" schools may have better access to the basic resources that the "poor" schools do not.

For schools that reported a shortage of general resources, more specifically if this schools were classified in the “poor” school subset, it is important that school management consider how best to manage whatever resources that are available efficiently, as illustrated previously, the proper management of the resources available to a school may actually serve the school better than an abundance of resources.

### 5.1.3 *Teacher satisfaction*

This study illustrates that teacher satisfaction is associated with organisational effectiveness for “wealthy” schools but not for “poor” schools. As discussed teacher satisfaction may be an important antecedent to burnout and a teacher’s intent to stay in the profession. It was also discussed that teacher satisfaction also plays an important role in terms of motivating students. As the “wealthy” school subset was shown to have greater effectiveness in this study, this relationship between teacher satisfaction and organisational effectiveness is pertinent as it may provide insight as to why some schools experience greater organisational effectiveness in comparison to others.

While teacher satisfaction is multifaceted, the implication for school management is that teacher satisfaction is an important factor in relation to achieving organisational effectiveness. As discussed, schools may seek to increase the level of autonomy that teachers have in an attempt to improve teacher satisfaction (Ryan & Deci, 2000). It is interesting to note that for “poor” schools, the same correlation between teacher satisfaction and organisational effectiveness was not established. While this finding may appear significant, caution must be taken in the interpretation of the satisfaction results as teachers may have not been honest in the completion of the surveys for fear of victimisation. Teachers within the “poor” schools may feel a greater degree of stress to perform as their schools are not as effective as the “wealthy” subset as noted by Runhaar et al. (2013) and this could lead to spurious results from the satisfaction surveys.

### 5.1.4 *School's involvement with parents*

This study illustrates that a relationship exists for "poor" schools between a school's general involvement with parents and with school organisational effectiveness and suggests that greater involvement with parents may positively influence organisational effectiveness. Two points of interest are valid in this context, the first being that this correlation was not establish for the "wealthy" subset and the second that general involvement appeared to have greater impact than involvement related to an individual child. The latter point could be due to the fact that if the school's involvement with parent is very poor on a general sense, it stands to reason that individual involvement would be far worse. With regard to the point that this correlation was not established within the "wealthy" subset of schools, it may be due to the fact that as discussed, studies (Marschall, 2006; Patacchini & Zenou, 2011) have shown that parents of higher SES ("wealthy") are actually more involved with the school in any case. Irrespective of these findings, it must be noted that the correlation between involvement of parents and organisational effectiveness is not a strong one. As discussed, this finding is not altogether unexpected, as Avvisati et al. (2014) illustrated that improving parental involvement may lead to a behaviour change in students and teachers which may not always translate well into an outcome that is measured. This study did not assess the effect of parental involvement on teacher or student attitude.

This finding is significant due to the fact that management within both school subsets are able to positively influence this factor and improve levels of parental involvement through school policies. By having a greater level of parental involvement, a "poor" school may even serve to overcome certain resource shortages as discussed previously, as the parents themselves act as resources to the school. Even though this has a fairly indirect relationship with this study's proxy for organisational effectiveness, as discussed, it is still an important factor in terms of enhancing the school environment.

### 5.1.1 *Organisational effectiveness variations between schools and variations within schools*

It is important to understand within the context of this study whether organisational effectiveness varies between schools or within a school. That is to say do certain students within a school experience different levels of organisational effectiveness or do different schools experience different levels of organisational effectiveness. This study shows that for the variables selected, the variance in organisational effectiveness was better explained at a school level, rather than at a student level. This result was in line with the findings of Gustafsson (2007) who showed that variance in achievement (the proxy for organisational effectiveness) was better explained at a school level. Gustafsson (2007) justifies this result by stating that many types of educational studies are designed to detect between school variance rather than within school variance. Research done by the Southern and Eastern Africa Consortium for Monitoring Educational Quality (2011) has also highlighted the fact that South Africa does in fact exhibit greater variation between schools rather than within schools. This finding is significant in the study as it eludes to the fact that policy and management intervention at a school level may actually have a greater impact on school outcomes as the school system may be treated as homogenous. It does, however, highlight the difficulty within the South African education system in terms of policy direction that will affect all schools in the same manner. In this regard, it would make sense that not all schools are managed or measured in the same manner.

As mentioned in Chapter 4, it was important to understand if there were substantive differences between the “poor” and “wealthy” subset of schools and students. The results showed that not only was the difference in the organisational effectiveness significant, but that “wealthy” schools were more effective than their “poor” counterparts. It is also important to note that while there seems to be a smaller degree of variation in the results of “wealthy” students as opposed to “poor’ students (as evidenced by a decreased standard deviation for “wealthy” schools), the standard deviation is still relatively high

within the subgroups indicating the potential for further refinement of the subgroups.

In this study, the predictive power of the input factors was greater for “wealthy” schools, as compared to “poor” schools. van der Berg (2008) using the SACMEQ data, also illustrated this trend indicating that for wealthy schools, the predictive power of certain input variables are greater. Spaull (2013), also using SACMEQ data found a similar result in the study that he completed. A possible explanation of this variation in predictive capability as reasoned by Spaull (2013) is that important variables related to teacher quality and competence, that have been deemed vital to understanding “poor” school performance, have been excluded from the study.

In considering the school level analysis for this study, factors such as a lack resources and parental involvement were seen to be important in “poor” schools, while for “wealthy” schools, teacher satisfaction was a significant factor influencing organisational effectiveness. The implications for management in the include better management of resources, policies aimed at promoting parental involvement as well as management support to encourage autonomy in teachers.

## 5.2 Factors that influence organisational effectiveness at a student level for “wealthy” and “poor” schools

### 5.2.1 *Student’s confidence in reading*

The study shows that there are clearly different sets of factors that influence organisational effectiveness in “poor” and “wealthy” schools, with the three common factors in both regressions being the student’s confidence in reading, bullying in school and the parent’s attitude toward reading. Interestingly, factors that were significant for the regression on “poor” students such as the language of testing, student gender and the student’s difficulty in reading did not factor in the regression for the “wealthy” students. As expected, the student’s perception of how easy reading is (“confidence in reading” factor), had a strong relationship

with organisational effectiveness, indicating that for students who find reading easier or more interesting tend to attend schools with better organisational effectiveness. Surprisingly, a student's perceived difficulty in reading did not show the same negative strength (for both "poor" and "wealthy" students, these were fairly weak statistically significant correlations). For both the "poor" and the "wealthy" students, the parent's attitude towards reading show higher statistically significant correlations with organisational effectiveness than that for the student's attitude toward reading.

### 5.2.2 *Bullying in school*

In both the "poor" and "wealthy" subsets, the prevalence of bullying in school was shown to have a negative impact on organisational effectiveness. This is an important finding for school management, as discussed previously, school interventions aimed at reducing the prevalence of bullying may reduce the incidence of bullying by up to 20 percent (Mundbjerg Eriksen et al., 2014). The negative impact that bullying has far reaching consequences and the reduction of bullying in a school would not only assist in improving organisational effectiveness but it would also greatly improve the school environment. The recommendation for management with regard to bullying is to make targets of the anti-bullying initiatives within the school broader than just within the classroom, as studies have shown that the most effective school programmes are those that also include the parents.

### 5.2.3 *Parent's attitude toward reading*

It is interesting to note that the variable measuring parent's attitude towards learning was significant in the model for "poor" students but not so for the "wealthy" students. As discussed, Friedlander (2013) stresses that the home learning environment is an important factor in understanding organisational effectiveness of schools and this has been shown to be true for the "wealthy" student subset, where a positive relationship exists between the parents attitude towards reading and organisational effectiveness. While this is a factor that a school cannot directly influence, school management may seek to increase

involvement with parents to promote a positive attitude. It is interesting to note that in poor schools, the factor of parental involvement was shown to have a relationship with organisational effectiveness; however, a relationship between parental attitude and organisational effectiveness could not be established. While this study did not seek to establish the relationship between these two factors, it has been discussed that improving involvement with parents make foster better attitudes and vice versa.

At a student level, this study showed that a student's confidence in reading and bullying in school were associated with the organisational effectiveness in for both "poor" and "wealthy" students. A relationship between parent's attitude and organisational effectiveness was established for the "poor" subset of students only. Schools have an important practical role to play in ensuring that students are motivated and that the prevalence of bullying is reduced. A recommendation for anti-bullying programmes includes the involvement of parents and it is also believed that a school's positive involvement with parents may assist in improving a parent's attitude towards learning.

## 5.3 Conclusion

In this chapter, the key findings from the study were presented and implications for management were discussed. At the school level, factors such as a lack resources and parental involvement were seen to be important in "poor" schools, while for "wealthy" schools, teacher satisfaction was a significant factor influencing organisational effectiveness. The implications for management in the include better management of resources, policies aimed at promoting parental involvement as well as management support to encourage autonomy in teachers.

At the student level, schools that are able to positively motivate students as well as involve parents in anti-bullying programmes and generally increase the level of parental involvement may be able to positively influence a schools organisational effectiveness.

# CHAPTER 6. CONCLUSIONS & RECOMMENDATIONS

## 6.1 Introduction

This chapter concludes the study and presents key factors that were shown to be associated with organisational effectiveness in “poor” and ”wealthy” primary schools before recommendations are discussed. The section concludes with suggestions for future research.

## 6.2 Conclusions of the study

### 6.2.1 *The gap between “Wealthy” and “Poor”*

In this study, schools were split using a measure that defined socio-economic status. Using this measure, a “wealthy” and “poor” subset of schools and students were created. Overall, the results illustrated that for the measures employed in this study, “wealthy” schools were found to have significantly higher degrees of organisational effectiveness as compared to “poor” schools. This finding conforms to that of various other authors (Fleisch, 2008; Spaull, 2013; van der Berg et al., 2011) who put forward the notion that South Africa has two schooling systems as opposed to one. This is a significant finding within the context of this study as any intervention aimed at improving the education system within South Africa would need to consider the possibility of the existence of two different schooling systems, in which inputs are transformed in different ways.

### 6.2.2 *Resources shortages*

This study reviewed the relationship between resources shortages (general resources, resources for reading, maths and science) and organisational effectiveness and found that for “poor” schools, a lack of general resources had a negative relationship with organisational effectiveness. The relationship with other resources for reading, maths or science was not established by the study.

The element of resource shortages is an important one and the fact that a relationship was only establish for “poor” school conforms well with the evidence provided by Gustafsson (2005) and Leibbrandt and Zuze (2011) as it illustrates the point that “wealthy” schools may have better access to the basic resources that the “poor” schools do not. The proper management of these resources was also highlighted as an element that school management would need to consider.

### 6.2.3 *Teacher satisfaction*

Teacher dissatisfaction was found to have a strong negative effect on organisational effectiveness for the “wealthy” school subset. This was an important find, as it has been shown that the “wealthy” school subset is able to achieve a higher degree of organisational effectiveness and that teacher satisfaction is associated with better school outcomes (Skaalvik & Skaalvik, 2011). Schools with low levels of teacher satisfaction could seek to improve the level of autonomy that teachers have in school as this has been shown to positively influence teacher satisfaction (Ryan & Deci, 2000). The fact that this study did not establish a relationship between teacher satisfaction and organisational effectiveness in “poor” school should not be interpreted as a non-relationship between these two constructs as there is a level of concern regarding the level of openness from the teachers when completing the survey.

### 6.2.4 *Parental involvement*

This study illustrated that the education system is both complex and dynamic with a variety of stakeholders that often have different interests. Parents have now come to be considered important stakeholders in the schooling system and as such the level of parental involvement as defined by the school is an important factor to consider. In this study it was shown that a school’s involvement with parents had a moderate relationship with the school’s organisational effectiveness. This finding was not unexpected as Avvisati et al. (2014) illustrated that improving parental involvement may lead to a behaviour

change in students and teachers which may not always translate well into an outcome that is measured.

The significance of this finding is that better involvement with parents may in some instances; serve to alleviate other school related issues, such as student motivation and resources shortages in the case where parents would be able to act as school resources.

### 6.2.5 *Student's confidence in reading*

At student level, a very strong predictor of organisational effectiveness was the degree of confidence a student had in reading. This finding was true in both the "wealthy" and the "poor" subsets and has from the literature strong connections to teacher satisfaction as well as the parent's attitude towards reading.

### 6.2.1 *Bullying in school*

In both the "poor" and "wealthy" subsets, the prevalence of bullying in school was shown to have a negative impact on organisational effectiveness. The recommendation for management with regard to bullying is to make targets of the anti-bullying initiatives within the school broader than just within the classroom, as studies have shown that the most effective school programmes are those that also include the parents.

### 6.2.2 *Parent's attitude towards reading*

This study showed that for "wealthy" schools, there existed a positive association between parent's attitude toward reading and organisational effectiveness. While this is a factor that a school cannot directly influence, school management may seek to increase involvement with parents to promote a positive attitude in parents.

## 6.3 Recommendations

This section highlights the main recommendations form this study. At a school management level, it is easy to see that improvements in resource management, teacher autonomy and a school's involvement with parents could improve the organisational effectiveness of a school. Furthermore it is recommended that school programmes aimed at reducing the prevalence of bullying employ strategies that involve parents as well. From the findings provided in this research, it is recommended that the level of a school's involvement with parents be considered in earnest, as even though direct results in terms of organisational effectiveness may be more difficult to measure, this may result in an increase in positive attitudes for students and teachers alike.

On a broader perspective, the recommendations for the South African education system would include a focus on understanding the difference between the two apparently different school systems and to develop policies that separately address the two systems as opposed to treating the education system as one homogenous whole. It is also very difficult to broach the important topic of teacher competence and school management practices as no study conducted in South Africa touches on these two constructs for various reasons. It is recommended that future research focus on this area to fortify the findings of this study and many others like it.

## 6.4 Suggestions for further research

Listed below are the recommendations for future research within this area

- As discussed, an issue that may be crucial to the understanding effectiveness of the South African schooling system is teacher competence. While this study only assessed teacher satisfaction, an evaluation of teacher competence may provide greater insight in organisational effectiveness. It is recommended that future research be conducted to explore the relationship between teacher competence and organisational effectiveness in the "poor" school subset.

- This study used the PIRLS 2011 dataset, which tested learners in English and Afrikaans. In the last PIRLS assessment, the Pre-PIRLS were introduced and this tested learners in all the official languages. Historically, the top performing students and schools were either English or Afrikaans and reviewing the Pre-PIRLS dataset may create a greater distinction between the “poor” and “wealthy” subsets. It is therefore recommended that the Pre-PIRLS dataset is used to conduct an exploratory analysis of factors influencing organisational effectiveness in “poor” and “wealthy” schools.
- As highlighted, teacher satisfaction may be associated with organisational effectiveness and this may be a poorly understood construct in the South African case. For this reason, it is recommended that factors influencing teacher satisfaction in “poor” and “wealthy” schools is analysed.
- This study highlights the complexity of the stakeholder realm within the education system and that there is a possible association with a schools involvement with parents and organisational effectiveness. In this vein, further research could be conducted to fortify this link and additionally to explore what factors influence parental involvement in the “poor” school subset. It may be of interest to explore the relationship between parental attitudes and parental involvement as well.

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