The effects of school conditions on learner reading achievement

By

Vuyisile Lawrence Khumalo

11278740

Submitted in partial fulfillment of the requirements for the degree

MAGISTER EDUCATIONIS

in

ASSESSMENT AND QUALITY ASSURANCE

in the

Faculty of Education

University of Pretoria

Supervisor:

Dr. S van Staden

November 2014

© University of Pretoria

TABLE OF CONTENT

LIST OF FIGURES 6
LIST OF TABLES 8
LIST OF ACRONYMS 10
ACKNOWLEDGEMENTS 12

CHAPTER 1 13
INTRODUCTION AND BACKGROUND 13
1.1 INTRODUCTION 13
1.2 CURRICULUM LINK WITH PIRLS 2006 15
1.3 THE CONTEXT FOR THIS STUDY 17
1.4 PROBLEM STATEMENT AND RATIONALE 20
1.5 MAIN RESEARCH QUESTION 21
1.6 RESEARCH METHODOLOGY 22
1.7 STRUCTURE OF THE DISSERTATION 24

CHAPTER 2 26
THE PROGRESS IN INTERNATIONAL READING LITERACY STUDY (PIRLS) 2006 ... 26
2.1 INTRODUCTION 26
2.2 READING LITERACY 27
2.3 CONTEXT FOR LEARNING TO READ 28
2.3.1 National and Community Context 29
2.3.2 Home Context 30
2.3.3 School Context 32
2.3.4 Classroom Context 33
2.4 THE PIRLS 2006 ASSESSMENT FRAMEWORK 34
2.4.1 Purposes for Reading 34
2.4.2 Processes of Comprehension 35
2.5 ASSESSMENT INSTRUMENTS 38
2.5.1 Reading Literacy: Achievement Booklets 38
2.5.2 Question Type and Scoring Procedures 40
2.5.3 Behaviours and Attitudes: Questionnaires 40
2.6 SUMMARY 43

© University of Pretoria

CHAPTER 3 44
A REVIEW OF LITERATURE 44
3.1 INTRODUCTION 44
3.2 SCHOOL EFFECTIVENESS AND SCHOOL IMPROVEMENT 45
3.3 EXPLORING THE CONCEPT OF SCHOOL CLIMATE AS BACKGROUND TO IDENTIFYING SCHOOL CONDITIONS 49
3.4 SCHOOL CLIMATE FACTORS 52
3.4.1 Educational Leadership 54
3.4.2 Curriculum Quality 56
3.4.3 Safety and Orderly Atmosphere 58
3.4.4 Use of Resources 59
3.4.5 Studies of School Climate within the context of large scale reforms 61
3.5 CONCEPTUAL FRAMEWORK 63
3.5.1 Scheerens' Integrated Model for School Effectiveness (2000) and (2005) 66
3.5.2 Conceptual Framework for the current study 67
3.5.3 Context as Conceptualised for the Current Study 68
3.5.4 Input as Conceptualised for the Current Study 69
3.5.5 Process as Conceptualised for the Current Study 71
3.5.6 Output as Conceptualised for the Current Study 71
3.6 SUMMARY 72

CHAPTER 4 74
RESEARCH DESIGN AND METHODS 74
4.1 INTRODUCTION 74
4.2 RESEARCH DESIGN: PIRLS SA 2006 74
4.2.1 Sample 75
4.2.2 Instruments 78
4.2.3 Data Collection and Monitoring 79
4.2.4 Data Capturing and Verification 80
4.2.5 Quality Assurance 80
4.3 RESEARCH DESIGN AND METHODS: CURRENT STUDY 81
4.4. RESEARCH METHODS 85
4.4.1 Sample 85
4.4.2 Data Source 85
4.4.3 Data Analysis 86
4.4.3.1 Descriptive Statistics 86
4.4.3.2 Reliability Analysis 87

© University of Pretoria

4.4.3.3 Factor Analysis 87
4.4.3.4 Multiple Regression Analysis 88
4.3.5 Methodological Norms 89
4.4 RESEARCH ETHICS 90
4.5 SUMMARY 91

CHAPTER 5 92
DESCRIPTIVE RESULTS FOR THE SELECTED VARIABLES UTILISED IN THE CURRENT STUDY 92
5.1 INTRODUCTION 92
5.2 Descriptive Results for the Context Variables 93
5.3 Descriptive Results for the Input Variables 94
5.3.1 Learner Characteristics 95
5.3.2 Teacher Characteristics 98
5.4. Descriptive Results for the Process Variables 104
5.4.1 Educational Leadership 105
5.4.2 Curriculum Quality 106
5.4.3 Safety and Orderly Atmosphere 117
5.4.4. Use of Resources 118
5.5. Descriptive Results for the Output Variables 122
5.6 SUMMARY 126

CHAPTER 6 127
RESULTS 127
6.1 INTRODUCTION 127
6.2 SCHOOL CONDITIONS VARIABLES CHOSEN FOR THIS STUDY THAT REPRESENT THE PROCESS DIMENSION OF SCHEERENS' FRAMEWORK 128
6.3 RELIABILITY RESULTS 129
6.4 FACTOR ANALYSIS RESULTS 131
6.5 MULTIPLE REGRESSION ANALYSIS RESULTS 135
6.6 SUMMARY 141

CHAPTER 7 143
CONCLUSIONS AND RECOMMENDATIONS 143
7.1 INTRODUCTION 143
7.2 SUMMARY OF THE RESEARCH 143

© University of Pretoria

7.3 SUMMARY OF MAIN FINDINGS 146
7.4. CONCEPTUAL FRAMEWORK REFLECTIONS 153
7.5. MAIN CONCLUSIONS 154
7.6. REFLECTION ON RESEARCH DESIGN AND METHODOLOGY 157
7.7. STRENGTHS AND LIMITATIONS OF THE STUDY 158
7.8. ADDITIONAL REFLECTIONS 159
7.9. RECOMMENDATIONS FOR POLICY, PRACTICE AND FURTHER RESEARCH 160
REFERENCES 164
APPENDIX A 179

© University of Pretoria

LIST OF FIGURES

Figure 2.1: Context for the Development of Reading Literacy (taken from Mullis et al., 2004, p. 25)

Figure 3.1: Integrated Model for School Effectiveness (Scheerens, 2000)

Figure 3.2: Integrated School Effectiveness Model (Adapted from Scheerens, 2000; 2005)

Figure 4.1: Effects of School Condition Factors on Learner Reading Achievement

Figure 5.1: Number of people living in the area where the school is located

Figure 5.2: Learners Receiving Free Lunch

Figure 5.3: Skills with which Learners Enter Grade 1

Figure 5.4: Age of Teachers

Figure 5.5: Teachers Educational Levels

Figure 5.6: Time Spent on Teacher Development

Figure 5.7: Books Read by Teachers to Improve Teaching

Figure 5.8: Role of the Principal in Activities at School

Figure 5.9: Time Spent on Reading Instruction

Figure 5.10: Use of Assessment as Sources to Monitor Learner Progress

Figure 5.11: Use of Portfolios in reading

Figure 5.12: Assessment Instruments Used to Monitor Learner Progress

Figure 5.13: Use of Assessment Information

Figure 5.14: Resources for Learning Reading Difficulty

Figure 5.15: Teacher Responses on Reading Difficulty

Figure 5.16: Availability of Parental Programmes

Figure 5.17: School-Home Information Flow

Figure 5.18: Parental Involvement in Schools

Figure 5.19: Availability of Books with Different Titles

Figure 5.20: Periodicals and Book Titles

© University of Pretoria

Figure 5.21: Distribution of International Reading Achievement (taken from Mullis, et al., 2007)

Figure 6.1: Path Diagram of Possible Effects of School Conditions on Learner Reading Achievement

Figure 6.2: Explained Variance of Learner Achievement in terms of Curriculum Quality, Safety and Orderly Atmosphere and Use of Resources

© University of Pretoria

LIST OF TABLES

Table 1.1: Summary of selected international studies and results

Table 2.1: Percentages of reading Assessment devoted to Reading Purposes and Processes (taken from Mullis et al., 2006)

Table 2.2: PIRLS 2006 Matrix-Sampling Blocks

Table 2.3: PIRLS 2006 Learner Booklet Design

Table 3.1: Definitions of the Dimensions of School culture (Schoen and Teddlie, 2008).

Table 4.1: Number of schools per province monitored for PIRLS 2006 (taken from van Staden, 2010)

Table 5.1: Context Variables

Table 5.2: Learner Characteristics Variables

Table 5.3: Learner Socio–Economic Background

Table 5.4: Teacher Characteristics Variables

Table 5.5: Employment Status and Teacher Gender

Table 5.6: Teacher Areas of Study

Table 5.7: Educational Leadership Variable

Table 5.8: Curriculum Quality Variables

Table 5.9: Assessment Practices Variables

Table 5.10: Special Educational Needs Variables

Table 5.11: Parental Involvement Variables

Table 5.12: Safety and Orderly Atmosphere Variable

Table 5.13: Potential Problems of Violence or Threats to Safety

Table 5.14: School Resources

Table 5.15: PIRLS 2006 Participating Countries and Education Systems

Table 6.1: Process Factors at School Level

Table 6.2: Reliability Coefficients

Table 6.3: Extracted Components for Curriculum Quality

Table 6.4: Extracted Components for Safety and orderly Atmosphere

© University of Pretoria

Table 6.5: Extracted Components for Use of Resources

Table 6.6: Explained Variance per Factor

Table 6.7: Multiple Regression Coefficients

Table 6.8: Model Statistics

Table 6.9: ANOVA Statistics

Table 7.1: Unstandardised Regression Coefficients

Table 7.2: Model Statistics

© University of Pretoria

LIST OF ACRONYMS

ANA	Annual National Assessment
DBE	Department of Basic Education
CEA	Centre for Evaluation and Assessment
FIMS	First International Mathematics Study
IEA	International Association for the Evaluation of Educational Achievement
ISCED	International Standard Classification of Education
LiEP	Language in Education Policy
LoLT	Language of Learning and Teaching
NRC	National Research Coordinator
OBE	Outcomes Based Education
OCDQ	Organisational Climate Description Questionnaire
OCDQ- RE	Organisational Climate Description Questionnaire – Rutgers Elementary
PIRLS	Progress in International Reading Literacy Study
QLTC	Quality Learning and Teaching Campaign
RNCS	Revised National Curriculum Statement
SACMEQ	Southern and Eastern Africa Consortium for Monitoring Educational Quality
SASA	South African School Act
SATI	South African Translator's Institution
SER	School Effectiveness Research
SGB	School Governing Body
SLEQ	School Level Environment Questionnaire
SPSS	Statistical Package for the Social Sciences
TIMSS	Trends in Mathematics and Science Study

© University of Pretoria

ABSTRACT

This study aims to determine the effect of school conditions on learner reading achievement in primary schools in South Africa. Reading skills are not only imperative for further study but are essential for economic and meaningful citizenship. Initiatives such as the Quality Learning and Teaching Campaign, geared to improve the quality of education for all children and to ensure improved learner achievement have resulted in an increase in educational spending. Despite such initiatives, learner achievement remains poor.

In order to measure the relative relationship between school conditions and learner reading achievement, this study focused on selected variables from the PIRLS 2006 South African data, notably from Grade 5 learner reading achievement, teacher and school questionnaires. A secondary data analysis through multiple regression technique was utilised in an attempt to measure those school conditions that may enhance or impede learner reading achievement.

This study follows the tradition of school effectiveness research by utilising the context-input-process-output (integrated model for school effectiveness research) model as espoused by Scheerens (2000; 2005). The integrated model was adapted combining school and classroom factors in order to measure the effect of school wide processes on learner reading achievement.

Although this study was unable to measure the effect of educational leadership on learner reading achievement, it found significant school and classroom factors associated with learner reading achievement. This study highlights the importance of improving the teaching and learning of literacy across all 11 official languages.

Keywords:

PIRLS 2006, school effectiveness, school improvement, school climate, learner achievement, secondary analysis, multiple regression analysis.

© University of Pretoria

ACKNOWLEDGEMENTS

My sincere gratitude goes to the following special people and organisations:

- The National Research Foundation for your financial support
- To my wife Sylvia, thank you for your unwavering support and the understanding you have when I could not spend quality time with you, I love you dearly.
- Dr Surette van Staden, my supervisor, for your faith and trust in me, you indeed touched my life, thank you once more.
- Prof Sarah Howie for your eagle eye and those one-to-one sessions we had and making it possible for me to be part of PIRLS 2011.
- Cilla Dowse for proof reading my work and all the support sessions we had throughout, all the best.
- Dr Lisa Zimmerman for those impromptu discussions and readily availing literature.
- Dr Sonja van Putten, acting HoD for the Department of Science, Maths and Technology Education, who served as critical reader in the final stages of the dissertation.
- Dr Andrew Graham, for editing the dissertation on short notice.
- The entire CEA staff, Ronald, Sibongile, Mish, Gabriel, Henry (Lekgoa) it has been a pleasure to have met you all, as always stay friendly.
- To Justice my travelling partner and fellow student, thank you for those motivational sessions we had in the car travelling to and from Pretoria.
- To my fellow students, Phyllis, Desmond, Melissa, Karen and Bheki for those times we spent in class discussing and critiquing each others' work.
- To my boys, Makhosonke and Asande, this one is for you.

Above all, thank you Lord.

© University of Pretoria

CHAPTER 1

INTRODUCTION AND BACKGROUND

1.1 INTRODUCTION

This study aims to ascertain the effect of school conditions on learner reading achievement in primary schools in South Africa, utilising the Progress in International Reading Literacy Study (PIRLS) 2006 South African data. Hoy, Tarter and Hoy (2006) assert that "researchers have been challenged to go beyond socio-economic status in the search for school-level characteristics that make a difference in student achievement" (p. 425), therefore, in identifying the effect of school conditions on learner reading achievement an opportunity to investigate factors beyond socio-economic status is at hand.

The quality of education is measured through a variety of factors, such as the school building and resources, pedagogy, general learner achievement (outcomes) and subsequent learner achievement, including future participation in the economy as well as civil participation (Mortimore & Stone, 1991). In South Africa, three indicators are explicitly used, namely, the assessment of learning achievement, the level of teacher qualifications and learner-educator ratio (Department of Basic Education (DBE), 2011).

The focal point of this study is learner achievement, particularly learner reading achievement in primary schools using Grade 5 PIRLS 2006 South African data. Learner reading achievement provides an appropriate indicator for the quality of education (Bohlmann & Pretorius, 2008; le Cordeur, 2010; Nel, Dreyer, & Kopper, 2004). Furthermore, literature suggests that reading skills are strong predictors of learner Mathematics achievement (Setati, 1998; Howie, 2002), whilst reading skills form the foundation upon which educational success is based (Pretorius & Machet, 2004). Moreover, reading skills are not only necessary for further studies but equally essential in areas such as the economy and meaningful citizenship (Department of Basic Education (DBE), 2010).

© University of Pretoria

Literacy is an embedded construct within reading, and by extension within reading achievement. Literacy is broadly referred to as a socially constructed form of human behaviour which entails language activities such as reading, writing and speaking (Pretorius & Ribbens, 2005). Under this paradigm, it will not be uncommon to have varying definitions of the construct. However, a definition espoused by the International Association for the Evaluation of Educational Achievement (IEA) for reading literacy is used in this study:

> 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. To read to learn, to participate in communities of readers in school and everyday life, and for enjoyment (Mullis, Kennedy, Martin & Sainsbury, 2004, p.3)

PIRLS 2006 is conducted under the auspices of the International Association for the Evaluation of Educational Achievement (IEA) and assesses reading literacy. PIRLS is a trend study conducted every five years to measure reading literacy achievement at Grade 4, since at this age learners are expected to progress from the ability to learn to read to the ability to use reading in order to learn (Mullis & Martin, 2007). PIRLS 2006 is the second trend study, but first participation for South Africa, wherein Grade 4 learners were assessed with Grade 5 being an additional grade included in the study (Howie, Venter, van Staden, Zimmerman, Long, du Toit, Scherman & Archer, 2008). PIRLS 2006 data measures long-term trends and also monitors educational systems in respect of reading and broader educational provision. However, in South Africa PIRLS 2006 data provides an opportunity to assess reading literacy at Grades 4 and 5 levels coupled with contextual information as gathered from a number of background questionnaires. In the South African PIRLS 2006 study, Grade 4 represented a transitional phase in terms of learners making a transition from mother tongue education to English as Language of Learning and Teaching (LoLT), while the inclusion of Grade 5 learners provides the opportunity to investigate the progress or differences in reading knowledge as well as skills between the two grades (Howie & Venter, 2008).

© University of Pretoria

Drawing on data from PIRLS 2006, this study is a secondary analysis embedded in a quantitative approach that employs selected items from the learner, teacher and school questionnaires in order to measure the effects of school conditions on learner reading achievement in primary schools.

Although PIRLS 2006 questionnaires have as their focus the experiences of learners in learning to read, both at home and at school, this study focuses on school conditions, which include the school location and type of inputs (human and physical resources) as context against which learner achievement takes place. School processes in terms of leadership, curriculum quality, safety and orderliness and use of resources complete the school conditions as conceptualised for the purposes of this study. Accordingly, teacher and school questionnaires that were used in PIRLS 2006 to collect information about the classroom and school are utilised to determine the process effects of school conditions on learner reading achievement in primary schools in South Africa. PIRLS 2006 South African data presents a unique opportunity to better appreciate individually or in combination those school conditions that contribute to learner reading achievement.

Chapter 1 is comprised as follows: Section 1.2 provides a link between the curriculum and PIRLS 2006, while Section 1.3 presents the context for the study. Section 1.4 formulates the problem statement and provides the rationale for the study, followed by Section 1.5 which frames the main research questions. An overview of the research methodology used in this study is captured in Section1.6. The structure of this dissertation is provided in Section 1.7

1.2 CURRICULUM LINK WITH PIRLS 2006

An Outcomes Based Education (OBE) Curriculum was introduced into the South African Education system in 1998, and came to be known as Curriculum 2005. This curriculum moved to a more learner-centred approach to education and was underpinned by principles of quality, access and equity. The introduction of OBE, however, came with its own challenges and cynicism.

© University of Pretoria

The curriculum attempted, amongst other things, to align school work with workplace, social and political goals, pursue the value of diversity in the areas of race, gender, culture as well as to develop citizens who are imaginative and critical problem solvers (Cross, Mungadi & Rouhan, 2002).

Accordingly, in 2001, amendments that aimed at streamlining and strengthening Curriculum 2005 were initiated. In July of the same year, a Draft Revised National Curriculum Statement for Grade R – 9 emerged, and subsequently, a Ministerial Committee reconvened to incorporate suggested changes, resulting in the Revised National Curriculum Statement (RNCS) replacing the National Curriculum Statement (NCR) (DBE, 2002). In recognising the diverse nature of the South African society, multilingualism in schools is accordingly promoted through the Language in Education Policy (LiEP) in terms of Section 3(4) of the National Education Policy. Learners are encouraged to study more than one language with home language forming the basis for access to other languages. The language of learning and teaching in public schools must be an official language, as envisaged in the Constitution of the Republic of South Africa. Consequently, learners are expected to learn at least one language as a subject in Grades 1 and 2, while from Grade 3 onwards all learners are to learn the LoLT and one additional approved language (SASA, 1996). To facilitate this learning, the RNCS provides a time allocation for language literacy in the Foundation Phase (Grade R-3) as well as both in the Intermediate (Grade 4-6) and Senior Phase (Grade 7-9) to constitute 40% and 25% respectively.

Overall outcomes of the RNCS with respect to language include listening, speaking, reading and viewing, writing, thinking and reasoning, language structure and use. Of importance in this study are the reading and viewing outcomes that envision a life-long learner that is literate and is “able to read and view for information and enjoyment, respond critically to the aesthetic, cultural and emotional values in text” (DBE, 2002, p.20). This outcome can be aligned with the PIRLS 2006 aspects of reading literacy, namely, the process of comprehension, purposes for reading and reading behaviours and attitudes (Mullis et al., 2004).

© University of Pretoria

In the South African study, PIRLS 2006 assessed learners in Grade 4 and Grade 5, which represent the first and second grades in the intermediate phase respectively. It is during this phase that the RNCS for languages outlines assessment outcomes that require learners to be able to:

- Read a variety of texts for different purposes using a variety of reading and comprehension strategies;
- View and comment on various visual texts;
- Describe their feelings about the text, giving reasons;
- Discuss how the choice of language and graphical features influence the reader;
- Identify and discuss aspects such as central idea, character, setting and plot in the fiction texts;
- Infer reasons for the actions in a story;
- Recognise the different structures, language use, purposes and audiences of different types of texts;
- Identify and discuss values in the texts in relation to cultural, moral, social, and environmental issues;
- Understand and respond appropriately to information texts;
- Interpret simple visual texts; and
- Select information texts for own information needs (DBE, 2002, pp.72-77)

Curriculum change comes with its own challenges and pessimism. However, the Language in Education Policy attempts to harmonise the diverse nature of the South African society as outlined by the assessment outcomes across all of the country's 11 official languages.

1.3 THE CONTEXT FOR THIS STUDY

After 1994, South Africa developed a governing document that was to be the supreme document of the land, the Constitution of South Africa (Act no 108 of 1996), Section 29(1) of Chapter 2, and provide for the right to education for everyone in the country, including adults.

© University of Pretoria

Subsequently, enabling legislation was developed, particularly the South African School Act (SASA) Act no 27 of 1996 to provide for a uniform system of organisation, governance, and funding of schools, underpinned by principles such as equity, quality and access. At the height of the global recession, education in South Africa received a significant budget increase, which increased dramatically from R140,4 Billion in 2009 to R189,5 Billion in 2011.

A need arose to assess the performance and the health of the education system. At a national level, Systemic Evaluation (SE) was initiated with the purpose of determining the level of achievement of learners within the system, to highlight specific areas within the system that required attention or further investigation and to create a baseline for future SE (Kanjee, 2007). At regional level, the Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ) II and III, which is constituted by 15 ministries of education (Botswana, Kenya, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania (Mainland), Tanzania (Zanzibar), Uganda, Zambia and Zimbabwe, is chiefly concerned with monitoring and evaluating the conditions of schooling and the quality of education in Southern and Eastern Africa. South Africa participated in both SACMEQ II and III.

At international level, South Africa participated in a number of international studies, such as the Trends in Mathematics and Science Study (TIMSS) 1995, 1999 and 2003 and the Progress in International Reading Literacy Study 2006 (PIRLS). TIMSS focused its attention on the improvement of teaching and learning in Mathematics and Science, and collected background information on the quantity, quality and content of instruction in schools. The PIRLS 2006 study aimed at identifying long-term trends and monitoring national developments in reading and education over a period of time. PIRLS 2006 South Africa was, according to Howie et al. (2008), “the largest, most ambitious and complex national design within an international comparative study ever undertaken” (p.v), South Africa also participated in PIRLS 2011.

© University of Pretoria

South Africa's overall performance in PIRLS 2006 was below the international mean of 500. In particular, the Grade 4 performance was above 200 (253, SE[1] = 4.6) while the Grade 5 performance was at 302 (SE= 5.6) (Howie et al., 2008). In addition, PIRLS 2006 managed to highlight deficiencies pertaining to language skills and reading strategies taught in different grades.

In particular, complex reading skills such as *making generalisation and inferences* as well as *describing the style and structure of the text* were not taught in Grade 4 or even Grade 5 (Van Staden & Howie, 2008). Table 1.1 (below) offers a selected summary of international studies and results about South African learner's performance in reading, Mathematics and Science.

Table 1.1: Summary of Selected International Studies and Results

Name of Study	Purpose	International mean	Overall performance
The Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ) III	The study is concerned with the monitoring and evaluating the conditions of schooling and the quality of education in Southern and Eastern Africa. (SACMEQ III)	Reading: 500	Gr 6 494,9 (SE = 4.55)
Trends in Mathematics and Science Study (TIMSS) 2003	The study focuses its attention in the improvement of teaching and learning in Mathematics and Science and further collects background information about the quantity, quality and content of instructions	Science: 516 Maths:513	326 354
Progress in International Reading Literacy Study (PIRLS) 2006	The study aims at identifying long term trends and to monitor countries' system developments in reading and education over a period of time	Reading: 500	Gr4 253 (SE = 4.6) Gr 5 302 (SE = 5.6)

[1] SE values in brackets refer to the Standard Error.

© University of Pretoria

SACMEQ III and PIRLS 2006 present a negative picture of learner reading achievement, thus a clear indicator of poor reading skills. Reading skills form the backdrop for future educational success (Pretorius & Machet, 2004) and are strong predictors of Mathematics achievement (Setati, 1998; Howie, 2002). Hence, better reading skills may translate to future educational success, including better Mathematics achievement, as confirmed by Howie (2002), who stated that language proficiency predicts mathematical achievement. Under these circumstances a study that attempts to search for school-level conditions that are likely to make a difference on learner reading achievement in primary schools in South Africa is justified.

1.4 PROBLEM STATEMENT AND RATIONALE

In South Africa, a trend from various studies has emerged that points to learners having difficulty in learning to read, highlighted through poor reading achievement (Pretorius & Machet, 2004, Pretorius & Ribbens, 2005, Howie et al., 2008). Poor reading achievement of learners may be attributed to numerous factors, though the list is not exhaustive, such as a poor socio-economic environment, lack of parental involvement, low educational level of parents, cognitive factors and various language, school and intrinsic factors (Lessing & Mahabeer, 2007). In addition, reports suggest that 7% of learners are absent on any given school day (DBE, 2011), which also affects the quality of learning. Against this backdrop, numerous initiatives aimed at improving the quality of education, particularly literacy, have been undertaken by the Department of Education (DBE).

The *Kha Ri Gude* Mass Literacy Campaign launched in February 2008 was chiefly aimed at reaching 4.7 million illiterate people, enabling them to read, write and calculate in their mother tongue in an attempt to reduce the illiteracy rate by 2015 by 50% (DBE: online). Likewise, the Quality Learning and Teaching Campaign (QLTC), also launched in 2008, aimed to improve the quality of education for all children and to ensure improved learner achievement (DBE, 2008). However, despite such initiatives, learner achievement consistently suggest that the quality of education remains poor, as evidenced in results of various international and

© University of Pretoria

national studies wherein South Africa learners achieved lower than the benchmarks and standards.

For instance, in the PIRLS 2006, they achieved a mean average of 302, well below the international average of 500 (Howie et al., 2008). In the Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ III), in which Grade 6 learners were tested in reading and Mathematics (SACMEQ, 2010), achievement fell below the mean average of 500. In the 2010 Annual National Assessment (ANA), in which learners were tested for reading and Mathematics, results found currency with the aforementioned studies. A little over half (53%) of Grade 3 learners did not achieve at least 35% in the literacy test (DBE, 2011).

With this in mind, literature indicates that few South African studies focus on school conditions in relation to learner achievement (Howie, 2000; Kotze & Strauss, 2006; Milner & Khoza, 2008). Howie (2000) describes factors beyond the school control, such as the location of the school and the home language of the learner in a study of Grade 8 Mathematics achievement. McEvoy and Welker (2000) argue that a better understanding of poor learner achievement is largely based on the ability to identify and modify school climate. In this study, however, a view is taken that better understanding of poor learner achievement rests with the ability to identify those school conditions that may enhance or hinder learner achievement. This study, then, explores the effect of school conditions on learner reading achievement in primary schools in South Africa, utilising PIRLS 2006 South African data.

1.5 MAIN RESEARCH QUESTION

The aim of the study is to identify those statistically significant school conditions that either enhance or impede learner reading achievement. This study is a secondary analysis of the PIRLS 2006 South African data using the learner, teacher, learner and school questionnaires, drawing on selected items considered

© University of Pretoria

significant for the study. It is against this background that the following question is asked:

What are the effects of school conditions on learner reading achievement in primary schools?

The study is also guided by five research sub-questions:

1. What is the context in which PIRLS 2006 was undertaken in terms of inputs (as measured by learner enrolment, teacher characteristics and available physical resources) and the context in respect of the school's physical location?

2. To what extent does Educational Leadership (as measured by the principal's daily activities) have an effect on learner reading achievement?

3. What is the effect of Curriculum Quality on learner reading achievement (as measured by the opportunity to learn, attention for learners with special educational needs, assessment practices and programmes aimed at encouraging parental involvement)?

4. What is the role of Safety and Orderly Atmosphere in the school environment (as perceived by school principals) and its effect on learner reading achievement?

5. To what extent does the Use of Resources (as measured by the frequent use of textbooks, reading series, workbooks or worksheets, children's newspapers and or magazines, computer software for reading instructions, reading material on the internet, variety of children's books and material from other subjects) have an effect on learner reading achievement?

1.6 RESEARCH METHODOLOGY

As the aim of this research is to determine the effect of school conditions on learner reading achievement in primary schools, drawing on the PIRLS 2006

© University of Pretoria

South African data, this study is designed as a predictive secondary data analysis embedded within a quantitative research approach.

In secondary data analysis, the researcher does not have the opportunity to collect further data but rather re-analyses the data to answer a different question to the original study (Babbie & Mouton, 2001). The researcher does not have direct interaction with respondents or participants, which implies that he or she is detached or independent from that which is researched (Creswell, 1994). In a quantitative approach, the researcher attempts to understand the phenomena from the outsider perspective to keep the research process free of bias (Welman, Kruger & Mitchell, 2010). In this regard, and in keeping with the research question, the researcher is concerned with determining which school conditions are most highly related to the complex factor such as learner reading achievement (Gay, Mills & Airasian, 2009).

The current study draws on selected items from the PIRLS 2006 South African data, particularly from the learner, teacher and school questionnaires. PIRLS 2006 South African data was collected using a cross-sectional survey. Vanderstoep and Johnston (2009) cogently note that the use of cross-sectional surveys in a quantitative approach provides opportunity to collect large quantities of data that may be reflective of the population in a relatively short time. The PIRLS 2006 South African data is sufficiently representative of Grades 4 and 5 learner population in primary schools and reflective of the school population by language and province (Howie et al., 2008).

As this is a study with multiple variables, a multivariate data analysis technique is used, specifically Multiple Regression Analysis technique. The flexibility and adaptability of multiple regression analysis allows for its use in any dependency relationship (Hair, Anderson, Tatham & Black, 1998). Chapter 4 provides a more in-depth discussion on the research methodology and design used.

© University of Pretoria

1.7 STRUCTURE OF THE DISSERTATION

Chapter 2 provides an historical overview of IEA and the origin of PIRLS 2006. Various definitions of reading literacy are explored and a definition for PIRLS 2006 is presented coupled with the purpose for reading and processes for reading comprehension. The home, school and classrooms as contexts within which learners learn to read are also highlighted. Lastly, background questionnaires utilised to collect data about behaviour and attitudes are also discussed as well as the focus on school context through the use of selected items from the teacher and school questionnaires.

Chapter 3 provides an overview of literature and highlights the difference between school effectiveness and school improvement to draw on selected school conditions that have been found to correlate closely with learner achievement. This study also draws on school climate literature and considers selected school conditions that relate to learner achievement based on a broader field of school climate literature. Scheerens' (2000, 2005) school effectiveness model of Context –Input–Process-Output as a conceptual framework that was used to guide the analysis and interpretation of results is also highlighted.

Chapter 4 outlines a numerical secondary data analysis research design embedded within a quantitative paradigm. Multiple Regression Analysis was used as a method for this study, using the IDB Analyzer software to answer the research questions. The chapter sheds light on the nature of the PIRLS 2006 study, including capturing, processing, reliability and validity of data. A three-stage cluster sampling design which was stratified by province and language was used. Although various questionnaires were used to elicit information about different learner contexts this study was concerned with the learners' school conditions, hence the use of the teacher and principal questionnaires against learner achievement. Lastly, ethical clearance was applied for and granted by both the CEA and the University's ethical clearance committee for access to the data and the subsequent analysis thereof.

Chapter 5 describes a wide range of input variables such as the school context, learner demographics as well as teacher demographics. Process variables include

© University of Pretoria

the principal's leadership role as reflected by daily activities such as time spent in teaching, administration, curriculum development and staff development. Process variables also focused on the activities of teachers in creating learning opportunities and their assessment practices. In addition, action or inaction undertaken by the school to support learners with special educational needs together with efforts to involve parents are described. In this study learner achievement represents the output variables. More importantly, this chapter attempts to answer the first research sub-question. It concludes by paying attention to how the IEA computed learner achievement (Plausible Values) and presents a distribution of international reading achievement.

Chapter 6 provides a rigorous analysis and reliability analysis of each item. As selected questionnaire items were not dichotomous, a Cronbach Alpha approach was utilised to test the reliability of individual items. Dovetailing reliability coefficients, factor analysis results are presented to determine the extent to which items cluster together. Lastly, evidence to answer the research question is presented as derived from multiple regression results.

Chapter 7 presents a summary of results through a discussion of each sub-question. A discussion of results highlights the importance of creating and maintaining an enabling environment which holds promise for improved quality of education. Lastly, the chapter concludes with reflections on the conceptual framework coupled with recommendations and proposals for further studies.

© University of Pretoria

CHAPTER 2

THE PROGRESS IN INTERNATIONAL READING LITERACY STUDY (PIRLS) 2006

2.1 INTRODUCTION

"Our children and youths need to be better prepared by schools to read, write, think critically and solve numerical problems. These skills are the foundation on which further studies, job satisfaction, productivity and meaningful citizenship are based" (DBE, 2010, p.8). This statement indicates that schools need to be aware of their responsibilities and be appropriately prepared to deliver on this mandate, particularly as the quality of schooling is a strong determinant of reading achievement (Bohlmann & Pretorius, 2008). Taylor, Pearson, Clark and Walpole (2000) argue that effective schools tend to prioritise reading and have a strong link with parents of learners, with teachers in the school collaborating on the delivery of reading instruction and being responsive to learner needs (Allington, 2002).

As an independent international cooperative organisation, the IEA coordinates research organisations and government education departments with a permanent office in the Netherlands (Mullis, Martin, Kennedy & Foy, 2007). In conducting PIRLS, the IEA provides concrete system-level information of reading literacy achievement in addition to offering suggestions not only to researchers but also to teachers "on how to improve literacy and reading achievement" (Mullis, Kennedy, Martin & Sainsbury, 2006, p.v). The IEA was established in 1958 by a group of researchers, mainly from the fields of educational psychology as well as sociology and psychometry, who met in Hamburg and decided that Germany should consider undertaking a study of measured outcomes in education (Neville, 1995). A feasibility comparative study was conducted during the period 1959 to 1961, resulting in a First International Mathematics Study (FIMS), and by 1995 over 50 educational systems were participating (Neville, 1995).

With respect to reading literacy, the first PIRLS study took place in 1991, but was initially called the Reading Literacy Study 1991 (Postlethwaite & Ross, 1992).

© University of Pretoria

PIRLS is conducted every five years with PIRLS 2001 having 32 educational systems[2] participating across 35 countries. PIRLS 2006 was the second such study, comprising 40 countries with 45 education systems participating. The focus of PIRLS is to measure trends in children's reading literacy achievement, as well as policy and practices related to literacy (Mullis et al., 2007).

Learners who are in their fourth year of schooling are the primary focus for assessment by PIRLS 2006. The target grade should be the grade that represents four years of schooling, counting from the first year of the ISCED [International Standard Classification of Education] level 1 (Mullis et al., 2006, p.7).

The following section describes the conduct of PIRLS 2006, firstly by looking at definitions of reading literacy (2.2) then the contexts for learning to read (2.3). The PIRLS 2006 framework includes: reading purposes and processes of comprehension and is discussed in Section 2.4. Thereafter the assessment instruments such as the assessment booklets and the background questionnaires for the study are discussed in Section 2.5. Lastly Section 2.6 provides a summary of Chapter 2.

2.2 READING LITERACY

Pretorius and Ribbens (2005) broadly refer to literacy as a socially constructed form of human behaviour which entails language activities such as reading, writing and speaking. However, in an attempt to develop an appropriate definition of reading literacy that will serve as a foundation for PIRLS 2006, the IEA revisited its 1991 study in which reading literacy was defined as "the ability to understand and use those written language forms required by society and/or valued by the individual" (Mullis et al., 2006, p.3). As a result of the Reading Development Group for 2001 deliberations regarding the definition were refined to highlight the widespread importance of reading in schools and everyday life. The following definition was then adopted for PIRLS 2006:

[2] Reference to education systems is made in instances where entire countries did not participate in PIRLS and instead only provinces or regions.

© University of Pretoria

> Reading 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 text. They read to learn, to participate in communities of readers in school and everyday life, and for enjoyment (Mullis et al., 2006 p.3).

The above definition of reading literacy, according to the authors, reflects numerous theories of reading literacy, attitudes of readers and reasons for reading. The definition reflects reading as a constructive and interactive process. Readers construct meaning through interaction between themselves and texts in the context of a particular reading experience. Reading literacy also implies knowing effective reading strategies as well as reflecting on what was read. Readers are thought of as active participants who are able to use their various reading strategies to learn from a host of text types, such as books, newspapers, magazines, documents, text messaging, television and traditional media. More importantly, classrooms and school libraries, as socially constructed environments, may provide learners with formal as well as informal opportunities to broaden their perspectives about texts and thus view reading as a shared experience with both their classmates and schoolmates.

Reading experience is not only shared within the confines of either the classroom or the school but may be extended to the learner's family, community and friends (Mullis et al., 2006). However, learning to read occurs in a wide variety of contexts, such as nation and community, home, school as well as the classroom.

2.3 CONTEXT FOR LEARNING TO READ

Reading literacy is acquired through a variety of activities and with experiences within various contexts. Although some experiences are structured and some informal, they are both important in aiding learners to develop reading literacy. PIRLS 2006 identifies four contexts in which learning to read takes place, namely, the national and community context, the home context, the school context as well as the classroom context.

© University of Pretoria

These connect and support each other and the connection between home and school is an important element in learning in general and learning to read in particular (Mullis et al., 2004). These different contexts, as depicted in Figure 2.1 (below), foreground the development of PIRLS (Schwippert & Lenkeit, 2012) and provide a theoretical framework that guides the development of the PIRLS study.

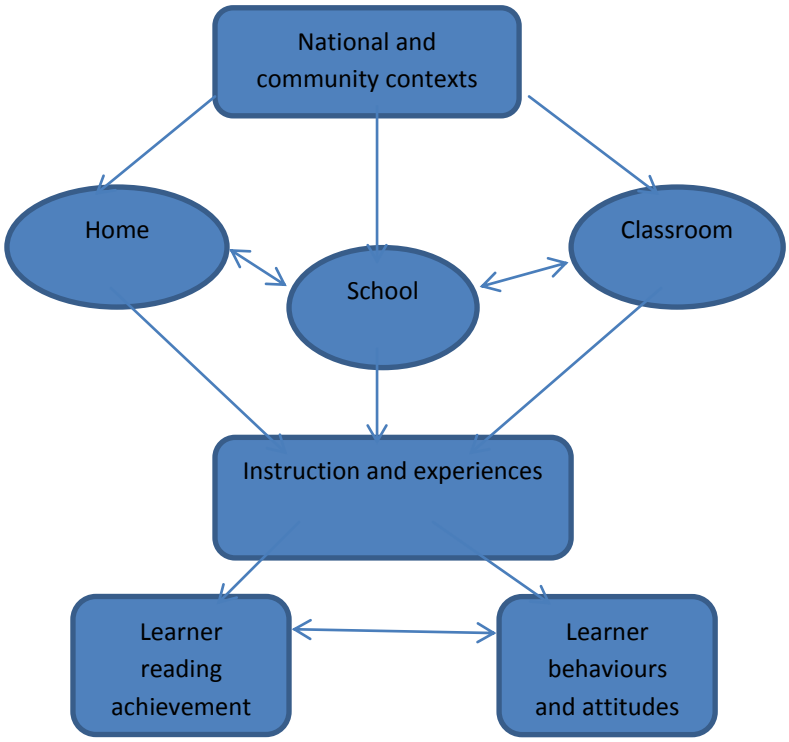


Figure 2.1: Context for the Development of Reading Literacy (taken from Mullis et al., 2004, p.25)

2.3.1 National and Community Context

National and community level factors, such as the cultural background, social, political and economic, together contribute to the background of a learner's development within a country. The success a country might have in educating its children and thereby producing a literate society depends to a greater degree on the emphasis on the goals of literacy for all, the resources the country has and the manner in which effective strategies are put together to effectively provide programmes and incentives that not only foster reading but also improve learner achievement (Mullis et al., 2006).

© University of Pretoria

The decisions and direction a country makes pertaining to the emphasis on literacy and literacy activities are profoundly influenced by its citizen's beliefs in literacy. These beliefs are largely reflected through national and local policies which will have an influence within the school context. Parents and members of the community may foster an environment that values reading and thus invite and share experiences with text (Mullis et al., 2006).

According to Mullis et al. (2006), the rate of literacy is a function of the country's demographics and national economy. Countries such as South Africa, with a large and diverse population, tend to face greater challenges than their counterparts. Economic resources enable better educational facilities and provide an opportunity to invest in literacy programmes across all schools. The manner in which schools operate is mainly influenced by educational policies of a country. Some countries such as England have a highly centralised education system and thus policy-related decisions are made at either national or regional level and tend to show uniformity in terms of curriculum choices, textbooks and other general policies (Twist, 2012). Other countries with a decentralised education system, such as New Zealand, tend to show differentiation on how learners are taught and progress within the system (Mullis et al., 2006; Chamberlain, 2012).

In this respect, South Africa shows a combination of both centralised and decentralised education systems. The Department of Basic Education (DBE) operates at national level and is concerned mainly with policy formulation while implementation is decentralised to provinces.

2.3.2 Home Context

Long before a learner starts school, parents or caregivers, siblings and other family members, including the immediate community, influence and impart their own beliefs about reading and the learner is inevitably exposed to and experiences some form of text. An important lesson for the learner is that printed text conveys meaning and reading is desirable for development (Mullis et al., 2006).

© University of Pretoria

Linguistic diversity poses a challenge to both parents and teachers in creating environments that are conducive to the development of reading. Au (1998) states that if the language used by the learner at home differs from the language at school then the learner may experience challenges in his or her journey in learning to read. These challenges may manifest in limited use of instructions in the home language and a lack of encouragement for learners to utilise their existing language skills as a foundation for developing literacy (Au, 1998). Coupled with linguistic diversity is the importance of supporting teachers in their instructional efforts so that they may create an environment that accepts diversity (Flynn & Hill, 2005). The social and cultural aspect plays an important role in developing reading literacy in South Africa, a country with a diverse population and 11 official languages. Despite diversity, parents need to encourage and express positive and enhancing opinions about reading and literacy in general. Parental involvement not only reinforces the value of learning to read but is also an important element in strengthening the home–school connections, because learners with strong home-school connection tend to achieve better outcomes (Mullis et al., 2006).

Equally important are the choices that parents make in becoming involved in their child's education. In this regard, Hoover-Dempsey and Sandler (1995) explain that parents become involved in developing their child's reading because they have developed a positive sense of efficacy for helping their children succeed in school, they perceive opportunities or demands for involvement from children themselves or the school and finally, and regard helping their children as a parental role (p.311).

Section 20 (1) (e) of the South African School Act of 1996, provides for parental involvement through the School Governing Body (SGB). It is required that an SGB of a school "supports the principal, teachers and other staff of the school in the performance of their professional functions" (p.B-12). For this reason, schools are taking initiatives through home and school communication to get parents involved in their children's learning (Lemmer & van Wyk, 2004). However, Heystek (2003) observes that parental involvement tends to be limited because of negative attitudes towards schools and inferior feelings parents have. Lemmer and van Wyk (2007) add that limited knowledge or uneducated parents and negative

© University of Pretoria

educational experiences that parents may have may also contribute to limited parental involvement. On the other hand, Jeynes (2005) reveals that a relationship between parental reading, parental expectations and the checking of homework is statistically significant across racial and gender lines, thus more parental involvement tends to correlate with high learner achievement (Singh, Mbokodi & Msila, 2004).

2.3.3 School Context

The school may influence the development of learners' reading literacy through factors such as the school policy and curriculum, as well as the general school environment and resources. Brown, Collins and Duguid (1989) reveal that knowledge development is a product of activities and context within which it takes place. Similarly, development of literacy is a function of interrelated activities and the context within which it happens, such as the school.

The school policy and curriculum provide for the environment for formal reading instructions in the hopes of enhancing learner achievement. Despite uniform policies and curricula in South African primary schools, Zimmerman (2010), also in a secondary analysis of PIRLS 2006 data, observes that language teaching activities tend to be diverse, which implies varying implementation of curricula across schools.

Not only are strategies diverse and implementation of the curriculum varied, but teachers seem to lack the appropriate skills to develop high quality tasks (Ramothlale, 2008). Under these circumstances, a school policy that fosters an opportunity for teachers to purposefully collaborate on curriculum matters is important and necessary (Goddard, Goddard & Tschannen–Moran, 2007). In essence, enhancing learner reading achievement may very well depend on a sense of security for all. More important are the positive attitudes and collaboration of teachers and learners in enhancing a positive school environment.

Resource availability and their subsequent use is another important aspect in enhancing the quality of learner reading experiences (Mullis et al., 2006).

© University of Pretoria

This study pays special attention to the school context because what happens or may happen in class is not unconnected to the school context.

2.3.4 Classroom Context

The day-to-day classroom activities are more than likely to have a significant impact on the reading development of learners without discounting the general school environment. The teacher is the most critical human resource in the classroom and can positively or negatively influence the learner's reading literacy development, by either increasing or decreasing opportunities for learning (Fillmore & Snow, 2000).

Teacher qualifications reflect the level of training the teacher has received and have a profound impact on the development of reading literacy for learners, including the quality of instruction for the development of reading literacy. In addition, sustained teacher development has the potential to broaden the teacher's knowledge of reading literacy and heighten his or her effectiveness in the classroom (Mullis et al., 2006). It is in the classroom that learners spend much of their day while at school, thus an enabling environment and structure may have a greater influence on the development of reading literacy in the learner. The teacher in this regard may structure the classroom in such a manner to encourage reading development (Mullis et al., 2006).

The teacher not only has to structure the classroom, but is also required and expected to select relevant instructional materials and technology to foster reading activities (Mullis et al., 2006). Word recognition, comprehension and writing activities are some of the instructional strategies that teachers may employ to encourage and foster reading literacy development. Integral to this learning process is assessment and homework which provide an opportunity to monitor learner's progress and to extend reading activities as well as offer support (Mullis et al., 2006).

© University of Pretoria

2.4 THE PIRLS 2006 ASSESSMENT FRAMEWORK

PIRLS 2006 focused on three aspects of assessing reading literacy which included purposes for reading, processes of comprehension, and reading behaviours and attitudes to reading (Mullis et al., 2006).

A spread of the percentage of text in the reading assessment that is dedicated to reading purposes and process for comprehension is encapsulated in Table 2.1.

Table 2.1: Percentages of Reading Assessment devoted to Reading Purposes and Processes (taken from Mullis et al., 2006)

Purposes for Reading	**Percentage**
Literary Experience	50%
Acquire and Use Information	50%
Process of Comprehension	
Focus on and Retrieve Explicitly Stated Information	20%
Make Straightforward Inferences	30%
Interpret and Integrate Ideas and Information	30%
Examine and Evaluate Content, Language, and Textual Elements	20%

Although PIRLS 2006 examines the purposes of reading and the processes of comprehension separately, neither function independently or in isolation of each other or from the context in which learners live and learn. The processes of comprehension and the purposes for reading form the basis of the written test of reading comprehension (Mullis et al., 2006) and are discussed below.

2.4.1 Purposes for Reading

There are various reasons for reading. Widely, these reasons may include personal interest, pleasure, community participation and reading to learn. However, PIRLS 2006 focuses on two purposes for reading that are assumed to account for most of the reading done by learners in a variety of contexts.

© University of Pretoria

These are, according to Mullis et al. (2006), reading for literary experience and reading to acquire and use information. The purposes for reading are achieved through the learner's interaction with the text. Because both types of reading purposes are important for learners at this stage, PIRLS 2006 affords both purposes equal weight in the assessment of each (see Table 2.1, above).

With respect to reading for literary experience, the learner engages with the text so as to become involved in imagined events or settings and be able to appreciate and enjoy the language. To better understand the literature, the learner needs to relate the text to his or her experiences, feelings and knowledge of the literary forms. In the main, literary texts used in the PIRLS 2006 assessment are drawn from narrative fiction and offer the learner the opportunity to explore situations and feelings they have not yet encountered. Although some of the PIRLS 2006 reading assessment takes the form of narrative fiction, events, actions and consequences, it provides the learner with the experience to reflect upon situations that mirror real life (Mullis et al., 2006).

Reading to acquire and use information is the second purpose for reading. Here the learner is presented with the opportunity to interact with aspects of the real world so that an understanding can form of how the world is and has been and why certain things work as they do. Learners may go beyond the mere acquisition of information and actually use the information for reasoning and also in actions (Mullis et al., 2006). Texts in this regard may be arranged chronologically, logically and expositorily thus presenting explanations or describing event. In PIRLS 2006, informational texts may be presented using tables or illustrated with both diagrams and pictures.

2.4.2 Processes of Comprehension

Assessment of reading comprehension rests on the process for comprehension and purposes for reading (Mullis et al., 2006). Four processes of comprehension are assessed within each of the two purposes for reading.

The first process is *focusing on and retrieving explicitly stated information;* the second *making straightforward inferences*; the third *interpreting and integrating*

© University of Pretoria

ideas and information; the last process *examining and evaluating content, language and textual element*s. These processes form a hierarchy from easiest to most complex (Mullis et al., 2006).

With respect to the process of *focusing on and retrieving explicitly stated information,* the learner is expected to retrieve only information contained in the text, in which case there is no need to infer from the text or to interpret it. Learners executing this process may use various ways to locate and understand content that is relevant to the question asked. Retrieving explicitly stated information requires that the learner not only understand what is stated explicitly but also how information is related to the question posed (Mullis et al., 2006).

Reading tasks that may exemplify this type of text processing may include the following:

- Identifying information that is relevant to the specific goal of reading
- Looking for specific ideas
- Searching for definitions of words or phrases
- Identifying the setting of a story (for example, time, place)
- Finding the topic sentence or main idea (when explicitly stated) (Mullis et al., 2006, p.13).

In so far as *making straightforward inferences* is concern, the learner is required to construct meaning from text and be able to move beyond its surface so as to fill in the perceived 'gaps' in meaning that often occur. In this case, the ideas are explicitly stated and are text-based. However, it is the responsibility of the learner to connect these ideas so as to draw inferences (Mullis et al., 2006). Reading tasks that demonstrate this type of text processing may include the following:

- Making inferences that one event caused another event
- Concluding what is the main point made by a series of arguments
- Determining the referent of a pronoun
- Identifying generalisations made in the text

© University of Pretoria

- Describing the relationship between two characters (Mullis et al., 2006, p. 14).

Mullis et al. (2006) explain that learners who engage in *the interpretive process* do so in order to construct a more specific or more complex understanding of the text through integrating their personal knowledge and experiences with the meaning that is found in it. However, meaning constructed in such a way may differ because of the personal experiences and reading skills that the learner brings or meaning attached to events in the text. Nonetheless the process is similar to the making of straightforward inferences in that the learner is processing text beyond the sentence level.

Reading tasks that may be associated with this type of text processing may include:

- Discerning the overall message or theme of a text
- Considering an alternative to actions of characters
- Comparing and contrasting text information
- Inferring a story's mood or tone
- Interpreting a real-world application of textual information (Mullis et al., 2006, p.15).

Lastly, at the most complex level for which PIRLS 2006 makes provision, learners are expected to engage in the process of *examining and evaluating content, language and textual elements*. In order for the learners to be able to examine or even evaluate content, their understanding of the world comes into play. They are able to accept, reject or remain neutral to the text presentation. Here meaning is examined from the personal perspective or an objective perspective. Learners who engage in this process are regarded as "...standing apart from the text and examining or evaluating it" (Mullis et al., 2006, p.16).

Reading tasks that may represent this type of text processing include the following:

- Evaluating the likelihood that the events described could really happen
- Describing how the author devised a surprise ending

© University of Pretoria

- Judging the completeness or clarity of information in the text
- Determining an author's perspective on the central topic (Mullis et al., 2006, p.16).

2.5 ASSESSMENT INSTRUMENTS

Consistent with the broad covered goals of the PIRLS 2006 framework and the emphasis on the use of authentic text, passages together with their accompanying items required extensive time. A total of 13 assessment booklets were designed (Mullis et al., 2006), each containing two reading passages.

2.5.1 Reading Literacy: Achievement Booklets

Grade 4 level stories and informational texts, included in the assessment booklets, were taken from different countries (Howie & Venter, 2008). An important finding by the PIRLS Reading Development Group was that a valid assessment of two purposes for reading, namely reading for literary experience and reading to acquire and use information, with reliable measures of two processes of comprehension would have meant six hours of testing time. It is unreasonable to expect the administration of the entire set of passages and test items to any one child. Consequently, the PIRLS 2006 achievement booklet design used a matrix sampling technique, whereby the passages and accompanying items were divided into groups or blocks, and individual learner booklets were made up from these blocks according to a plan. The six hours of testing time were then divided into 40–minute blocks of passages and items, labelled as follows: L1 – L5 for the literary passages and I1 – I5 for the informational passages (see Table 2.2) (Mullis et al., 2006).

© University of Pretoria

Table 2.2: PIRLS 2006 Matrix–Sampling Blocks (taken from Mullis et al., 2006, p.39)

Purpose for Reading	Block
Literary Experience	L1 L2 L3 L4 L5
Acquire and Use Information	I1 I2 I3 I4 I5

The 10 blocks were then distributed across 13 booklets, each consisting of two 40–minute blocks of passages and items, with each learner expected to respond to one assessment booklet. Booklet 13 consisted of two blocks (one literary and one informational) and was presented in colour and a magazine–type format with questions in a separate booklet. This learner booklet is referred to as the PIRLS "Reader" (Mullis et al., 2006) and was left at schools after completion of data collection for use in the classroom.

Table 2.3 (above) illustrates how the test booklets were compiled. Twelve test booklets are derived by combining four literary (L1, L2, L3 and L4) and four informational (I1, I2, I3 and I4) Blocks. The 13th booklet, the Reader, accounts for the remaining literary block, L5, and informational block, I5. Although the blocks, L5 and I5, in the Reader are not directly linked with any other block, the pairing of blocks in booklet 1 to 12 ensures that there are good links both among the literary and informational passages as well as between the two purposes for reading.

Table 2.3: PIRLS 2006 Learner Booklet Design (taken from Mullis et al., 2006).

Booklet	Literary Experience	Acquire and Use Information
1	L1	L2
2	L2	L3
3	L3	L4
4	L4	I1
5	I1	I2
6	I2	I3

© University of Pretoria

Booklet	Literary Experience	Acquire and Use Information
7	I3	I4
8	I4	L1
9	L1	I1
10	I2	L2
11	L3	I3
12	I4	L4
Reader	L5	I5

2.5.2 Question Type and Scoring Procedures

The PIRLS 2006 assessment uses two question formats, namely multiple choice and constructed response items. Each multiple choice question is worth one point. Apart from one point, each multiple choice question provides learners with four response options, of which only one is correct. Mark allocation on the constructed response questions depends on the depth of understanding required in a constructed, written response. Constructed response questions are worth one, two or three points. This question type is mainly used to assess any of the four comprehension processes and is consistent with the definition of literacy underlying the framework. On average, at least 15 score points – made up of approximately seven multiple-choice items (1 point each), two or three short-answer items (1 or 2 points each), and one extended response item (3 points) - were designed (Mullis et al., 2006).

2.5.3 Behaviours and Attitudes: Questionnaires

It is broadly accepted that reading for knowledge and information is the hallmark of reading literacy. Apart from the ability to construct meaning, reading literacy involves attitudes and behaviours that support not only reading acquisition but also sustain lifelong reading. Learners with a positive attitude for reading tend to read for pleasure and information (Van Staden & Howie, 2008). In such instances, they gain valuable experience in reading different types of texts that may further their

© University of Pretoria

development as proficient readers. These learners are likely to discuss their reading either in writing or orally and are thus establishing themselves as members of the literate community. It was therefore important that PIRLS 2006 investigated learner's reading literacy behaviours and attitudes through the learner, parent, teacher and school questionnaires (Mullis et al., 2006).

Studying the home and school factors closely associated with learner's reading literacy is an important purpose in the PIRLS 2006 study. Accordingly it administered questionnaires to learners, their parents, teachers and principals of the schools. These questionnaires were designed to measure important aspects of learners' home and school environment (Mullis et al., 2006). A discussion of each follows.

Learner Questionnaire

Each learner who was tested was required to complete the learner questionnaire. Aspects regarding the learner's home and school life, classroom experiences and reading homework, self-perception and attitudes towards reading, out-of-school reading habits, computer use, home literacy resources and basic demographics are asked. Fifteen to 30 minutes were required for learners to complete the questionnaire (Mullis et al., 2006).

Learning to Read Survey

The home factors or background information were collected through what was referred to by the PIRLS 2006 study as the *Learning to Read Survey*. The parents or caregivers completed the questionnaire taking 15-30 minutes for completion. Information collected included parent-child literacy interactions, home literacy resources, parents reading habits and attitudes. In addition, the questionnaire collected specific information on the demographics and socio-economic aspects, thus providing a global picture of an important context for learning to read (Mullis et al., 2006).

© University of Pretoria

Teacher Questionnaire

The teacher questionnaire collected data on the characteristics of the class tested, instructional time, materials, classroom resources, assessment practices, home-school connection, teachers' views on their opportunities for collaboration with other teachers and teacher development as well as personal information about the teachers' education and training. This questionnaire was completed by the teacher whose class was sampled and required about 30 minutes to complete (Mullis et al., 2006).

School Questionnaire

The principal of each school participating in PIRLS 2006 was expected to complete the school questionnaire, designed to take 30 minutes to complete and provide information about the school enrolment, school characteristics, available resources, indicators of socio-economic background of learners in the school, instructional time, school resources, emphasis and materials in reading instructions, home-school relations and school climate (Mullis et al., 2006).

Curriculum Questionnaire

The national research coordinator of PIRLS 2006 in each country completed the curriculum questionnaire, which sought information pertaining to the goals of reading instructions, reading curriculum, national policy on reading, which included time specified for reading, goals and standards for reading instruction, provision of books and other literacy resources (Mullis et al., 2006). Data collected from the questionnaire does not form part of the current study.

Minor revisions were suggested for PIRLS 2006 and incorporated into the PIRLS 2006 contextual framework and these included:

- Expand the section on national and community context to include the emphasis on literacy in a country

© University of Pretoria

- Include more references to the home context, such as home resources and student's literacy activities outside of school
- Separate school and classroom context to differentiate between influencing factors of these environments
- Add a section to address homework and both formal and informal assessment of performance in reading within classroom context
- Update references to include current research since PIRLS 2001 (Kennedy, 2007, p.24).

However, in keeping with the investigation of the school context, this study only focuses on selected items from the teacher questionnaire as well as the school questionnaire and excludes the curriculum questionnaire, learner questionnaire and parent questionnaire (or Learning to Read Survey). Learner data for purposes of this study takes the form of the achievement data.

2.6 SUMMARY

The focus in this chapter was on providing an overview of the IEA and the origin of PIRLS 2006. A definition espoused for PIRLS 2006 was presented coupled with the purpose for reading and processes for reading comprehension. The different contexts not only provide a theoretical framework for the development of the PIRLS 2006 study, but also to describe those contexts within which learners learn to read.

This chapter paid attention to the assessment data available for Grade 5 learners, as well as contextual background information as gathered by means of learner, parent, teacher and principal questionnaires. Of interest to this study is particularly the teacher and principal questionnaires in efforts to provide relevant data about the learner's reading achievement in relation to different curricular, instructional practices as well as the general school environment (Mullis et al., 2007). Although PIRLS 2006 has as its focus the experiences learners have both at home and school, only the school context, as derived from teacher and school questionnaire data, is significant to this study, coupled with learner achievement data.

© University of Pretoria

CHAPTER 3

A REVIEW OF LITERATURE

3.1 INTRODUCTION

This study aims to determine the effect of school conditions on learner reading achievement in primary schools in South Africa using PIRLS 2006 South African data. It utilises the body of School Effectiveness Research (SER), School Improvement Research as well as school climate literature to focus on school conditions for purposes of this study that may have an effect on learner achievement. Building on the concept of school climate, this study follows the traditions of school effectiveness research by measuring the relative relationship strength between school enhancing conditions and learner reading achievement in primary schools in South Africa.

Before any discussion of school conditions can take place, school climate needs to be explored, an aspect of school effectiveness as described by Scheerens (2005). This has been observed to have a positive effect on the quality of learner achievement (Lubienski, Lubienski, & Crane, 2008; Scheerens, 2005) provided demographic factors are kept constant. However, in South Africa demographic factors may play a major role considering the country's history of inequality. Equally important is that school climate does not only have a positive effect on learner achievement but it is also a factor that has a strong relationship with the quality of learner achievement (O'Donnell & White 2005). Apart from having a strong relationship with learner achievement, school climate studies find significance in school effectiveness research (Anderson, 1982; Scheerens, 2005; Johnson, Livinston, Schwartz & Slate, 2000; Scherman, 2002; Nkosi, 2007), which is traditionally concerned with the association of school enhancing conditions and learner achievement, that is what works best in education and why (Creemers, 2002; Scheerens, 2005). School improvement research tends to focus mainly on policy necessary to improve learner achievement.

© University of Pretoria

Researchers and education policymakers have long been interested in the effects of schooling on learners, and their concern includes what to look at in schools and how. Though complicated, this task requires the studying of human behaviour in schools which involves ordering and conceptualisation of simultaneously existing and mutually interacting variables (Argyris, 1952, as cited in Anderson, 1982). However, McEvoy and Welker (2000) posit that a school climate that is characterised by positive interpersonal relationships and optimal learner opportunities, irrespective of the school's demographic environment, has the potential to enhance learner achievement.

Against this background, the aim of Chapter 3 is to explore literature from school effectiveness research, school improvement research and school climate to identify school conditions that may link with learner achievement. The chapter describes this study's conceptual framework that will guide data analysis and concludes with a discussion of the research sub-questions guiding this study.

Section 3.2 elaborates on school effectiveness and school improvement in order to ground the study, while Section 3.3 presents what school conditions refers to in this study against a background of school climate as a specific aspect of school effectiveness. Section 3.4 focuses on the discussion of some of the factors that find prominence in both school climate and school effectiveness research studies which will provide insight on the effects of school conditions on learner reading achievement. Scheerens' (2000,2005) integrated model for school effectiveness studies is used as a conceptual framework for this study and will be discussed in Section 3.5, while the summary of the chapter is found in Section 3.6.

3.2 SCHOOL EFFECTIVENESS AND SCHOOL IMPROVEMENT

School effectiveness encompasses all theories and research studies that have, as a focal point, a direct link between educational processes and learner achievement (Creemers & Reezigt, 1997). Thus, school effectiveness studies rest on the assumption that a school has a profound effect on learner achievement (Purkey & Smith, 1983; Johnson et al., 2000).

© University of Pretoria

According to Creemers and Reezigt (1997), school effectiveness is concerned essentially with developing knowledge based on questions, theories and research about educational practices, providing a better insight into educational phenomena, to objectively engage in the investigation of how education works and thus explaining underlying processes in terms of stable causes and effect.

School effectiveness studies have identified a range of school-wide factors and classroom enhancing factors, as in the review by Purkey and Smith (1983, p.443): The school and the management of the site which includes all staff of the school comprise:

1. Instructional leadership that specifically focuses on the principal's management of the school.
2. Staff stability, such as exceptional interpersonal relationships.
3. Curriculum articulation and organisation, which implies a planned and purposeful programme that is academically beneficial. This is a clear programme that focusses on the purpose or aim of the curriculum.
4. School-wide staff development aimed at providing relevant skills and techniques related to the instructional programme.
5. District support in the form of guiding and helping the entire school.

However, Scheerens (2005, p.196), through his review of school effectiveness studies, has provided what appears to be the most comprehensive list of 12 enhancing factors for school effectiveness:

1. Achievement orientation/High expectations/Teacher expectation
2. Educational leadership
3. Consensus and cohesion among staff
4. Curriculum quality/ opportunity to learn
5. School climate
6. Evaluative potential
7. Parental involvement
8. Classroom climate

© University of Pretoria

9. Effective learning time (classroom management)
10. Structured instruction
11. Differentiation, adaptive instructions
12. Feedback and reinforcement

Teddlie and Reynolds (2001) and Luyten, Visscher and Witziers (2004) classify criticism directed at School Effectiveness Research (SER) into three main categories. Firstly, the political–ideological nature of SER is problematic. Critics regard SER as blinded by governmental concern and an obsession with the link between school factors and learner achievement, with the result that objectivity may be compromised (Luyten et al., 2005).

Second are the theoretical limitations of SER, as conclusions on how a particular phenomenon influences learner performance may not be plausible and thus may impede theory development (Teddlie & Reynolds, 2001). In this regard, Luyten et al. (2004) propose that SER needs to have standardised instruments and be able to draw from other theoretical developments in other disciplines. Creemers (2002), echoing this idea, proposes that school effectiveness research draws from other disciplines in order to be able to integrate school effectiveness and school improvement perspectives and achieve effective improvements. By extension it may contribute to theory development. Lastly, quantitative research methodology uses survey methods, particularly cross-sectional methods, and according to critics only makes a brief outline rather than studies that cover a wide time span. Furthermore, during data analysis a tendency to control school input characteristics results in reporting only the between school variance which constitutes limited impact on school effects. Luyten et al. (2004) suggest that school effectiveness research may benefit by focusing on the teachers because "the effect of schooling is more appropriately in the rate of learning rather than in the level of learner achievement" (p.266). However, a pragmatic approach in studying schools may offer advantages (Teddlie & Reynolds, 2001).

Creemers and Reezigt (1997) posit that all theories and research studies that focus on strategies for educational change to increase learner achievement, coupled with strengthening the school management capacity, may be classified within the school improvement perspective.

© University of Pretoria

Harris and Chrispeels (2006) trace the trajectory of school improvement research and suggest five different but overlapping phases. Phase 1 of school improvement research consists of a concerted research effort on teacher action, and is followed by a focus on the school as a unit of change in phase 2. Replication of comprehensive school reforms characterises phase 3, while phase 4 gives rise to decentralisation of the system with sweeping educational reforms. In phase 5, the focus is on networking communities as well as the link with immediate district initiatives, but this seems to be still maturing.

With respect to school improvement studies, changing policy, particularly the role of the state and school leadership, finds prominence. According to Grauwe, Lugaz, Balde, Diakhate, Dougnon, Moustapha and Odushina (2005), decentralisation should not be misconstrued as diminishing the role of the state in the control of education but that of change, though the implementation at school level is challenging. On a positive note, decentralisation has been instrumental in identifying principles of good practice in schools. Large-scale reforms that have taken place in the South African political landscape include decentralisation. For instance, the formation of School Governing Bodies (SGBs) is but one classical example of the consequences of decentralisation. However, for it to be effective Muijs and Harris (2006) argue that the establishment of a culture of trust and support, teacher leadership and principals that are the initiators of teacher leadership need to be in place.

Reezigt and Creemers (2005) take the view that school improvement requires effective school level processes wherein the teacher is the force of change within an educationally conducive context. It is a context that supports continuous teacher support and focuses on the school processes that are linked to learner outcomes (Harris & Chrispeels, 2006). School improvement may benefit and be sustained in a school context that fosters teacher empowerment and places a major emphasis on teaching and learning (Stoll, 2009).

However divergent the school improvement phases seem, school improvement research tends to converge into considering what works in schools (Harris & Chrispeels, 2006). The convergence into what works marks a shift to capitalise on the similarities rather than differences between school improvement research and

© University of Pretoria

school effectiveness research. Thus, Reezigt and Creemers (2005) suggest a link between school effectiveness research as well as school improvement research as holding a promise for enhanced learner achievement, and point out that effective school improvement rests largely on the willingness by schools to become learning sites.

An effective school requires reflective teachers who perceive themselves as learners. Altering modes of communication by teachers is the hallmark of reflective teachers (Katyal & Evers, 2004). According to Muijs and Harris (2006), for teachers to spread good practices in the changing learning context and take initiatives for effective school improvement, an environment that is embedded in trust and support foregrounds any attempt for teachers to be change agents. It is increasingly clear that learner achievement stands to benefit from school effectiveness research and school improvement research with the teacher as the driver of effective school improvement. In summary, Muijs, Harris, Chapman, Stoll and Russ (2004) propose that effective schools in which learners are able to achieve may benefit through selecting and adopting success strategies that involve creating an information-rich environment, with a focus on teaching and learning, renewed leadership, building a learning community, and heightened parental involvement within the changing environment. Therefore, the school processes with teachers as drivers of change take centre stage across the two research continuums.

The following section explores the concept of school climate as background to identifying school conditions as used for purposes of this study.

3.3 EXPLORING THE CONCEPT OF SCHOOL CLIMATE AS BACKGROUND TO IDENTIFYING SCHOOL CONDITIONS

A discussion of school climate is incomplete without a brief differentiation between climate and culture. The tendency to use the concept of school climate and school culture interchangeably is, according to Van Houtte (2005), problematic as school climate entails the total quality of the environment or school as compared to

© University of Pretoria

school culture, which is concerned with shared assumptions, beliefs or thinking. On one hand, culture may be of importance in school effectiveness and school improvement research, but on the other hand, school climate:

> ...should be reserved to describe organizations in their entirety, including ... the relationships between individuals and groups in the organization, the physical surroundings, and the characteristics of individuals and groups participating in the organization (Van Houtte, 2005, p, 85).

It follows that school culture is contained within school climate.

On the other hand, Schoen and Teddlie (2008) contend that school climate is a subset of school culture. Their argument is based on the new definitions of the four dimensions of school culture as represented in Table 3.1.

Table 3.1: Definitions of the Dimensions of School Culture (Schoen & Teddlie, 2008)

I. Professional Orientation	II. Organisational structures
The activities and attitudes that characterise the degree of professionalism present in the faculty	The style of leadership, communication and processes that characterise the way the school conducts its business
III. Quality of the Learning Environment	IV. Learner-Centred Focus
The intellectual merit of the activities in which learners are typically engaged	The collective effort and programmes offered to support learner achievement

School climate, according to Welsh (2000), entails factors such as communication patterns, norms about what is appropriate behaviour and how things should be done, role relationships and role perception, patterns of influence and accommodation. A closer look at Welsh's (2000) view on school climate reveals that communication patterns are part of school climate which form part of Schoen and Teddlie's Dimension II – organisation structures. By implication, Dimension II contains elements of school climate. In addition, Sweetland and Hoy (2000) point to the internal characteristics that differentiate one organisation from the other. This view encapsulates and fuses all other remaining dimensions of Schoen and Teddlie's definitions into one, thus making school climate a broader and

© University of Pretoria

overarching concept compared to school culture. Accordingly, school climate is a broad concept that is suitable to describe the total quality of the school environment (van Houtte, 2005).

Scherman (2002) considers school climate as referring to the school atmosphere, the individual attitudes and the interaction of the principal, educators and learners in a school. These interactions influence their individual perceptions and invariably affect their behaviours towards one another. On the one hand, McEvoy and Welker (2000) state that school climate consists "of the attitudes, beliefs, values and norms that underlie the instructional practices" (p.134), while on the other hand Hoy (1990) posits that "school climate is the relatively enduring quality of the school environment that is experienced by participants, affects their behaviour, and is based on the collective perceptions of behaviours in schools" (p.152).

School climate is viewed as a "set of internal characteristics that distinguishes one organisation from another and influence the behaviour of its members" (Sweetland & Hoy, 2000, p.705). These characteristics finds currency with Glover and Coleman (2005), who posit that school climate is concerned with factors that affect learner achievement and measurability[3] of those factors.

It may be a missed opportunity to focus on individual views on school climate, as taking all these views together suggests that it is concerned with all those human endeavours to transform school inputs in pursuance of optimal learner achievement**.** School climate implies the interacting characteristics that are unique to a school and is the sum total of interrelated activities and processes that take place in a school in order to achieve enhanced learner achievement. In the attempt to identify school conditions from school climate literature this study will benefit from exploring factors that are associated with school climate.

[3] Measurability is the measure of the relationship between a factor and other factors and learner achievement.

© University of Pretoria

3.4 SCHOOL CLIMATE FACTORS

School climate is generally explained from two perspectives, particularly openness as well as its health. An open school climate is characterised by genuine commitment of teachers and principals to learner achievement. In such a school climate the principal not only leads by example but also provides direction and support. A closed school climate consists of elements of dishonesty by both the teachers and principal to learners' achievement. Furthermore, the principal is ineffective, unfriendly and detached (Sweetland & Hoy, 2000).

The second perspective pertains to the health of the school climate. Sweetland and Hoy (2000) posit that a healthy school climate houses positive learners, teachers and principal interrelationships. On the other hand, an unhealthy school climate is characterised by negative and toxic conflicts. The authors further combine the two perspectives and refer to school climate as characterised by four factors. The first factor pertains to leadership and is referred to as *collegial leadership*, which views the principal's actions to be supportive and egalitarian. The second factor is the teacher-to-teacher relationship and is called *teacher professionalism*, which encompasses commitment to learners, teacher's task of teaching, respect for colleagues, warmth and friendliness. The third factor is concerned with academics, resource support and principals' influence and is referred to as *academic press*. Here reasonably high but achievable goals are set, learners respond positively to the challenge and the principal supplies the resources and exerts influence in the attainment of set goals. The fourth factor is called *environmental press*, and is mainly concerned with pressure from both the parents and the community to change the school policy and influence the general functioning of the school.

Nkosi (2007) finds that factors that have a profound impact on school climate include:

> trust, respect, physical resources, safe and orderly environment, control, staff cohesion, opportunities for learner participation, use of reward and praise, high expectations, collegial organizational processes, teacher –

© University of Pretoria

learner cohesiveness and support, administrator – teacher relationship, learner morale, teacher morale and instructional leadership (p,18).

This study sifts through school climate factors in order to identify those school conditions that may have an influence on learner achievement. Drawing from Nkosi's (2007) school climate factors, this study identifies physical resources with special reference to their use, safe and orderly atmosphere together with academic press (Sweetland & Hoy, 2000) as school conditions to be considered. Here academic press means creating learning opportunities, assessment practices and efforts to involve parents as indicators of curriculum quality. Furthermore, this study incorporates selected enhancing factors proposed by Scheerens (2000, 2005). Thus, drawing from the school climate studies and school effectiveness research the following factors are discussed as they apply to school conditions for the purposes of this study:

1. Educational Leadership
2. Curriculum Quality
3. Safety and Orderly Atmosphere
4. Use of Resources

Conceptualising school conditions for purposes of this study draws on the PIRLS 2006 assessment framework as described by Mullis et al., (2006) who reveal that PIRLS 2006 considers school context at two levels, namely, school wide context and the classroom context. Conditions that have an influence on learner reading achievement and found within the school wide environment are school policies, general school environment (safety of the environment) and availability of resources, while classroom context is characterised by conditions such as classroom environment and structure, instructional material and technology together with teacher training and preparations, instructional strategies and activities together with homework and assessment.

In this study, educational leadership and a safe and orderly atmosphere are conditions in the school-wide context, while curriculum quality and the use of resources are conditions within the classroom.

© University of Pretoria

Despite categorising school conditions between the school-wide and classroom context this study is not multi-level.

3.4.1 Educational Leadership

Of significance is the observation by Scheerens (2005) that there seem to be two dominant discernable approaches to educational leadership. The first concerns the structural conditions around instructional process, the second approach considers cultural aspects. The structural approach focuses on aspects such as delegation of routine tasks to others, whilst learner achievement is regularly monitored and observation of both the teacher and learners as central aspects.

The cultural approach is primarily on the stimulation of an achievement–oriented policy, articulation of the school mission, gaining support from outside stakeholders, commitment to various educational decisions and stimulating cooperative relationship between teachers with the aim of attaining joint ownership of the mission. However different these approaches may seem, they suggest that the central point is the creation of coherence and consensus among staff members. The observation resonates with the view of Leithwood and Riehl (2003) that school leadership is an important aspect in fostering a positive school climate. Furthermore, Johnson et al, (2000) believe that the perception of both teachers and parents with regard to the principal's strong leadership skills are linked to learners' achievement through the influences on internal school processes.

A vast corpus of literature claims that the principal is to a greater degree responsible for creating and nurturing of the school climate and the culture of teaching and learning (Masitsa, 2005; Kruger, 2003; Steyn, 2007; Timperley, 2005; Kamper, 2008; Barth, 2002; Ntuta & Schurink, 2010). In an attempt to do so, teachers play a pivotal role. By implication, principals need to be aware of and at best consider contributions from teachers in this regard. Haycock and Labuschagne (2006) provide evidence that lack of support from the people who are important to the realisation of a strategic plan is the most common factor in poor performance. Their study revealed a linear relationship between performance and people management competencies in an organisation.

© University of Pretoria

Similarly, Khoza (2004) has noted that teachers considered a principal who tends to exhibit a collegial leadership style to be a positive and enabling one. In addition, Niemann and Kotze (2006) have discovered a strong correlation between enabling others to act and sociability. This relationship entails 'fostering collaboration, building relationships of mutual trust and making others feel important ...' (p. 620). Kruger (2003) points out that instructional leadership is moving towards a collaborative approach and adds that "in order for these initiatives to be effective principals need to empower educators to be able to fulfil these role" (p. 211).

Indeed, collaboration could be beneficial to learner achievement. Evidence is contained in a study conducted by Goddard, Goddard and Tschannen–Moran (2007) in the United States of America, with 47 primary schools 452 teachers and 2 536 Grade 4 learners. Findings here suggest that a high level of teacher collaboration accounted for high learner achievement in Mathematics and reading. The authors go on to suggest that opportunities need to be created for teachers to collaborate on aspects related to curriculum, instruction and professional development. In the same vein, Taylor, Pearson, Clark and Walpole (2000) in their study of 14 primary schools in reading instruction found that teacher collaboration and communication were statistically significant and reading was a priority in effective schools, though it was not linked to learner achievement.

The present evidence is that school conditions paint a complex picture of norms and beliefs that requires leadership to create opportunities for collaboration. It inescapably remains the responsibility of the principal to be able to foster and build relationships, because a variety of different relationships are overtly and or tacitly present in a school. Robinson (2007) in her meta-analysis encapsulates leadership dimensions that may have profound effects on learner achievement and that entails amongst others strategic resourcing, ensuring an orderly environment and supportive atmosphere.

© University of Pretoria

3.4.2 Curriculum Quality

Saito and van Capelle (2009) argue that curriculum quality is an evolving construct but is measured through learner achievement and the characteristics of the learning environment or context. Scheerens (2005) indicates that curriculum quality is the foundation of all educational processes, involving the manner in which educational priorities are set, teaching methods and textbooks are selected and used, and how learning opportunities are created. In addition, Pill (2004) maintains that curriculum quality contains learning programmes that are based on learner-centred outcomes and support learner choices in content, assessment and reporting of outcomes. In essence, curriculum quality is regarded by Scheerens (2005) as the degree of fit between the implemented curriculum and the achieved curriculum. Embedded in this view is that assessment provides a conduit between the learning programmes and learner outcomes. As can be expected, the curriculum quality may be affected by factors such as inadequate financial investment, unfavourable teacher learner ratio, and poorly qualified teachers (Bennett, 2005). Consistent with educational priorities by Scheerens (2005), this study identifies the creation of learning opportunities, assessment practices, attention to learners with special educational needs and efforts by schools to involve parents in the educational process as indicators of curriculum quality. Details pertaining to parental involvement are contained in Chapter 2, Section 2.2.2, hence this section will only pay attention to the creation of learning opportunities, assessment practices and how schools may assist learners with special educational needs.

The creation of learning opportunities for learners in school remains the most important reason schools exist. Effective schools in reading are those that structure learning activities in a risk-free environment (William, 2001), with respect for diversity, engagement with learners and use of a variety of texts coupled with effective instructional strategies (Alvermann, 2002). For these learning opportunities to exist, teachers need to be able to design high-quality tasks in order to enhance learner experiences. Included in the design is the deliberate attempt to integrate a variety of texts.

© University of Pretoria

In most instances, teachers use assessment results in order to get to a determination that learning has or has not taken place. Stiggins and Chappuis (2005) point out that school assessment, if it is to narrow the achievement gap, needs to satisfy the following necessary but not sufficient conditions:

1. Have a clear purpose
2. Provide accurate reflections of learner achievement
3. Give learners access to descriptive feedback, and
4. Involve learners in the process (p.14).

Schools need to foster assessment practices that will actively involve learners in the assessment process, so as to afford them the opportunity to monitor their progress. William, Lee, Harrison and Black (2004) reveal that formative assessment or assessment for learning holds the promise in the quest to improve learner achievement, thus improved curriculum quality.

Involving learners in the assessment without an understanding of their educational needs may be a futile exercise. In order to appropriately design intervention strategies, schools need to have the capacity to diagnose learners' educational needs as there are different typologies. With respect to reading, various instructional strategies are available for teachers to use. For instance, teaching word-meaning rather that new words has a significant effect on reading achievement (August et al., 2005), while the use of computer technology may be used to help learners with special educational needs (Hasselbring & Glaser, 2000).

However, the success or failure of assisting learners with educational needs lie with the recruitment and effective retention of highly qualified teachers (Hammond, 2007). That said, enhanced curriculum quality requires a conducive environment that is characterised by a safe and orderly atmosphere.

© University of Pretoria

3.4.3 Safety and Orderly Atmosphere

A positive school condition fosters not only physical safety but also emotional as well as intellectual safety (Merrow, 2004). Effective schools create and maintain a safe school wherein the total school atmosphere allows for a positive interaction in a non-threatening manner between and amongst learners, teachers, school general support staff and visitors (Bucher & Manning, 2005).

Violence in schools has a negative impact and may be an impediment to an orderly and positive school atmosphere (Scherman, 2002) as well as to improved learner achievement. Violence inevitably places learners' sense of safety under threat (Zulu, Urbani, van der Merwe & van der Walt, 2004; Steyn & Naicker, 2007; Matoti, 2010). The effects of violence may include loss of self-esteem, a shortened attention span or, at worst, attention deficit disorder that may result in impaired academic achievement (Neser, 2005). A shortened attention span caused by an unsafe environment may be considered an impediment to the general learner achievement, as illustrated by Johnson, et al, (2000) who noted that parents of learners in a school consider time on task, positive school climate and a safe and orderly environment to be important for learning to take place. In addition, teachers need to be able to identify potential antisocial behaviour, such as violence, through reviewing practices that are inadequate to address antisocial behaviour and modify such practices (McEvoy & Welker, 2000). Mutual respect and rapport should be the underlying factors in an attempt to modify and minimise learners' antisocial behaviour (Khuluse, 2009).

Aldridge, Fraser and Laugksch, (2011) observe that the school physical environment is not a strong driver of what happens in the classroom. The implication of these findings suggests that classroom activities are immune to the physical school environment (Aldridge, et al, 2011). Xulu (2006) concludes that in South Africa 'schools [seem to] indicate differing levels of safety and security in their physical environment' (p.578). More so, in 2009, 19% of learners have reported having experienced some form of violence in the school (DBE, 2011).

© University of Pretoria

A safe and orderly environment needs to be maintained in schools so as to be able to provide learners with the opportunity to concentrate on their learning, and that might manifest in enhanced learner achievement.

3.4.4 Use of Resources

According to Smit and Cronje (2002), basic resources may be human, financial, physical and information, and an organisation needs to bring together all these in order to achieve its goals. With respect to education, resources are important to the extent to which they enhance or impede the realisation of quality education. Important in this study is the effect that they have on learner achievement.

Taylor (2006), following on the work of Hanushek and Kimko (2000), observed that schools did not show any significant gains in terms of learner achievement, despite having physical resources. While some studies do not establish any effects as a result of resources, other studies (e.g., Lee and Barro, 2001) have noted in their study of a cross-section of countries that school resources, particularly smaller class size, higher teacher salaries and longer school day, have a direct impact on learner achievement. Heinesen and Graversen (2005), in their study of the primary and lower secondary schools in Denmark, using school inputs from the Danish administrative register data for young children and their parents, found that learner expenditure had a modest effect on learner achievement, while teacher learner ratio was less significant. Equally important is the observation made by Lee and Loeb (2000) that teachers in small schools or with small class sizes tend to have a more positive attitude about their responsibilities to learners and their learning. Moreover, learning tends to be higher when there is a higher sense of collective responsibility and that has a positive influence on learner achievement.

It is evident that learner achievement stands to benefit more by raising the quality of teachers (Opdenakker & van Damme, 2007; Rivkin, Hanushek, & Kain, 2005). Above all, effects of school size are mediated by school practices such as cooperation between teachers irrespective of learner composition (Opdenakker & van Damme, 2007).

© University of Pretoria

A study of the impact of Free Primary Education (FPE) conducted in Kenya by Chuck (2009) found that schools that benefit from teacher cooperation were the most advantaged, while primary schools located in slums or poor areas did not benefit, thus fuelling disparities in the quality of education. By the same token, significant progress has been noted through equitable distribution of financial resources across all public schools serving different races in the education system in South Africa, though with modest effect on learner achievement (Fiske & Ladd, 2005). Likewise, van der Berg (2001) reveals that after 1994 the new government emphasised financial resources to try to eliminate spending discrimination. As a result of this shift, spending increased in formerly black schools with teacher salaries rising. Despite the increase in teacher salaries learner performance did not improve. On one hand, Yamauchi (2010) observed that quality education is concentrated in formerly white, coloured and Indian schools in areas where the majority is non-African, and though government subsidy is allocated to schools with lower quality and fees the financial resources are still poorly utilised (van der Berg, 2001). Similarly, Howie (2004) using TIMSS 1999 data, could not conclusively establish any effects on learner achievement as a result of physical resources or human resources. In essence, financial resources as implemented by the new government in South Africa do not translate to any significant effect on learner achievement.

The physical resource approach provides a limited understanding on the effects of school resources on learner achievement and a narrow view of what constitutes school resources. Physical resources such as the quality of facilities do not find prominence in literature, though Uline and Tschannen-Moran (2008) have found that the quality of physical resources showed a positive relationship with learner achievement. Nonetheless it seems effects of resources on learner achievement depend to a greater degree on the context of the country concerned. These seemingly equivocal observations provide compelling evidence to investigate the use of resources by primary schools in relation to learner reading achievement in South Africa.

© University of Pretoria

3.4.5 Studies of School Climate within the context of large scale reforms

Post-1994 South Africa has been undergoing large-scale educational reforms and changes, the effects of which have thus far failed to infuse marked improvements on learner achievement, and have not made full use of educators as a professional resource in the initiating, planning and implementation of school change (Swanepoel, 2008). The introduction of OBE brought about tensions not only in relation to the conditions of implementation and the actual practices in schools, but also in the capacity by the teachers to translate the antecedent curriculum objectives or expectations into the broader school community and classroom (Cross et al., 2002). Large-scale school reforms are characterised by challenges of their own. Four factors that pose a challenge are:

1) The challenge of changing very large numbers of schools and classrooms on a sustained basis.

2) The bureaucratic challenge of improving the connections among different areas of social policy in pursuit of better outcomes for learners.

3) The learning challenge of organising complex systems to do this work while continually modifying the approach in light of new evidence and system feedback and

4) The political challenge of galvanising the effort required to support these changes (Levin & Fullan, 2008).

There is a paucity of studies on the effect of school climate on learner achievement from large-scale studies. An array of studies suggests that the focus varies from classroom level to school level and a number of factors have been found to illustrate the effect of school climate on achievement, for instance, class size, which represents the classroom level aspect of school climate, effects on learner achievement (Wobmann & West, 2004 and O'Donnel & White, 2005), the social aspect particularly in terms of the quality of interpersonal relationships between and among learners, teachers, and staff (Leithwood & Riehl, 2003;

© University of Pretoria

O'Donnell & White, 2005; Allodi, 2010). However, the aforementioned studies were conducted in developed countries.

South African researchers have paid attention to the contextualisation and validation of school climate questionnaires and measuring of school climate. For instance, Scherman (2002) used a variety of school climate questionnaires such as the School Level Environment Questionnaire (SLEQ), the Organisational Climate Description Questionnaire (OCDQ) to contextualise, validate and measure school climate in Pretoria and its surroundings. Similarly, Pretorius and de Villiers (2009) focused on measuring educator perception in primary schools using the Organisational Climate Description Questionnaire–Rutgers Elementary (OCDQ – RE). Most recently, Aldridge, Laugksch and Fraser (2006), using the SLEQ–SA, an adaptation for the South African context, measured the perceptions of teachers on the impact of the school environment on the implementation of OBE in Secondary Schools in Limpopo. A common denominator in the above studies is that no attempt was made to link the effect of school climate on learner achievement. By extension, these studies failed to identify school factors that have effects on learner achievement.

However, Howie (2000) has alluded to classroom factors such as the communication difficulties between learners and teachers as well as factors that are outside school control, specifically the location of the school and home language of the learner (Howie, 2000). Similarly, van Staden (2010) paid attention to learner level factors. Although Milner and Khoza's (2008) study attempted to link the measure of school climate with learner achievement using the Organisational Climate Index (OCI), the study could not conclusively measure the effect of school climate on learner achievement.

School climate studies in South Africa have paid significant attention to the development and contextualisation of school climate instruments, with little attention paid to the link between school climate conditions and learner achievement. Thus, for the purposes of this study, school conditions are conceptualised in terms of educational leadership as measured by the principals' daily activities, curriculum quality (creation of learning opportunities, assessment practices, efforts undertaken to involve parents, attention to learners with special

© University of Pretoria

educational needs), and a safe and orderly atmosphere together with the use of resources. The following section discusses the conceptual framework that is utilised to guide the analysis and interpretation of results.

3.5 CONCEPTUAL FRAMEWORK

It is widely accepted that Ludwig von Bertalanffy, a biologist, is the pioneer of general system theory (Boulding, 1956; Drack & Schwartz, 2010), a major use of which is the formulation and derivation of general principles coupled with laws that are applicable or generalised to systems or their subsystems, irrespective of their kind, nature and relations between them (Kast & Rosenzweig, 1972: Bahg, 1990). Bahg (1990) points out that Bertalanffy proposed three types of system's theory. At the summit is the organismic system theory, which seeks to explain the essence of life and postulated that an organism is an open system that has wholeness, dynamic structure, activity and hierarchy or organisation. The second type is referred to as an open system, which allows the subdivision of the system into closed systems and open systems in relation to their environment. An open system exchanges information with its immediate environment while the latter does not. Furthermore, an open system may be regarded as an Input – Transformation–Output Model, precisely because it has a dynamic relationship with the environment, and is able to receive various inputs, transform these inputs in some ways and export outputs back to the environment (Kast & Rosenzweig, 1972). Bahg (1990) points out that in order to study open systems a researcher needs to consider the inputs, outputs and states. The third and last type is the dynamic system model, which is concerned with the subdivision of systems into static and dynamic systems with respect to their dependency.

School effectiveness research is concerned with measuring educational effects as well as attributing effects to various types of antecedent conditions by differentiating between those conditions that need to be controlled and those conditions that can be changed (Scheerens, 2000).

© University of Pretoria

In this type of research, schools are compared to biological systems which tend to adapt to their environment, thus the use of the systems theory. Scherman's (2002) view of a school is consistent with the open system model by pointing out that in a school, the principal, administrative staff, maintenance staff, educators and learners who work interdependently of each other may be regarded as subsystems of the broader system. Scheerens (2000) points out that system theory is useful in revealing the impact of school input characteristics on learner achievement (output) so as to demonstrate which school process or throughput factor is responsible. Thus, in order to appropriately determine the effects of school climate on learner reading achievement in primary schools in South Africa this study utilises the Context-Input-Process-Output model as espoused by Scheerens (2000; 2005) (see Figure. 3.1).

© University of Pretoria

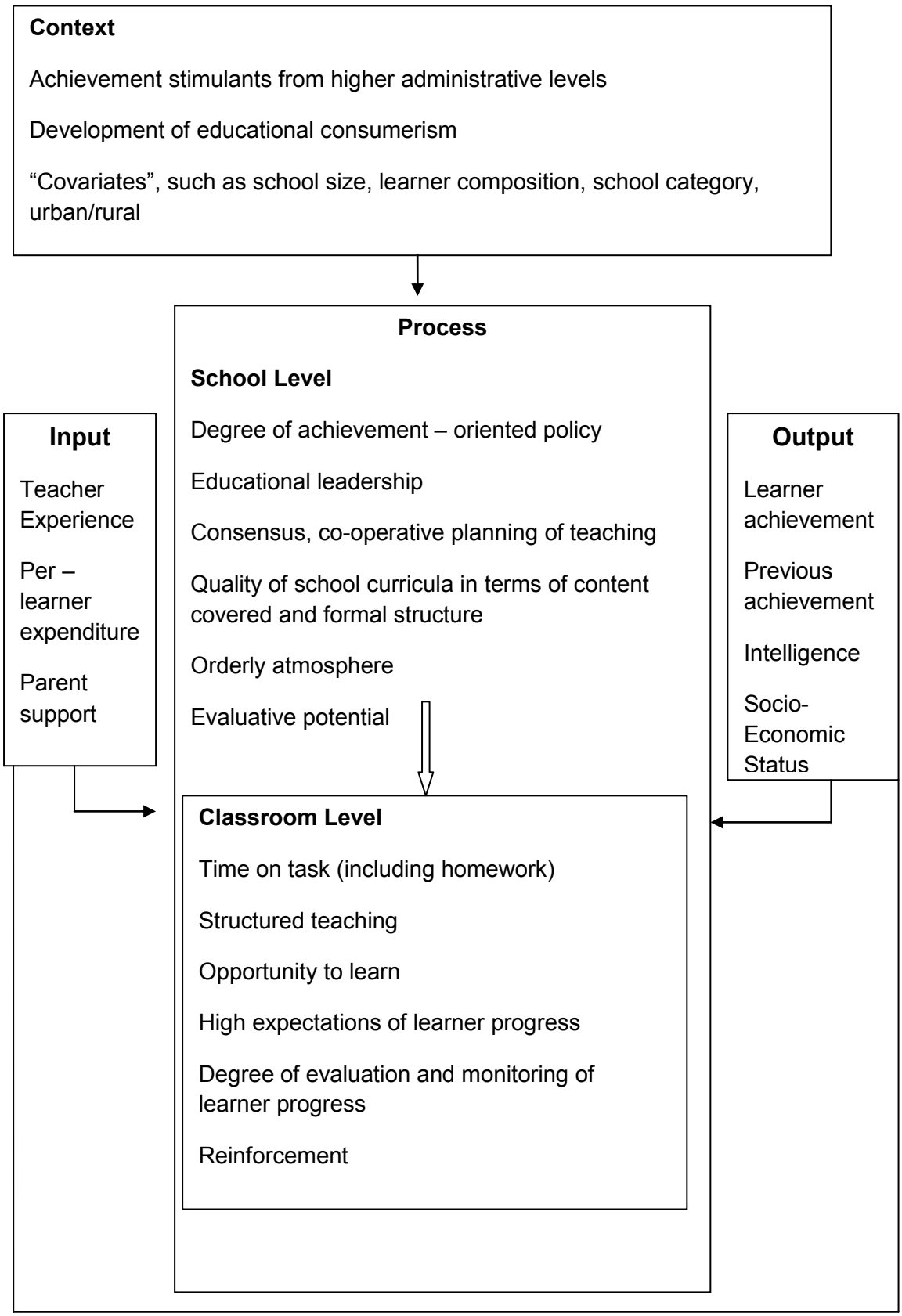


Figure 3.1: Integrated Model for School Effectiveness (Scheerens, 2000)

© University of Pretoria

3.5.1 Scheerens' Integrated Model for School Effectiveness (2000) and (2005)

The integrated model for school effectiveness research as proposed by Scheerens (2000) provides a blend across the different strands (production function, instructional effectiveness and school effectiveness) of effectiveness research. As this study focuses on process factors as represented by school conditions, the integrated model seems to provide an appropriate conceptual model to guide this study.

Scheerens (2000) not only proposes the integrated model for school effectiveness research, but also suggests 14 enhancing school conditions based on the effects of changeable school conditions across developing and develop countries. However, in a 2005 review 14 enhancing conditions are reviewed and revised to 12 (Scheerens, 2005).

In addition, the integrated model for school effectiveness is appropriate for this study on the bases of its assumptions, namely, that:

1. Outputs are the building blocks to judge curriculum quality.
2. Selection of both context and process variables need to be guided by those factors that have been shown to be correlated with high outputs.
3. The model is multi-level in nature, combining enhancing conditions at system, school, classroom and individual learner level (Scheerens, 2005 . p.56).

In addition to the integrated model for school effectiveness, Scheerens (2005) suggests that at the process level researchers need to consider those factors that have been found to enhance learner achievement, and thus suggests 12 from 14 enhancing conditions that may be included in the model.

1. Achievement orientation/high expectations/teacher expectations
2. Educational leadership
3. Consensus and cohesion among staff

© University of Pretoria

4. Curriculum quality/opportunity to learn
5. School climate
6. Evaluative potential
7. Parental involvement
8. Classroom climate
9. Effective learning time(classroom management)
10. Structured instructions
11. Differentiation
12. Feedback and reinforcement (p.62).

PIRLS focuses on the purposes for reading, processes for comprehension, and reading behaviours and attitudes to reading. It is in the different and yet interrelated and supporting contexts under which learning to read occurs, namely, the home, the school and the classroom (Mullis et al., 2006).

Thus, while PIRLS utilises a framework different from that of Scheerens (2000; 2005), it is possible to take a systemic contextual view to measure those factors at the school level that may enhance or impede learner reading achievement in primary schools in South Africa.

3.5.2 Conceptual Framework for the current study

It is imperative to point out that Scheerens' (2000) integrated model for school effectiveness is widely used for disaggregated data as opposed to aggregated data, that is data about groups or organisations such as schools rather than about an individual or individual school (Babbie, 2013). Here, Scheerens (2000) warns that the model has aggregate limitations, thus it focuses on the level of individual school rather than a group thereof. PIRLS 2006 was not designed according to the integrated effectiveness model as proposed by Scheerens (2000) and has collected aggregated data about schools, learners, teachers and parents.

© University of Pretoria

Nonetheless, PIRLS 2006 South African data presents a unique opportunity to combine school- and classroom-enhancing factors to measure the effect of school processes on learner reading achievement. To that effect, Scheerens' (2000) model provides an opportunity if populated with school condition factors as identified from PIRLS 2006 South African data and utilised for purposes of this study.

3.5.3 Context as Conceptualised for the Current Study

Four contexts for the PIRLS 2006 study have been identified, namely the national and community, the home, the school, and the classroom (Mullis et al., 2004). The current study focuses exclusively on the role of the school context in identifying conditions that could contribute to reading literacy achievement results. Educational practices, instructional time and benchmarking are some of the ways the national context shapes the school and other contexts. The country's emphasis on literacy and its activities affects the ultimate commitment of time, resources, governance and organisation of the education system (Mullis et al., 2004).

McGregor et al. (2007) give conservative estimates of 200 million children worldwide under the age of five who are in poor health, suffer from malnutrition, and live in poverty. Zhang (2006) reveals that 45 million school-age children in the sub–Saharan region were not enrolled in school by 2001 and by comparison the urban-rural literacy gap in South Africa was more pronounced than in Malawi and Lesotho. Children exposed to adverse socio-economic conditions, inadequate school resources (Zhang, 2006. Howie, 2002) coupled with inadequate social amenities (Sunday & Olatunde, 2010) are more likely to struggle in school. Heyneman and Loxley (1983) argue further that learners in developing countries such as South Africa tend to learn less after spending similar time in school than counterparts in developed countries.

Apart from the antecedent conditions, rural learners face a multitude of school and personal factors that may hinder optimal learner performance. These range from self–motivation (Xu, 2009), parental involvement, effective school leadership

© University of Pretoria

(Modisaotsile, 2012) and school anxiety (Hlalele, 2012). The difference is found in the quality of the school in tandem with quality of teachers to which learners in developing countries are exposed (Heyneman & Loxley, 1983). With South Africa having a high concentration of schools in rural areas (DBE, 2008) the link between the context and school processes require further exploration in order to better understand and identify those factors that may enhance or hinder learner performance.

Scheerens (2000) suggests that the integrated model for school effectiveness is more useful and complete when the context component is included. In addition, it is multilevel in nature, wherein the school level is distinct from that of the classroom level. Due to methodological constraints (see Chapter 4), this study does not attempt to make that distinction between the school and classroom but attempts to understand how schools transform inputs filter to the classroom in pursuance of improved learner achievement. More importantly, an opportunity to include both organisational and instructional variables is opportune, considering a paucity of studies of school effectiveness in developing countries that include organisational and instructional variables as observed by Scheerens (2000).

At the heart of school effectiveness studies is the inherent desire to reveal school processes that may be attributable to enhanced learner achievement alongside the impact of contextual factors (Scheerens, 2005). Hence, contextual factors relevant to this study include the immediate school environment or a description of the area in which a school is situated (rural or urban) and an estimated number of people living around the immediate vicinity. From PIRLS 2006 it is possible to analyse information about school location found in the school questionnaire and describe the context under which schools participated in the survey in terms of physical location.

3.5.4 Input as Conceptualised for the Current Study

Effective education production largely rests on the quality of available contributions. Nkosi (2007) states that this can only take place once inputs are

© University of Pretoria

available, thus the quality of educational inputs as Howie (2000) observed may affect all the processes of education. Lee and Barro (2001) have noted in their study that school resources, particularly smaller class size, higher teacher salaries and longer school day, have a direct impact on learner achievement.

Howie (2000) indicates that the home language of the learner also has a strong relationship with learner achievement but is a factor beyond the school control. Nonetheless, this study investigates the extent to which teacher learner ratio relates to learner reading achievement, hence the inclusion of learner enrolment as an input factor.

Apart from learner characteristics, human resources, particularly teacher quality, is another aspect that has an effect on learner achievement. Akiba, LeTrender and Scribner (2007) have noted that countries that have a better and higher teacher quality succeed in narrowing the learner achievement gap.

In South Africa a significant number of teachers lack basic conceptual knowledge, deemed important to the subjects they teach, and spend an average of only 16 hours per week teaching (Hoadley & Jansen, 2009). Chisholm et al. (2005) have established that the majority of African schools in rural and semi-rural areas experience an erosion of teaching and learning time due to lack of administrative support, large classes coupled with administratively burdensome assessment requirements. African learners constitute the majority of learners in South Africa, thus this reality suggest that African learners are more likely not to close the achievement gap.

Based on the existing PIRLS 2006 questionnaire data, learner enrolment (as evident from the school questionnaire) as measured by learner enrolment and total enrolment in Grade 5 is included as an input factor. Teacher characteristics as input factor (as taken from the teacher questionnaire) include teacher qualification and total number of years teaching reading.

Lastly, the availability of a school library, number of books and titles available, and technology for reading instruction constitute the physical resources included in the framework. It should be borne in mind that the input factors form the basis to describe the various inputs schools had at the time PIRLS 2006 was conducted.

© University of Pretoria

3.5.5 Process as Conceptualised for the Current Study

Schools are curriculum delivery sites and are thus expected to create learning experiences for learners. All the activities undertaken in the creation and delivery of the learning experience may be regarded as the process that takes place within schools (Oakland, 2004; Hoadley & Jansen, 2009).

For instance, in a school, the division of labour, drafting the school timetable and allocation of classrooms may be regarded as a process of transformation or rather all organisational preconditions directed at a learner to acquire knowledge (Scheerens, 2000; 2005). In Scheerens' (2005) view a researcher needs to strongly consider those factors that have been shown to be correlated with relatively high output.

For the purposes of this study, selected factors to represent process include the roles of educational leadership, which comprise the principals' daily activities and involvement in reading literacy (as evident from the school questionnaire); curriculum quality (based on teacher questionnaire data), as measured by opportunities to learn; and all those activities that teachers undertake in teaching reading literacy, including assessment as well as programmes or initiatives to enhance parental involvement. Orderly atmosphere refers to the extent to which schools are regarded as orderly with few disturbances (as taken from the school questionnaire) and the use of physical resources in teaching reading literacy (also based on school questionnaire data). School programmes aimed at encouraging parental involvement form part of the process factors identified in the study's current conceptualisation.

3.5.6 Output as Conceptualised for the Current Study

School effectiveness is goal-oriented and learner achievement is used as criteria to judge curriculum quality thus may be regarded as output (Scheerens, 2000). In this study the Grade 5 learner reading achievement is utilised as an output factor. In PIRLS 2006, learner reading achievement is expressed as an average scale

© University of Pretoria

score relative to an international mean of 500 and referred to as a 'plausible value' (Mullis et al., 2007). For a deeper and technical description refer to Chapter 5.

Therefore, in an effort to understand the effect of school processes on Grade 5 learner reading achievement Scheerens' (2000; 2005) integrated model for school effectiveness is adapted and used in this study. Figure 3.2 (below) provides an illustration of the adaptation of the aspects of context, input, process and output as conceptualised by Scheerens (2000, 2005), but populated by PIRLS 2006 selected factors for purposes of the current study.

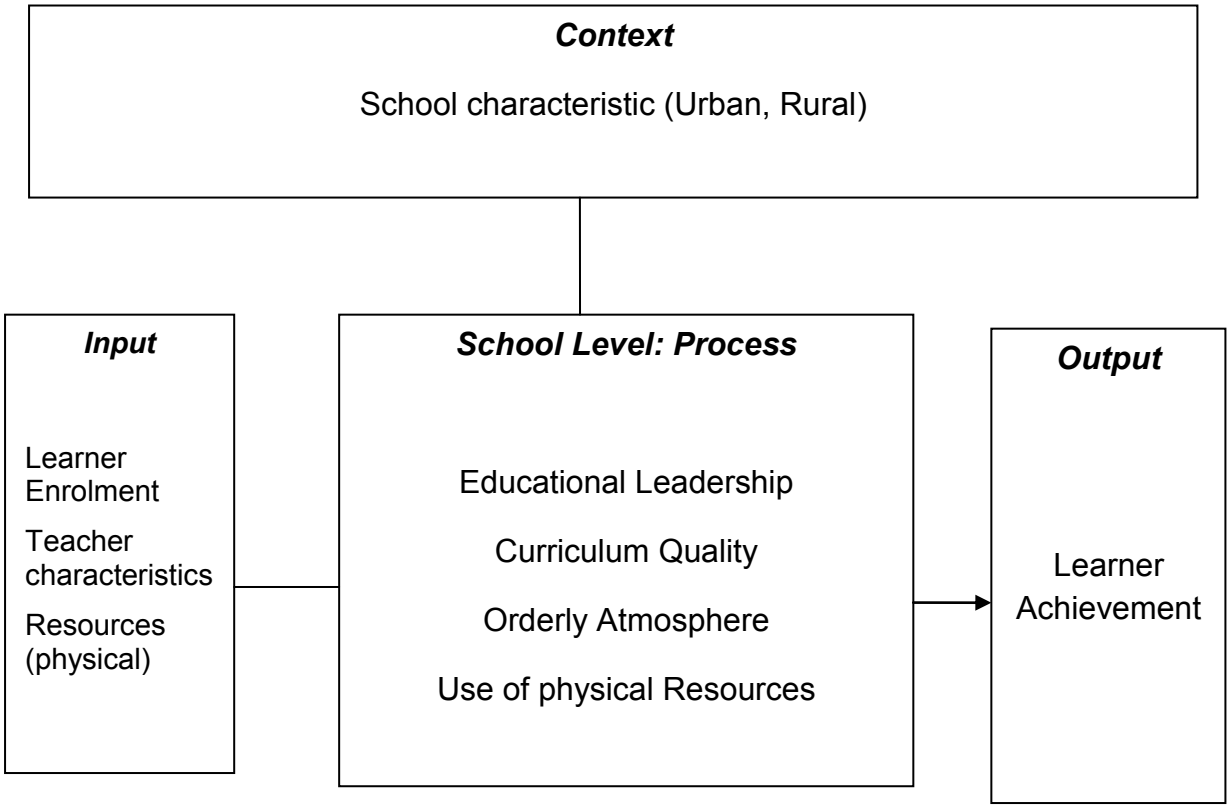


Figure 3.2: Integrated School Effectiveness Model (Adapted from Scheerens, 2000; 2005)

3.6 SUMMARY

Chapter 3 has highlighted the difference between school effectiveness and school improvement, thus grounding this study from the school effectiveness perspective. This study is conceptualised in terms of school conditions that may have an effect

© University of Pretoria

on learner reading achievement from the SER, school improvement research as well as school climate literature. The chapter concluded with a discussion and adaptation of the integrated model for school effectiveness as espoused by Scheerens (2000; 2005) as a conceptual basis on which to build the current study. The conceptualisation of school conditions for the current study therefore includes the principal's educational leadership role which has the greatest possibility to influence learner achievement. Curriculum quality as measured by dimensions such as assessment practices, opportunities to learn and school efforts to involve parents in the education system. With respect to an orderly atmosphere, attention was given to violence, which has the potential to be an impediment to learning, with physical resources rounding up the identified factors used for purposes of this study.

© University of Pretoria

CHAPTER 4
RESEARCH DESIGN AND METHODS

4.1 INTRODUCTION

This study aims to determine the effects of school conditions on Grade 5 learner reading achievement in primary schools in South Africa, as well as to build on previous research conducted on PIRLS 2006 South African data. Chapter 4 outlines and elucidates the research methodology used in PIRLS 2006 as well as the methods of this study. This study takes the form of a secondary data analysis. Here the researcher attempts to understand the phenomenon, in this instance, the effect of school conditions on learner reading achievement, from the outsider perspective in order to keep the research process free from bias (Welman, Kruger & Mitchell, 2010). Through objectivity, less biased conclusions may be made (Creswell, 1994; Blaxter et al., 2009). PIRLS 2006 data is by its nature numerical, hence it presented a chance for the researcher to apply statistical techniques in an attempt to determine possible effects of school conditions on learner reading achievement in primary schools. Embedded within a numerical secondary data analysis is the ability to generalise results to the entire population (Blaxter, et. al, 2009).

In Section 4.2, PIRLS 2006 is described in terms of the population, sampling procedure, data collection as well as monitoring and quality assurance of data collection and processing. Section 4.3 presents research design and methods for this study, while ethical considerations are discussed in Section 4.4. A summary of Chapter 4 is contained in Section 4.5.

4.2 RESEARCH DESIGN: PIRLS SA 2006

PIRLS aims to monitor learner reading achievement in primary schools on a five-year cycle (Mullis et al., 2007). In South Africa, PIRLS 2006 survey data served as a baseline and benchmark data for all 11 official languages. A survey provides an opportunity to collect facts or information from a defined population through a

© University of Pretoria

representative sample. In this type of design, findings can be presented as representative of the defined population (Bell, 2005).

4.2.1 Sample

The PIRLS 2006 study uses a definition of UNESCO's International Standard Classification of Education (ISCED) to define its target population as:

> ...all [learners] enrolled in the grade that represents four years of schooling, counting from the first year of ISCED Level 1, providing the mean average age at the time of testing is at least 9.5 years. For most countries, the target grade should be the fourth grade, or its national equivalent (Joncas, 2007, p.36).

For most countries, learners in the fourth year of schooling translate to Grade 4. From this target grade, a nationally representative sample is drawn. As far as the target population is concerned, South Africa not only complied with this requirement but also included Grade 5 as a second optional target population. A national decision to include Grade 5 was taken because Grade 4 learners represented a transitional year to English as a Language of Teaching and Learning (LoLT). The inclusion of Grade 5 was needed to determine that indeed progression had taken place from Grade 4 to Grade 5, coupled with a need to examine the differences in reading knowledge and skills (Howie et al., 2008).

South Africa had a nationally representative sample that was selected through a three-stage cluster sampling design, stratified by province and language for purposes of PIRLS 2006 (Howie et al., 2008). Joncas (2007) notes that, for the PIRLS 2006 study, a three-stage stratified cluster sample design was utilised, with schools as the first stage followed by the intact classes as the second, then sampling learners within sampled classes at the third stage. The effect of stratification is to obtain greater representativeness (Babbie & Mouton, 2001). In this instance, the stratification took two forms, namely implicit and explicit stratification.

In South Africa, 62 explicit strata followed by 250 implicit strata were created owing to schools sampled by province and language as well as school type in

© University of Pretoria

terms of offering Grade 4 only, Grade 5 only, or Grade 4 and Grade 5 within a school. In this manner the generalisation of results to provincial level for all nine provinces as well as across all 11 languages was made possible (Howie et al., 2008).

Prior to school sampling taking place National Research Coordinators (NRC's) were requested to provide important data about the schools within the sampling frame. According to Joncas (2007) the following information was required:

- A measure of size (MOS), for instance, the average learner enrolment in the fourth grade, the number of classrooms in the fourth grade, or the total learner enrolment in the school

- The expected number of sampled learners per class, also called the minimum cluster size (MCS). This was required if the number of classrooms in the fourth grade could not be provided and was thus calculated as the ratio of the total number of learners to the total number of classes for schools having more than one class in Grade 4

- Any variables describing school characteristics to be used for stratification purposes, such as school type, degree of urbanisation, or gender of learners served by the school (p.45)

The first stage of sampling involved sampling schools using probability proportional-to-size (PPS) of their target class (Howie et al., 2008; Joncas, 2007). Classroom sampling within the sampled school constituted the second stage. PIRLS 2006 makes provision for school-level exclusions in the sample, when it was sometimes not possible to include all learners who did not qualify for the international definition of the desired target population. Subsequently, a country would exclude some section of the population based on either geography or linguistic constraints (Joncas, 2007).

According to Martin, Mullis and Kennedy (2007), exclusion had to be kept to a minimum to ensure that the national defined population included at least 95% of the national desired population of learners in each country. However, school-level

© University of Pretoria

exclusions occurred, which is referred to as 'within-school exclusion'. Exclusion had to be one of the three types:

1. *Intellectually disabled learners*: learners considered by the principal or other professional staff member/s to be intellectually disabled or having been tested psychologically as such. These are learners who are emotionally or mentally unable to follow ordinary test instructions.

2. *Functionally disabled learners*: learners permanently, physically disabled in such a manner that they cannot perform in the PIRLS testing situation.

3. *Non-native language speakers*: learners not able to read or speak the language of the test and thus unable to overcome the language barrier of the test. Learners who have received less than one year of instruction in the language of the test were also excluded (Martin, Mullis & Kennedy, 2006).

Each school was expected to prepare a list of eligible classrooms for the targeted grades from which a single classroom was randomly selected (Joncas, 2007). The third and final sampling entailed sampling learners within sampled classrooms. Intact classes participated in PIRLS 2006, meaning that all the learners sampled within a classroom took part in PIRLS 2006 assessment, with the exception of excluded learners or those absent on the assessment day (Joncas, 2007).

In South Africa, 441 schools were sampled. Out of a sample of 441 schools, 429 (representing 98.5%) schools were included in the final sample for Grade 4, while in Grade 5 a total of 397 (96.5%) sample was realised. The Grade 5 sample of classes was based on schools that were selected for participation of Grade 4 learners, hence a separate Grade 5 sample was not selected. As a result, a total of 16,073 learners in Grade 4 and 14,657 learners in Grade 5 were tested, representing "the largest, most ambitious and complex national design within an international comparative study every undertaken" (Howie et al. 2008, p. v). In South Africa, non-participating sampled schools were schools that were either non-functional as a result of natural disaster or no longer in existence due to the school having been shut down by the Department of Education or where there was a merger between two schools (van Staden, 2010). In addition, excluded

© University of Pretoria

learners represented those whose parents refused their participation in the study (van Staden, 2010).

4.2.2 Instruments

The PIRLS 2006 survey consisted of a reading assessment and background questionnaires (Howie et al., 2008) (for more on the reading assessment design, format and passages refer to Chapter 2, Section 2.4.1). The PIRLS 2006 survey used a variety of questionnaires, as a questionnaire "encompass a variety of instruments in which the subject responds to written questions to elicit reactions, beliefs and attitudes" (McMillan & Schumacher, 2001, p.40). Learner questionnaires targeted learners' attitudes towards reading and their reading habits. The teacher and principal questionnaires were mainly concerned with the learners' school context, while the learners' home context was captured through the administration of the parent questionnaire (called the Learning to Read survey) (Howie et al., 2008).

The assessment instruments were translated into local languages and in the South African study all reading assessment passages were translated from the English into the other 10 official languages, according to the procedures stipulated by the International Study Centre (ISC).

The PIRLS 2006 Instruments that required translation were:

- Reading Assessment passages, items, and directions
- Questionnaires for learners, teachers, school and home

Internationally, in total the PIRLS 2006 data collection materials were effectively translated into 44 languages, with English having been used most often (8 participants), followed closely by French and Arabic (4 participants each). Fifteen out of 45 participating education systems in PIRLS 2006 administered the reading assessment in at least two languages (Malak & Trong, 2007). However, with respect to the South African context, the assessment instruments were contextualised and translated into 11 official languages. The CEA employed the services of registered translators with the South African Translators' Institution

© University of Pretoria

(SATI) to ensure high quality translation for all the languages. All translated materials underwent several cycles of translation, back translation and international translation verification, where independent translators were appointed by the IEA secretariat to check the quality and consistency of translations across the 11 official languages (Howie et al., 2008).

The parent and the learner background questionnaires were also translated from English to 10 other official languages, based on the assumption that teachers and school principals were likely to be able to speak, write and understand English and thus able to complete the questionnaires in English. However, the manual for the preparation for the assessment within schools was not translated (Howie et al., 2008).

4.2.3 Data Collection and Monitoring

For purposes of PIRLS 2006 in South Africa, two stages of data collection were realised. The main phase was during the period of October 2005 to November 2005. By January 2006, a few replacement schools or schools in which problems were initially encountered had been tested. The data collection process was outsourced to a market research company, and guidelines, standards and a monitoring process were put in place. The purpose of these guidelines was to ensure consistency in the fieldwork within and between countries. In the main, the chief purpose was to ensure compliance with IEA/PIRLS 2006 procedures. Monitoring in South Africa took place in 8% of sampled schools (Howie et al., 2008). Table 4.1 (below) represents a breakdown of schools monitored in South Africa per province.

Table 4.1: Number of schools per province monitored for PIRLS 2006 (taken from van Staden, 2010)

Province	Number of Schools
Eastern Cape	2
Free State	4
Gauteng	3
KwaZulu-Natal	4

© University of Pretoria

Province	Number of Schools
Limpopo	2
Mpumalanga	1
Northern Cape	4
North West	8
Western Cape	1
TOTAL	**29**

4.2.4 Data Capturing and Verification

To ensure quality data capturing, a capturing programme, *WinDem*, was designed for each participating country to use. National Research Centres reported that data was captured twice from the test booklets. PIRLS expected that 5% to 30% of the booklets had to be entered twice, with one country reporting re-entering 100% of the data (Johansone & Kennedy, 2007).

In South Africa, ASCII accessed through SAS was used for data capturing through professional data captures and converted into *WinDem* as required by PIRLS. South Africa exceeded the PIRLS expectation of 5% to 30% re-entry rate by re-capturing 100% of the data (Howie et al., 2008).

4.2.5 Quality Assurance

All the NRCs were required to appoint and send national quality control observers to observe the test administration and document compliance as per PIRLS 2006 requisite. Not only were the observers supposed to observe 10% of the participating schools, they also had to use and comply with the National Quality Control Monitor Manual provided by PIRLS 2006. An International Quality Control Monitor was assigned to each country to observe the entire process as required by PIRLS 2006 procedures (Johansone & Kennedy, 2007).

Conducting quality assurance observation varies from country to country, from external agencies, members of the National Research Centre to a combination of both (Johansone & Kennedy, 2007). In South Africa, the process was outsourced to a market research company to conduct the quality assurance of observation in sampled schools (Howie et al., 2008).

© University of Pretoria

4.3 RESEARCH DESIGN AND METHODS: CURRENT STUDY

In the current study, a numerical secondary data analysis research design was utilised to draw on selected items from PIRLS 2006 South African data that takes the form of a cross-sectional survey. A secondary data analysis research design involves different use and interpretation of data collected for different purposes to the present (Blaxter et al., 2009). Babbie and Mouton (2001) make a distinction between two types of secondary data analysis, the most discernible characteristic being that one makes use of numerical analysis while the other of text analysis. The present study used the former type of analysis.

This study employs multiple regression analysis, which takes the form of a process wherein one or more variable(s) predict(s) the other. In short, it is an analysis used to predict an outcome variable from one (simple regression) or several (multiple regression) predictor variables (Field, 2009). In this regard, the outcome variable is constituted by the plausible values, in other words Grade 5 learner reading achievement as computed by PIRLS 2006, while the predictor variables include, educational leadership, curriculum quality, safe and orderly environment and the use of physical resources. The flexibility and adaptability of multiple regression analysis allows for its use in any dependency relationship (Hair et al., 1998), that is, multiple regression analysis may be used in a relationship study as well as in a predictive study. Thus, multiple regression analysis is used for the purposes of this study because the aim is to understand the complex and interacting patterns in the learners' school context and identify those factors that closely predict learner achievement.

The current study draws on selected items from the PIRLS 2006 South African data, particularly from teacher and school questionnaires. Grade 5 learner achievement data is used as outcome variable against which questionnaire items from the teachers and principals will be tested. The PIRLS 2006 South African data was collected using a cross-sectional survey, which for Vanderstoep and Johnston (2009) offers the opportunity to collect large quantities of data that may be reflective of the population in a relatively short time.

© University of Pretoria

The South African PIRLS 2006 data is not only large but also representative and reflective of the South African Grade 4 and 5 primary school population (Howie et al., 2008).

A cross-sectional survey research design has its own challenges, a major limitation being uncertainty as to whether questions contained in the cross–sectional survey will indeed provide a valid measure of all the variables that the researcher wants to analyse (Babbie & Mouton, 2001). That said, it is inescapable then that the researcher has no opportunity to amend the instrument for additional data collection. As a result, the researcher in this study had to analyse what was available with no option of additional data collection.

The Language in Education Policy aims to provide learners with diverse learning opportunities by making language-learning available in all 11 official languages. Despite attempts at providing education across all official languages, some literature reveals that South Africa still experiences poor reading achievement which provides a proxy indicator for poor quality education (Pretorius & Machet, 2004, Pretorius & Ribbens, 2005, Howie et al., 2008). The school, as Lessing and Mahabeer (2007) point out, may be a contributory factor for poor reading achievement. Given this reality the main research question was framed as follows:

What are the effects of school conditions on learner reading achievement in primary schools?

As PIRLS 2006 collected data from school principals and teachers of Grade 5 learners using a cross-sectional survey and this study utilises selected variables from the school and teacher questionnaires, it firmly places this study within the quantitative paradigm. A key tenet of the research paradigm is the ability to generalise results to the population (Blaxter et al., 2009).

In order to appropriately answer the research question the following specific research sub-question needs to be answered:

1. What is the context in which PIRLS 2006 was undertaken in terms of both inputs (as measured by learner enrolment, teacher characteristics and available physical resources) and the school's physical location?

© University of Pretoria

Mullis et al. (2006) note that reading literacy is a constructive as well as an interactive process within which learners acquire reading literacy through a variety of activities and experiences within different contexts. Thus, PIRLS 2006 attempts to assess through contextual questionnaires those factors at the system, school, teacher and learner level that are more likely to influence learner achievement. However, these different contexts are interrelated and are shaped by the country's policies in education (Mullis et al., 2004).

Scherman (2005) refers to input as that which enters the system from the environment. Slack, Chambers and Johnston (2010) make a distinction between transformed inputs and transforming inputs. The former refer to inputs that are treated or converted, such as information, while the latter refer to resources that act upon transformed inputs, such as facilities as well as staff or human resources. In this study, principals and teachers are viewed as transforming resources, that is, principals plan and act on the available resources when they create learning experiences for learners.

The purpose of the first research sub-question is to provide the context under which PIRLS 2006 was undertaken and what participating schools had available at the time as human resources, for example teachers and physical resources, such as a library. Thus, to answer the first research sub-question, descriptive statistics of the context component of the conceptual framework for this study are used, measured as school characteristics), taken from the school questionnaire, dovetailed with variables from the input component (as measured by school enrolment, teacher characteristics and physical resources) taken from both the school and teacher questionnaires.

As this study focuses on the school processes, the following four research sub-questions are aimed at providing understanding of the interactive patterns in which schools engage in their quest to transform inputs to achieve their stated objectives, in this case optimal learner reading achievement. Each question will be answered independently to better appreciate the individual contribution of each factor to learner reading achievement.

© University of Pretoria

The chief aim is to understand the complex and interacting patterns in the learners' school context and identify those factors that closely predict learner achievement:

2. To what extent does Educational Leadership (as measured by the principal's daily activities) have an effect on learner reading achievement?

3. What is the effect of Curriculum Quality on learner reading achievement (as measured by the opportunity to learn, attention for learners with special educational needs, assessment practices and programmes aimed at encouraging parental involvement)?

4. What is the role of Safety and Orderly Atmosphere in the school environment (as perceived by school principals) and its effect on learner reading achievement?

5. To what extent does the Use of Resources (as measured by the frequent use of textbooks, reading series, workbooks or worksheets, children's newspapers and or magazines, computer software for reading instructions, reading material on the internet, variety of children's books and material from other subjects) have an effect on learner reading achievement?

Although the above research sub-questions are meant to be answered through multiple regression analysis, it is imperative that an overview by means of descriptive analyses is provided of the principals' daily activities, what opportunities are available to learners, how learners with special educational needs are catered for, what are assessment practices, what efforts are undertaken to involve parents in teaching and learning, what are some of the factors that contribute to the disturbance of the safe and orderly atmospheres, and which physical resources are used in the teaching and learning of reading. Results of the descriptive analysis are contained in Chapter 5, while results of the multiple regression for each sub-question individually and in combination, are discussed in Chapter 6.

© University of Pretoria

4.4. RESEARCH METHODS

This section discusses the research methods for the current study.

4.4.1 Sample

As this study focuses on school conditions as conceptualised with the process factor of Scheerens' Context-Input-Process-Output model, variables were purposely selected from the school questionnaire and teacher questionnaire. In a purposive sampling the units are selected on the basis of usefulness or representativeness (Babbie, 2013). A total of 14,657 Grade 5 learners were sampled, coupled with 397 principals as well as 397 teachers of Grade 5 learners (Howie, et al., 2008).

4.4.2 Data Source

PIRLS 2006 collected information regarding the learners' home context as well the school context through the parent (Learning to Read Survey), learner, teacher and school questionnaires. This study utilises selected items from the school and teacher questionnaires and Grade 5 learner reading achievement results as represented by plausible values. The school principal was expected to provide background information around the school's reading curriculum, related instructional policies, resources as well as the school demographics, while the teacher questionnaire focused on aspects of classroom practice, teacher background and teaching reading (Kennedy, 2007). An in-depth discussion of each questionnaire is found in Chapter 2. Appendix A provides a detailed list of all items from the teacher and school questionnaires that were used for purposes of the current study.

Plausible values are used as the best estimate for learner reading achievement and set the average international reading score at 500 and the standard deviation at 100 (Mullis et al., 2007). Van Staden (2010) explains in her secondary analysis of PIRLS 2006 data that plausible values are imputed values and are estimates that resemble individual test scores. Plausible values are approximations with a distribution similar to that of the trait that is being measured and should provide parallel estimates of population characteristics.

© University of Pretoria

The use of plausible values is appropriate in situations in which individuals are administered too few items to allow precise estimates of their ability, as is the case for PIRLS 2006, in which each learner only responded to two reading passages of the possible range of passages from all 13 test booklets. In this case, plausible values will be used as approximations of learner achievement and are discussed in Chapter 2 and reported in Chapter 6.

PIRLS 2006 questions on reading passages required learners to demonstrate a range of abilities and skills in constructing meaning from the texts. Thus, purposes for reading and process of comprehension formed the basis of the written text for reading comprehension. The test had multiple-choice questions and constructed response questions. Constructed responses expected learners to generate and write their own responses, and varied from short to more elaborate responses for a maximum of 3 points (Mullis, et al., 2007).

4.4.3 Data Analysis

Apart from regression analysis, which used the IDB analyser, analysis was conducted with the aid of a Statistical Programme for Social Research (SPSS). The IDB Analyzer version 3.0, a plug-in programme to SPSS, was used for multiple regression analysis. The IDB Analyzer was developed mainly to combine and analyse data from the IEA's large–scale assessments such as PIRLS and TIMSS to mention just two (Data Processing Centre). Furthermore, the IDB Analyzer was chosen not only because weights are correctly applied, but also because plausible values are already computed and readily available for analysis. This section details statistical procedures followed to analyse data.

4.4.3.1 Descriptive Statistics

As this study draws selected variables from the school and teacher questionnaire it was imperative to merge these data sets. Babbie (2013) emphasises that descriptive analysis summarises the set of data in order to describe the sample characteristics. In this study, the context of PIRLS 2006 was important, the types of inputs such as sources to monitor learner progress that schools had, teacher characteristics and learner demographics are explored through descriptive statistics. This description of context and input was used to answer the first

© University of Pretoria

research sub-question. After the first research sub-question was answered reliability of selected items was then investigated.

4.4.3.2 Reliability Analysis

Field (2009) refers to reliability as the extent to which an instrument consistently reflects the construct that it is measuring. MacMillan and Schumacher (1993) explain that constructs are intangible and difficult to observe, except through variables. For this reason, reliability of variables directly translates to reliability of a construct, thus the overall reliability of the instrument. Under these circumstances, internal consistency which assesses a single trait or dimension was the appropriate approach. PIRLS 2006 takes the form of survey research, thus using SPSS, a Cronbach Alpha (α) approach is an appropriate internal consistency reliability procedure to utilise, particularly that the items are on a Likert scale and thus not scored as dichotomous (MacMillan & Schumacher, 2001).

In most cases, reliability coefficients that range from .7 to .8 are acceptable. On the one hand, Kline (1999) in Field (2009) maintains that a reliability coefficient below .7 is acceptable because of the diversity of the construct being measured, while on the other hand MacMillan and Schumacher (2001) contend that a reliability coefficient below .5 is acceptable and tolerated, with the proviso that decisions are not made about an individual but a group. Reliability analysis was applied to each variable selected for factor and regression analysis.

4.4.3.3 Factor Analysis

Once reliability for each of the selected items was established, with the aid of SPSS, factor analysis was performed, the aim of which is to reduce data into a manageable size while retaining as much of the original information as possible. ‘‘...factor analysis achieves parsimony by explaining the maximum amount of common variance...using the smallest number of explanatory constructs’’ (Field, 2009, p.629). In other words, all those variables that cluster together are sought and are able, through high factor loadings, to relatively contribute or account for the maximum common variance. In this case, an un-rotated principal component extraction method was utilised to extract factors capable of accounting for

© University of Pretoria

maximum common variance. The resulting factors were then saved for multiple regression analysis.

4.4.3.4 Multiple Regression Analysis

Multiple regression analysis provides a useful model to predict learner reading achievement as outcome by using multiple predictor variables. It is a linear model that seeks to find a linear combination of predictors that correlate very highly with the outcome variable (Field, 2009). The model may be generally represented as follows:

$$Y_i = (b_o + b_1X_{1i} + b_2X_{2i} + b_3X_{3i} \ldots + b_nX_{ni}) + \epsilon_i$$

Y = Outcome variable

b_0= constant or intercept

$b_1 =$ is the coefficient of the first predictor (X_1)

b_2 = is the coefficient of the second predictor (X_2)

b_n = is the coefficient of the nth predictor (X_n)

ϵ_i = is the difference between the predicted and the observed value of Y for the *i*th participant

In the equation, Y is the outcome which in this case denotes learner reading achievement while b_0 is the intercept that depicts the mean reading achievement when controlling for all other variables.

Depending on the number of predictors, the b_n represents the coefficients of each predictor and ϵ_i signifies the associated error in the model.

Field (2009) suggests that multiple regression seeks to find a linear combination between predictors and the outcome variable. It is expected that each extracted factor in the current study will have some effect on learner reading achievement

© University of Pretoria

and together have a combined effect on learner reading achievement. That effect may be illustrated as follows.

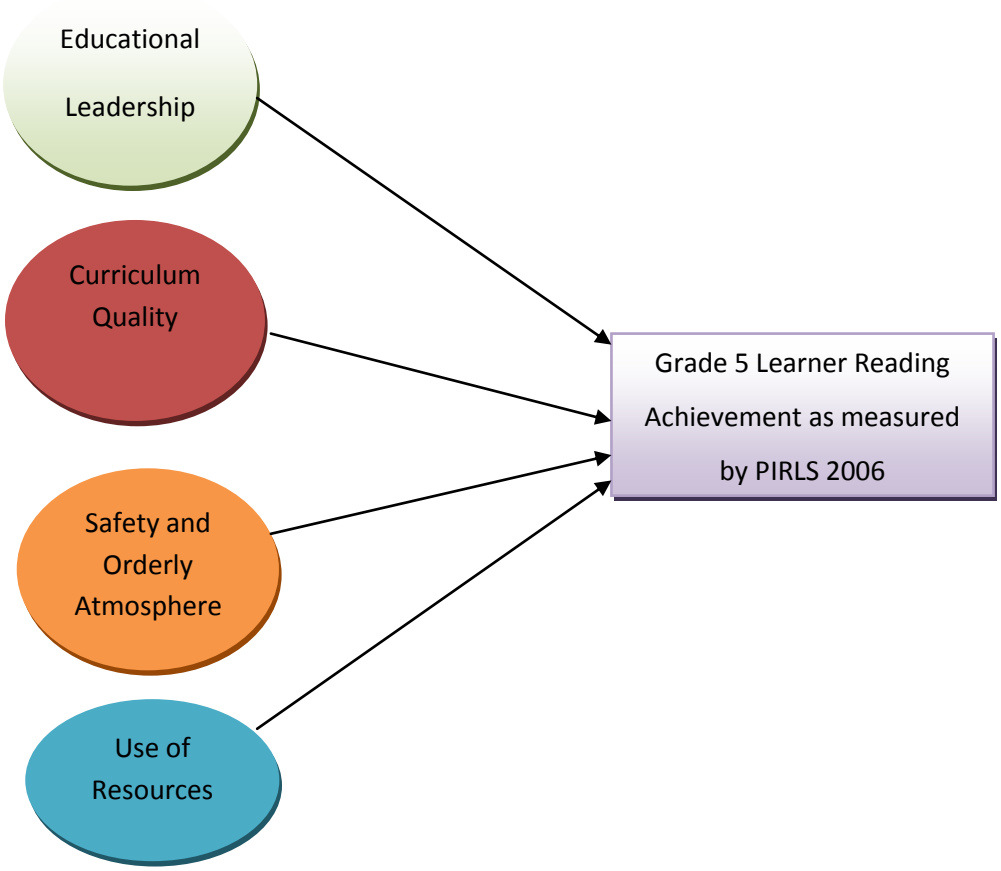


Figure: 4.1: Effects of School Condition Factors on Learner Reading Achievement

4.3.5 Methodological Norms

Bell (2005) defines validity as the extent to which an instrument or item measures or describes what it is supposed to measure or describe (p, 117). Types of validity include face-validity, criterion-related validity, and content as well as construct validity (Babbie, 2013). In this study only construct and content are discussed.

Construct validity, according to Babbie (2013), refers to the extent to which a measure or instrument relates to other variables as expected within a system of theoretical relationship. PIRLS 2006 measures trends in learner reading literacy,

© University of Pretoria

as well as the home and school factors that relate to learner reading achievement. In order to achieve construct validity, PIRLS 2006 allowed for NRCs to include national options as additional variables to already developed items across the questionnaires, and so to ensure reliability of scales across questionnaires. Questionnaire Development Group members intensively reviewed questionnaire items pertaining to the home context, and separated school and classroom context so as to differentiate between the influencing factors of these environments (Kennedy, 2007).

Content validity relates to the range of meaning of the concept covered or measured by an instrument (Babbie, 2013). A test of content validity relies on expected involvement, as Bell (2005) suggests. Kennedy (2007) provides evidence that background questionnaires were reviewed through a collaborative effort among the PIRLS 2006 International Study Centre, PIRLS 2006 NRC's, the Questionnaire Development Group and the IEA Data Processing and Research Centre. The process began in February 2004 to August 2005, wherein modest modifications and rewording were agreed upon. Thus, the items in each of the background questionnaires were grouped in accordance with their related contextual factors (Kennedy, 2007). Validity of learner achievement is found in the computation of the plausible values as discussed in Chapter 3. As this study is a secondary data analysis it draws selected items from the PIRLS 2006 school and teacher background questionnaires as well as learner achievement. This data, through stringent quality assurance procedures applied across cycles of the study, is considered valid for the purposes of this study.

4.4 RESEARCH ETHICS

The CEA obtained permission from the then Minister of Basic Education, Naledi Pandor to conduct the PIRLS 2006 study. More importantly, the CEA also sent out letters detailing the purpose and what the study entailed to participants so that they would be empowered to make an informed choice to participate. To ensure privacy, confidentiality and anonymity, participants were assigned identity numbers and no names were used. PIRLS 2006 data is now in the public domain and to date participants are unidentifiable.

© University of Pretoria

For the purposes of this study, permission was first sought from the CEA to utilise Grade 5 learner achievement data and draw selected items from the School and Teacher questionnaires. After granting of permission to use PIRLS 2006 data by the CEA, ethical clearance was then applied for and granted by the University Research Ethics Committee (see ethics clearance certificate). As this is a secondary data analysis the researcher had no opportunity to interact with participants or even acquire the names of the participants as data is only identifiable by the identity number assigned by the CEA.

4.5 SUMMARY

Chapter 4 has discussed this study as a secondary data analysis research design embedded within a quantitative paradigm. PIRLS 2006 is a cross-sectional trend survey that utilised different background questionnaires to collect data from various contexts. Although the IEA targets only the Grade 4 learner population, the PIRLS 2006 South African study also included Grade 5 learners in the sampling frame. A three-stage cluster sampling design which was stratified by province and language was used. Although various questionnaires were used to elicit information about different learner contexts, this chapter detailed how the current study is only concerned with the learners' school context, hence the use of the teacher and school questionnaire against learner achievement. Lastly, analysis procedures used to answer the research sub-questions were explained together with statistical programmes that aided the analysis.

© University of Pretoria

CHAPTER 5

DESCRIPTIVE RESULTS FOR THE SELECTED VARIABLES UTILISED IN THE CURRENT STUDY

5.1 INTRODUCTION

This study aims to establish the possible effect of school conditions on Grade 5 learner reading achievement in primary schools in South Africa. A description of the context in which PIRLS 2006 was undertaken, as well as the inputs that schools had at the time, are necessary, hence, this chapter mainly addresses the first research sub-question, namely:

> *What is the context in which PIRLS 2006 was undertaken in terms of inputs (as measured by learner enrolment, teacher characteristics and available physical resources) and the school's physical location?*

The purpose of this question is to present the context in which participating schools were situated and the inputs in respect of availability of physical resources that schools had at the time PIRLS 2006 was conducted.

This chapter also provides descriptive results for the process variables that were selected for purposes of this study in anticipation of the regression analyses to follow in Chapter 6. A comprehensive list of process variables used to build the regression model is provided in Chapter 6.

Section 5.2 presents descriptions for the schools context variables, while input variables for participating school are explained in Section 5.3. The selected process variables for purposes of this study are discussed in Section 5.4, while learner achievement, as reflected by PIRLS 2006 and reported in the international report is presented in Section 5.5. The chapter concludes with Section 5.6.

© University of Pretoria

5.2 Descriptive Results for the Context Variables

The following variables were selected for analysis of the school context taken from the school questionnaire:

Table 5.1: Context Variables

Description	Variable	Source	Item
School Location	acbgcom	School questionnaire	3
	acbgctas	School questionnaire	3

Results point out that the majority of South African schools that participated in PIRLS 2006 are situated in rural areas with 65,4% (SE=.04%), followed by 19,2% (SE=.04) of schools indicating their location as suburban. A small percentage of schools are located in an urban area (15,4%, SE=.04%).

When responding to the question of how many people live in the area in which the school is located, 62% (SE=0,67%) of principals of Grade 5 learners indicated that the number of people living in the area is between 3 001 and 50 000. Figure 5.1 provides a further break-down of principals' reports about the number of people living within the school location:

© University of Pretoria

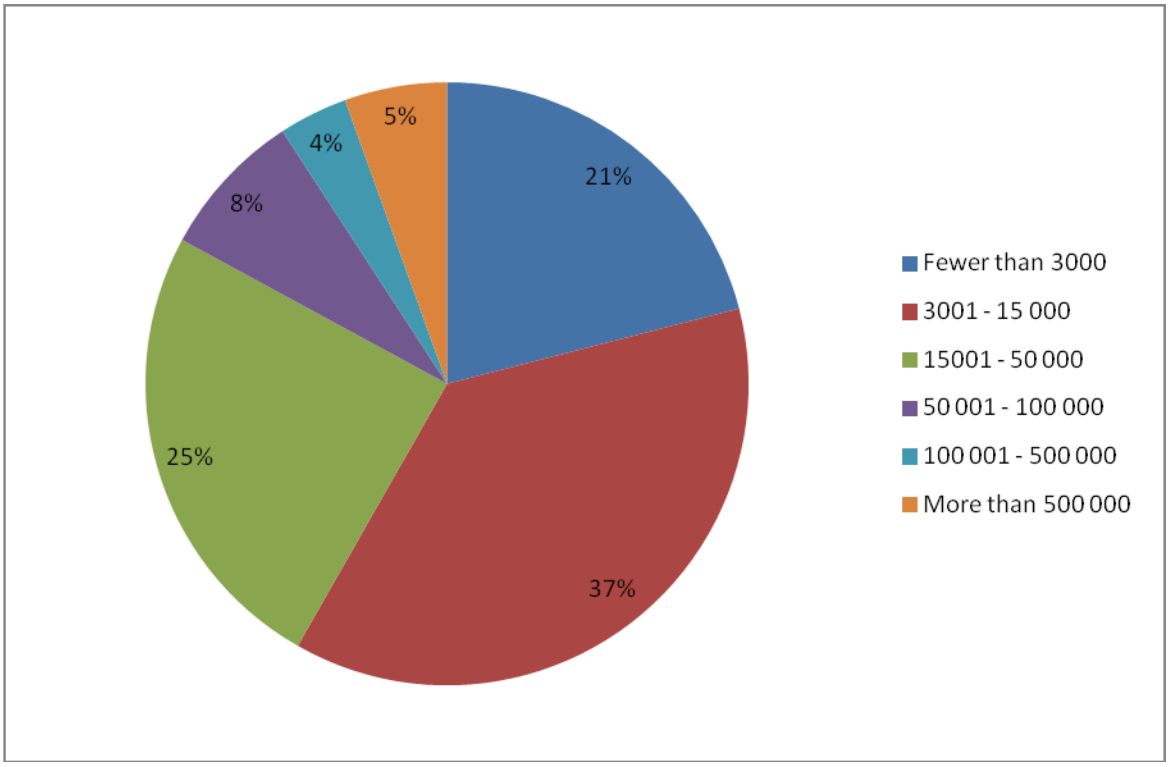


Figure 5.1: Number of People Living in the Area where School is Located

Figure 5.1 points out that the occurrence of rural and less populated areas tend to outweigh urban and more populated areas. In addition, this is echoed by the Department of Education in their 2008 report of the Education Statistics in South Africa that "...rural provinces tend to have proportionally more schools... than urbanised provinces..." (DBE, 2008, p.5).

5.3 Descriptive Results for the Input Variables

Input variables in the current study describe Grade 5 learner characteristics and teacher characteristics who participated in PIRLS 2006 in South Africa. Section 5.3.1 describes learner characteristics in terms of:

- the average school enrolment
- Grade 5 enrolment specifically
- Grade 5 learners' gender distribution
- Grade 5 learners' socio-economic background
- Reading skills with which learners enter Grade 1 as reported by principals

© University of Pretoria

Section 5.3.2 describes teacher characteristics in terms of:

- Grade 5 teachers' employment status
- Grade 5 teachers' gender and age (as an indicator of teaching experience)
- Teachers of Grade 5 learners' qualifications (educational level)
- Teachers' time spent on teacher development
- Books that Grade 5 teachers read.

5.3.1 Learner Characteristics

From the school questionnaire the following variables as presented in Table 5.2 were selected as indicators of learner characteristics:

Table 5.2: Learner Characteristics Variables

Description	Variable	Source	Item
Learner Characteristics	acbgenr	School questionnaire	1
	ACBGZ001 - 2	School questionnaire	2
	acbgpst1- 4	School questionnaire	6
	ATBGRLEV	Teacher questionnaire	2
	acbg1gr	School questionnaire	10

On average, school enrolment in the Grade 5 PIRLS 2006 sample is 621 learners (SE= 20.26) per school, with an average of at least 85 learners (SE=2.57%) in Grade 5. Out of 14,657 learners in Grade 5, more than 50% (SE=.00%) are girls.

In describing the socio-economic background of Grade 5 learners, 76,2% (SE=.01%) of principals reported that more than 50% of their learners come from economically disadvantaged homes. Table 5.3 indicates learners' characteristics, which include the percentage spread of Grade 5 learners' socio-economic background, the percentage spread of Grade 5 learners' from economically

© University of Pretoria

affluent homes, the percentage of learners who do not speak English as their first language and thus, the percentage of learners who may receive some instructions in their home language.

Table 5.3: Learner Socio-Economic Background

LEARNER SOCIO-ECONOMIC BACKGROUND					
	Percentages				
	0 – 10	**11 – 25**	**26 – 50**	**More than 50**	**Standard Error (SE)**
Learners from economically disadvantage homes	6,6	4,6	12,5	76,2	.007
Learners from economically affluent homes	71,0	14,6	8,6	5,8	.008
Learners who do not speak English as their first language	60,3	12,9	7,7	19,2	.010
Learners who receive some instructions in their home language (eg other than English, code switching)	62,0	7,2	11,2	19,5	.011

Learner characteristics reveal that the majority of Grade 5 learners come from economically disadvantaged homes. A disadvantaged home in this sense signifies a learner's socio-economic status which has been found to have a profound effect on learner achievement (Howie, 2004). Further evidence of the high number of learners coming from disadvantaged communities is signified by the high percentage of Grade 5 learners (46,9%, SE=.05%) who receive free lunch provided by the school. This means that learners in rural areas enter school with heightened possibilities for poor achievement (Howie et al, 2012).

© University of Pretoria

Figure 5.2 illustrates the percentage spread of learners receiving free or reduced lunch.

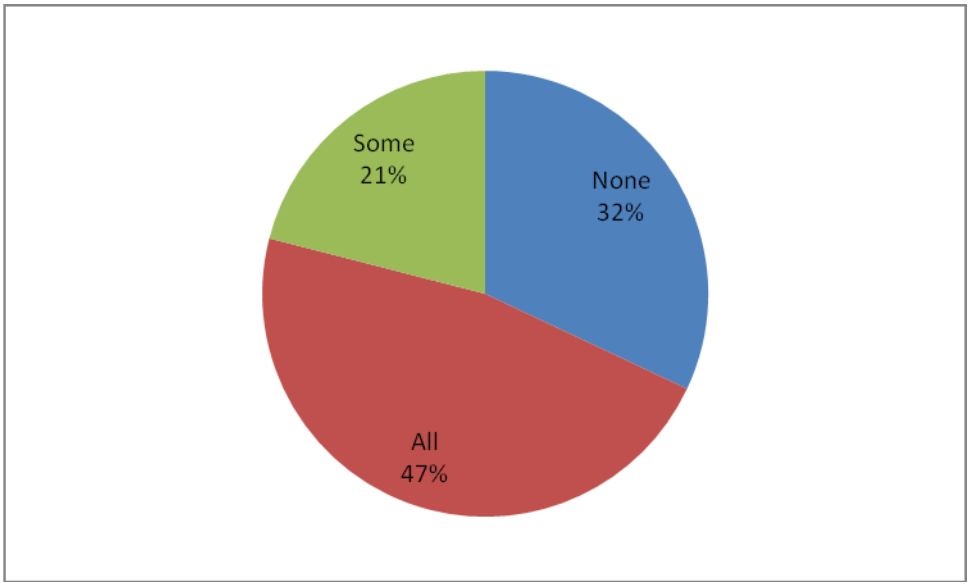


Figure 5.2: Learners Receiving Free Lunch

With respect to preferred language of instruction in Grade 5, over 80% (SE=.03%) of principals of Grade 5 learners indicated that English is the preferred language of instruction.

Teachers of Grade 5 learners were asked to report on learners' reading levels. According to teacher reports, learners' reading levels vary from above average as reported by 8,8% (SE=.05%) of teachers, to average as reported by the majority of 52,1 % (SE=.05%) of teachers. A total of 19,4% (SE=.05%) of teachers reported their learners to be on a below average reading level. Besides teachers, principals of Grade 5 learners were asked the extent to which learners enter formal schooling at Grade 1 level with basic reading skills.

© University of Pretoria

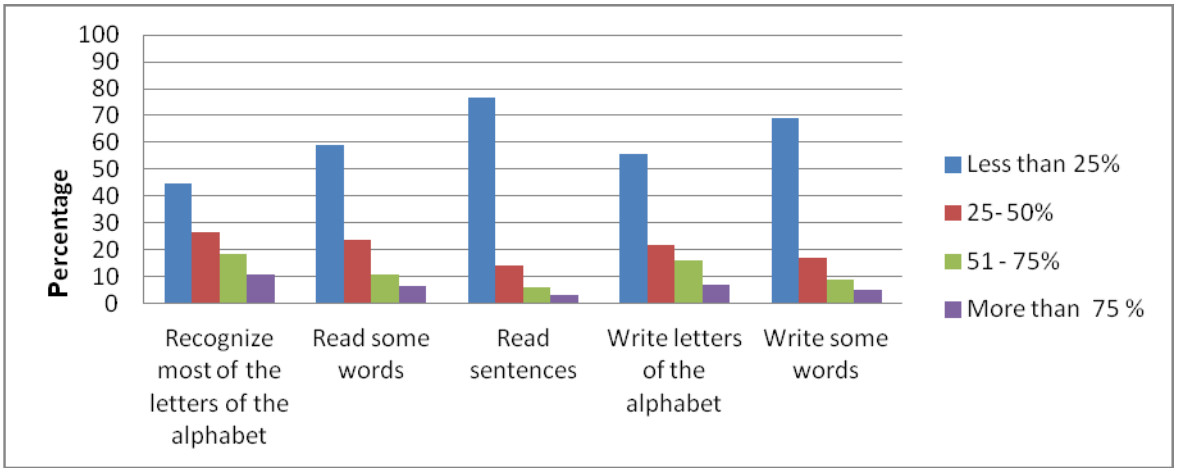


Figure 5.3: Skills Learners with which Learner Enter Grade 1

Figure 5.3 provides the various types of skills that learners bring to Grade 1. It can be seen that less than 25% (SE=.05%) as reported by 70% of principals of Grade 5 learners can write letters of the alphabet. As expected, the majority of principals (69,1%, SE=.05%) reported that fewer than 25% of Grade 5 learners are able to write some words when they start Grade 1. It could be that Grade R is not utilised to its full potential as a means of preparing these learners for Grade 1.

5.3.2 Teacher Characteristics

In this study teacher characteristic are discussed in terms of employment status, teacher gender, age (as an indicator of teaching experience), qualifications (educational level) of teachers of Grade 5 learners, time spent on teacher development, and books that Grade 5 teachers read. These are important components to be considered in order to have a better understanding of the inputs in terms of human resource that schools have to contend with.

Table 5.4 presents variables of teacher characteristics as taken from the PIRLS 2006 teacher questionnaire.

Table 5.4: Teacher Characteristics Variables

Description	Variable	Source	Item
Teacher Characteristics	ATBGTAUNG	Teacher questionnaire	27
	ATBG4TAU	Teacher questionnaire	28
	ATBGAGE	Teacher questionnaire	30
	ATBGSEX	Teacher questionnaire	31

© University of Pretoria

	ATBGHLE	Teacher questionnaire	32
	ATBGTCR	Teacher questionnaire	33
	ATBGCR1	Teacher questionnaire	
	ATBGEAR1- 9	Teacher questionnaire	34
	ATBGSEMI	Teacher questionnaire	35
	ATBGRDP1 - 3	Teacher questionnaire	36
	ATBGRDJY	Teacher questionnaire	37

In responding to the employment status of teachers, over 95% (SE= .01%) of Grade 5 learners' teachers reported to be permanently employed. Table 5.5 presents teachers' employment status and gender distribution.

Table 5.5: Employment Status and Teacher Gender

Employment Status	Percentage	Standard Error (SE) (%)
Full Time	95.4	.011
Part Time	4.6	
	Gender	
Male	32.2	.024
Female	67.8	

It may be that primary schools appear to attract more female teachers (67.8%) as there seems to be a smaller percentage of male teachers (32,2%). Although part-time teachers account for fewer than 5%, it is disheartening given that rural areas have a teacher-learner ratio higher than more urbanised areas (DBE, 2008). Here, part time teachers could fill a gap.

© University of Pretoria

Although the sample is not representative of teachers[4] within the South African education system, their age distribution is of importance in this study. Accordingly, the majority of teachers of Grade 5 learners in the PIRLS 2006 South African sample are between the ages of 30 and 49, with slightly more than 10% between the ages of 50 to 59. It is disconcerting to observe the absence of more experienced teachers or very young teachers in the teaching profession. Figure 5.4 illustrates the general age distribution of Grade 5 teachers in the South African PIRLS 2006 sample.

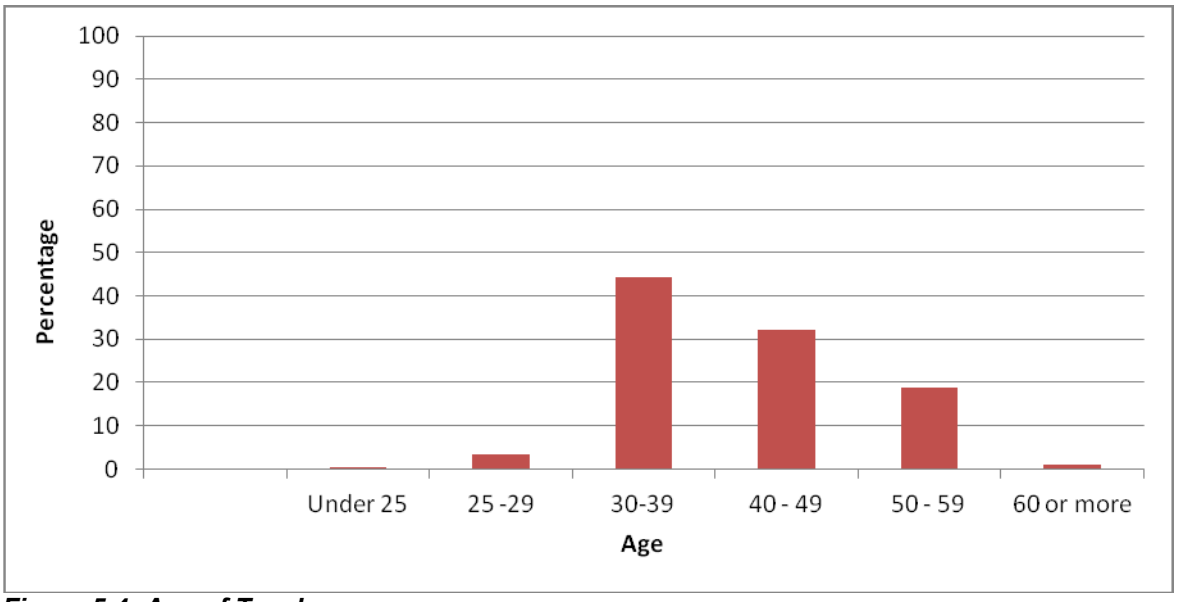


Figure 5.4: Age of Teachers

Teachers' qualifications are an important characteristic to be considered as a school input. It is through relevant teaching qualifications that a teacher is hired by the Department of Basic Education in South Africa. As indicated by Figure 5.5, the majority of teachers of Grade 5 learners in PIRLS 2006 were in possession of post-matric certificates having finished college.

[4] Reference is made to 'principals of Grade 5 learners' or 'teachers of Grade 5 learners' throughout the text. Results are representative of Grade 5 learners and not of teachers or principals.

© University of Pretoria

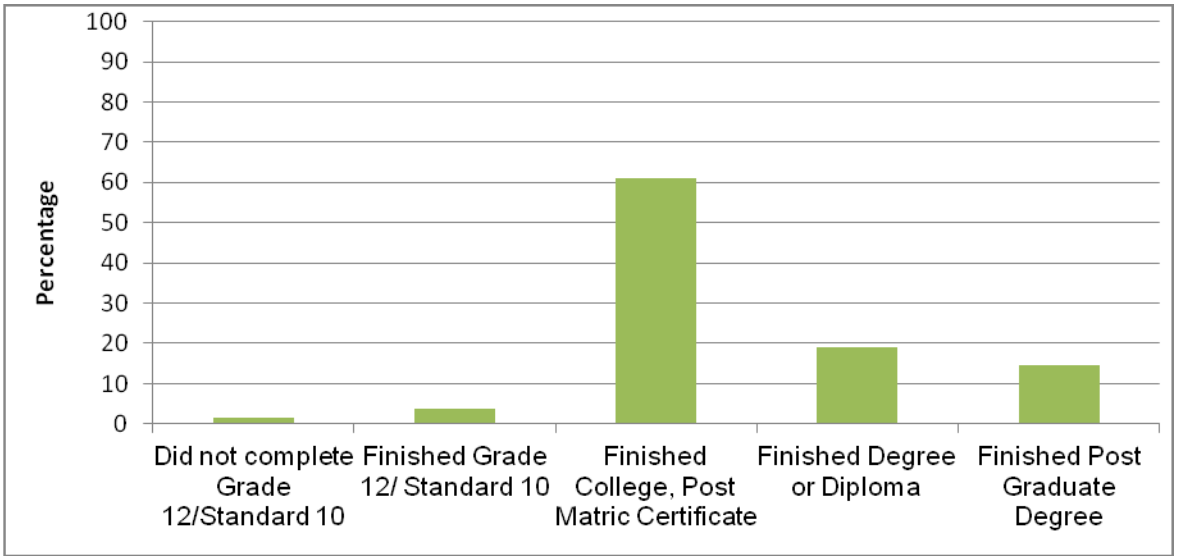


Figure 5.5: Teacher Educational Levels

Table 5.6 presents areas of study that teachers focused on as part of their formal education and training.

Table 5.6: Teacher Areas of Study

AREAS OF STUDY				
	Not at all (%)	**Overview or introduction (%)**	**Area of focus (%)**	**Standard Error (%) (SE)**
English Language	6.1	18.2	75.8	.03
Literature	6.0	24.3	69.7	.03
Pedagogy/teaching reading	10.3	27.3	62.4	.04
Psychology	32.1	36.5	31.4	.05
Remedial Reading	43.1	37.2	19.7	.04
Reading Theory	27.5	36.7	35.8	.05

© University of Pretoria

Children's language development	27.0	32.3	40.7	.05
Special Education	54.8	25.2	20.1	.05
Second Language Learning	15.6	32.4	52.0	.04

English has been studied as a second language by the majority of 75,8 (SE= .03%) of teachers in the sample with little focus on reading theory (35,8%, SE = .05%). Contrary to small percentages having had exposure to reading theory, a larger percentage reported a high focus on literature and teaching of reading (69,7%, SE=.03%).

An aspect of teacher's characteristics as a school input is the teacher's experience in the profession and the experience in teaching the subject in Grade 5. The mean average years of teachers teaching Grade 5 is 15 years (SE= .50%) teaching experience, of which six were in teaching Grade 5 (Howie, et al; 2008). However, more than a third (34,9%, SE = .08%) of these teachers report spending no time in in-service or professional development workshops that are directly related to reading or teaching reading.

© University of Pretoria

Figure 5.6 below provides the distribution of time spent by teachers in professional development.

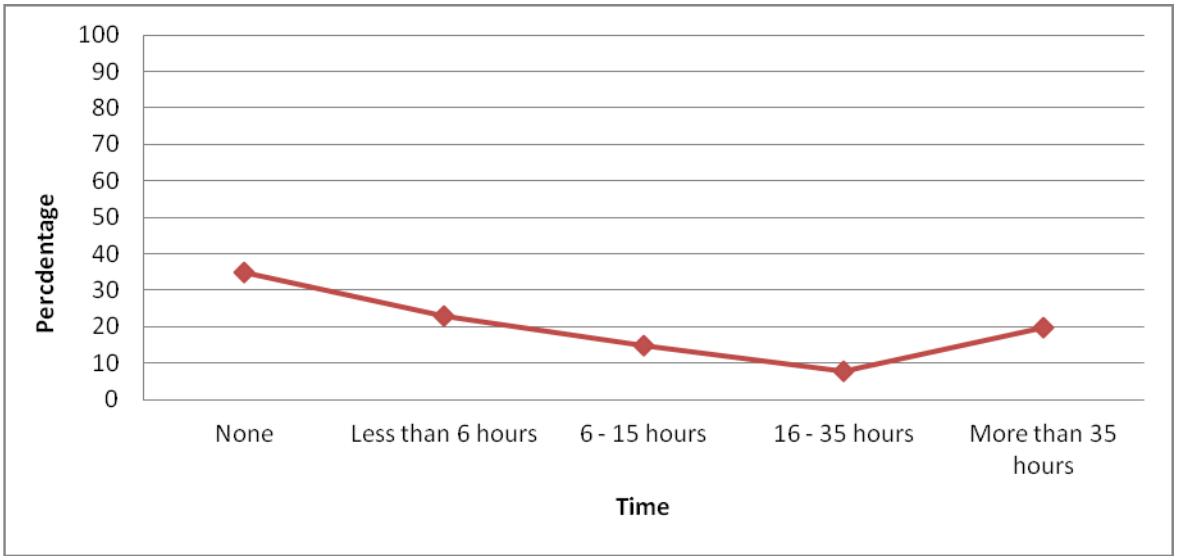


Figure 5.6: Time Spent on Teacher Development

Self-development in the teaching profession cannot be over-emphasised, considering the frequent and inevitable curriculum changes taking place in South Africa. In this regard, a majority of 55,4% (SE= .04%) of Grade 5 learners' teachers reported reading books or professional journals related to children once a week. Reading books related to teaching reading is only done once or twice a month by 37,7 % (SE=.05%) of Grade 5 learners' teachers.

Figure 5.7 illustrates types of books read by Grade 5 teachers and their respective percentage distribution.

© University of Pretoria

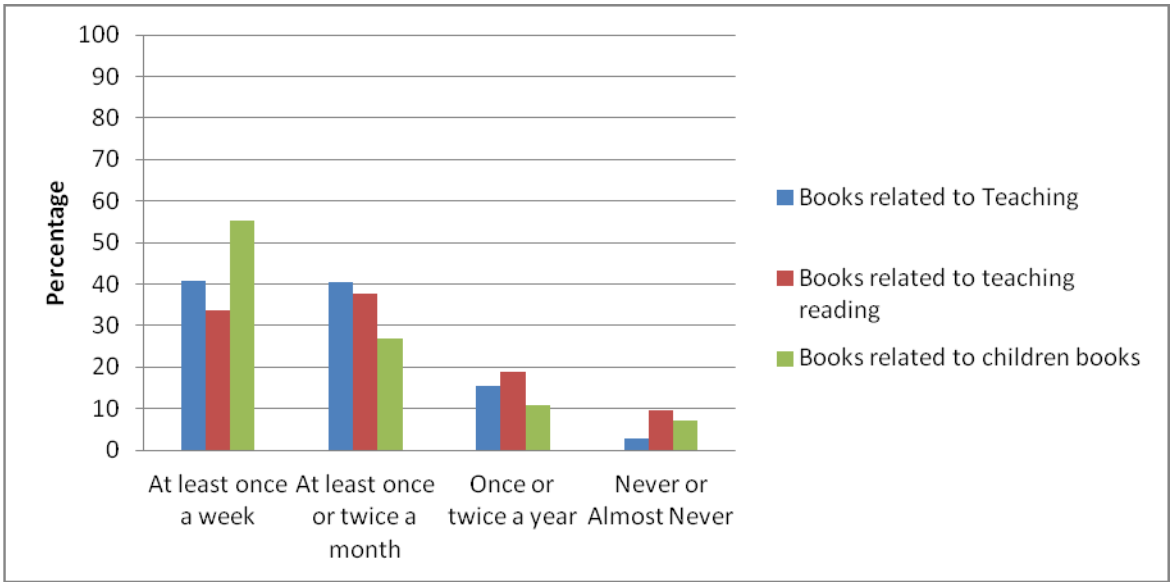


Figure 5.7: Books Read by Teachers to Improve Teaching

Figure 5.7 points to areas of concern. The presence of teachers who never or almost never read or who only read once or twice a year either to inform their teaching, reading books related to teaching reading or reading children's books point to a lack of interest in activities that are at the heart of the teaching profession.

5.4. Descriptive Results for the Process Variables

School processes give rise to the interaction between the principal, teachers, parents, district officials and learners. Inevitably, such interactions are associated with activities that are directed towards the creation of a learning experience (Scherman, 2005: Hoadley & Jansen, 2009). In this regard, Scheerens (2000; 2005) is of the opinion that researchers need to consider those activities that correlate highly with outputs. Hence, in this study the principal's leadership role (as measured by the principals' daily activities), curriculum quality (as measured by the creation of learning opportunities, assessment practices, attention given to learners with special educational needs and efforts to involve parents), an orderly atmosphere (as measured by potential threats to the school safety environment) and use of resources are considered activities that are expected to correlate highly with learner reading achievement.

© University of Pretoria

A description of each process currently suffices as the possible effects of these activities to learner reading achievement is explored in Chapter 6. Section 5.4.1 firstly describes Educational Leadership, followed by descriptions of Curriculum Quality in section 5.4.2, Safety and Orderly Atmosphere in section 5.4.3 and Use of Resources in section 5.4.4.

5.4.1 Educational Leadership

Principals of Grade 5 learners were asked to indicate how they spend their time on different school activities. These activities ranged from the development of curriculum and pedagogy, managing staff and or staff development, general administrative duties such as budgeting, managing parent and community relations, actual teaching as well as interacting with individual learners, respectively. Table 5.7 presents the leadership role variable and its source as selected from the school questionnaire. This single variable was selected to provide an indication of principal leadership activities, as no other variables across any of the PIRLS 2006 questionnaires referred to any leadership aspects.

Table 5.7: Educational Leadership Variable

Description	Variable	Source
Leadership Role	acbgtac 1- 7	School questionnaire

Principals were asked to estimate the percentage of time spent on each activity. It seems that the question was not fully understood, with a number of principals exceeding a 100% maximum they could provide in estimating time spent on each activity.

Despite this problem, at least 31% (SE=.08%) of Grade 5 principals reported spending 10% (SE=.09%) of their time involved in curriculum development. Approximately the same percentage reported that they spend 20% (SE=.06%) of their time managing staff and or staff development initiatives. Similarly, administrative duties was also reported to be allocated 20% (SE=.14%) by at least 22, 6% (SE=.05%) of Grade 5 principals, followed by 38, 1% (SE=.06%) indicating

© University of Pretoria

that they spend 10% of their time managing parents and other members of the community in community relations.

With respect to teaching and individual learner interaction, 31,3% (SE=.93%) of Grade 5 principals reported spending 10% for teaching, while 39,4 % (SE=.30%) of principals of Grade 5 learners indicated spending 10% of time for individual learner interaction. These percentages would indicate that principals are not as frequently involved in the teaching of learners, and as indicated by Figure 5.8 most time is spent on administrative duties, staff development and other activities not specified.

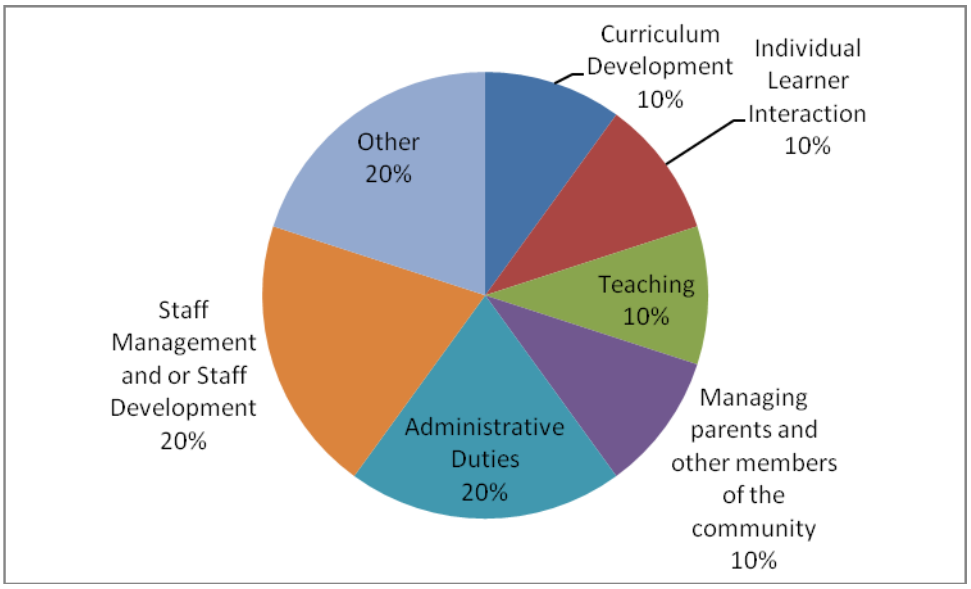


Figure 5.8: Role of the Principal in Activities at School

5.4.2 Curriculum Quality

In this study (see Chapter 2, Section 2.4.2) curriculum quality includes the creation of learning opportunities, assessment practices, attention given to learners with special educational needs and school efforts to involve parents. Thus appropriate variables are analysed under each sub section of curriculum quality.

© University of Pretoria

Table 5.8 lists these selected curriculum variables.

Table 5.8: Curriculum Quality variables

Description	Variable	Source	Item
Curriculum Quality	ACBGZ003	School questionnaire	7
	ATBGACTM	Teacher questionnaire	7(a, b)
	ATBGFINR	Teacher questionnaire	7(c)
	ATBGFRDH	Teacher questionnaire	7(d)
	ATBGRACT	Teacher questionnaire	8
	ACBG010 - 012	School questionnaire	11
	ATBGRIA 1 - 8	Teacher questionnaire	10

5.4.4.1 Creation of Learning Opportunities

About a third of principals of Grade 5 learners (30,7%, SE=3.00%) reported that schools, in one calendar year, are open for instruction for an average of 195 days for instruction. In one calendar week 64,8% (SE=.25%) of Grade 5 principals indicated that their school is open for five days for instruction.

Teachers of Grade 5 learners were asked to indicate whether or not a reading time or period was explicitly stated. In response, 69,5% (SE=.03%) indicated yes, with 48,9% (SE=.11%) of teachers of Grade 5 learners indicating that formal reading instruction or periods translated to one hour per day. Just over a third of teachers of Grade 5 learners (38,6%; SE=04%) spend between three or four days in a week engaged in reading instruction with learners. Furthermore, 51,6% (SE= .03%) of teachers of Grade 5 learners indicated that they read aloud to the whole class almost every day.

© University of Pretoria

Figure 5.9 illustrates the general reading instruction and or reading activities with Grade 5 learners.

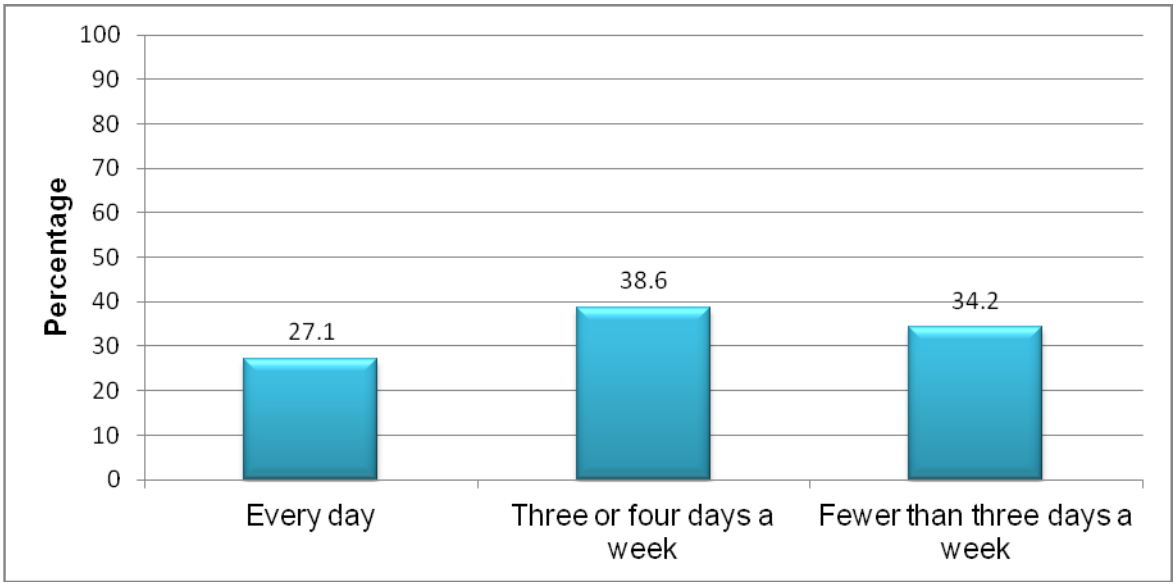


Figure 5.9: Time Spent on Reading Instruction

With respect to skills on which schools place emphasis, a high percentage of 62,5% (SE=.03%) of principals of Grade 5 learners reported placing major emphasis on oral language (speaking/listening). Only 56,7% (SE=.03%) of principals of Grade 5 learners place a major emphasis on writing. In spite of placing a major emphasis on oral language, enrichment reading seems not to feature prominently in many schools, with the majority of 75,3% (SE=.02%) of teachers of Grade 5 learners indicating that in their schools provision is not made for enrichment reading instruction. A reasonable determination could not be made with regard to the number of learners who receive enrichment reading instructions, as there were few cases recorded for this particular variable (334 missing cases).

However, it appears that teachers of Grade 5 learners tend to use different texts during reading instruction with 53,8% (SE=.04%) of teachers of Grade 5 learners reported using short stories once or twice a week, while poems are used by 54% (SE=.04%) of teachers of Grade 5 learners once or twice a month. Akin to poems, plays are used by 41,4% (SE=.04%) of teachers of Grade 5 learners. Manuals about how things work are used by 37,8% (SE= 05%) of teachers of Grade 5 learners. Once a week charts or diagrams are used by 36,9% (SE=.05%) of

© University of Pretoria

teachers of Grade 5 learners. Longer books with chapters are seldom used as reported by 40% (SE=.05%) of teachers of Grade 5 learners.

The textbook seems to be the most widely used resource for reading instruction in that 54,9% (SE=.04%) of teachers of Grade 5 learners reported using it every day or almost every day followed by an equally large percentage of teachers (50%, SE= .05%) using graded reading series. In addition, only slightly more than one third of teachers of Grade 5 learners (33,5 % ,SE=.05%) use material from other subjects.

Furthermore, children's magazine or newspapers are used once or twice a month by 42,2% (SE=.05%) of teachers of Grade 5 learners. Reading from the Internet is never or almost never used as reported by 93,4% (SE=.02%) of teachers of Grade 5 learners.

5.4.2.2 Assessment Practices

Table 5.9 presents variables pertaining to assessment practices as well as emphasis teachers place on assessment instruments such as classroom tests or use of different forms of assessment and the purpose for which the information is used as gained from assessment activities.

Table 5.9: Assessment Practices variables

Description	Variable	Source	Item
Assessment Practice	ATBGASP 1- 7	Teacher questionnaire	24
	ATBGUINI	Teacher questionnaire	25
	ATBGFOL	Teacher questionnaire	25

Figure 5.10 provides an illustration of the emphasis placed by teachers of Grade 5 learners on the different sources for monitoring learner progress.

© University of Pretoria

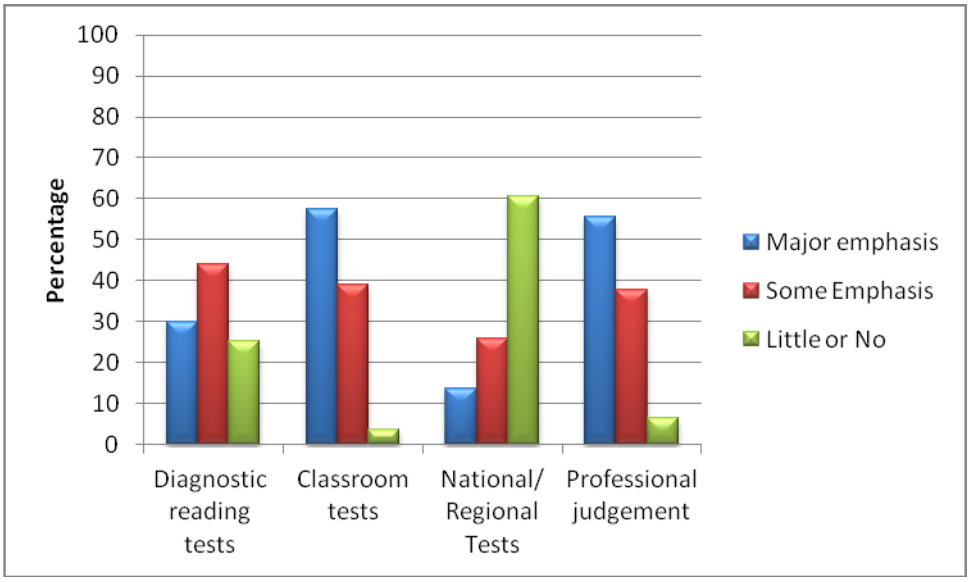


Figure 5.10: Use of Assessment as Sources to Monitor Learner Progress

In response to the emphasis that teachers place on various sources for monitoring learner progress, 57,5% (SE=.04%) of teachers of Grade 5 learners report placing a major emphasis on classroom tests as a way to monitoring learner progress. Furthermore, over half of teachers of Grade 5 learners (55,6%, SE=.04%) seem to solely rely on the test as an instrument upon which professional judgements are based. At the same time learner portfolios are seen by the majority of teachers (48%, SE= .04%) of Grade 5 learners as a supplementary source rather than a major source for monitoring learners' reading progress.

Figure 5.11 provides the percentage spread of the emphasis placed on portfolios by teachers of Grade 5 learners. As indicated, a majority of teachers of Grade 5 learners rely on portfolios either as major source or supplementary source to assess learners.

© University of Pretoria

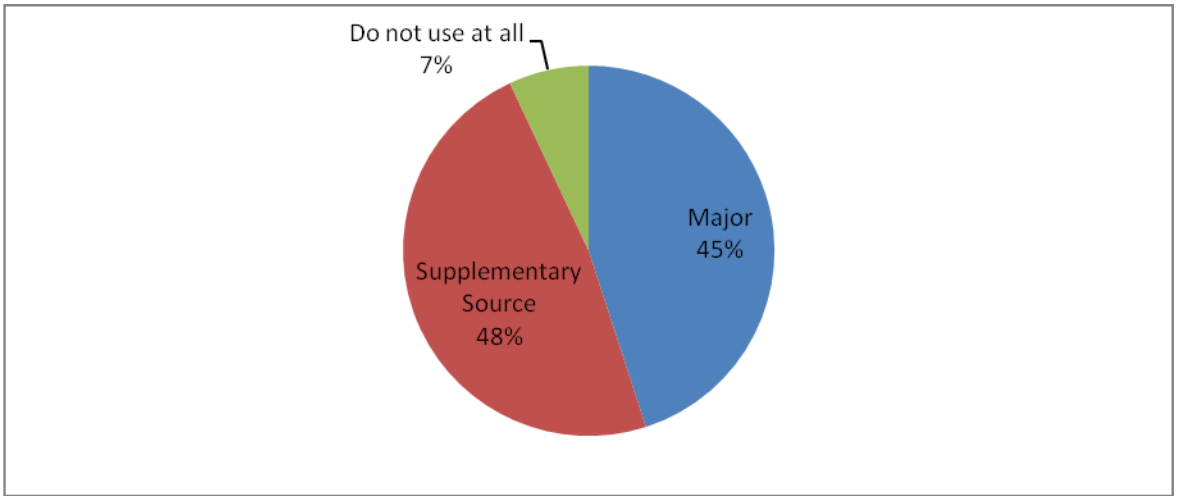


Figure 5.11: Use of Portfolios in Reading

Figure 5.12 illustrates the use of different assessment instruments used by teachers of Grade 5 learners to monitor learner progress. While the majority of teachers rely on written classroom tests, 73,5% (SE=.03%) of teachers of Grade 5 learners report using oral questioning of learners which is consistent with listening to learners read (70,1%; SE=.03%). These percentages bring into question the oral tradition that many teachers still bring into schools. Two thirds of teachers (60,5%, SE= .03%) of Grade 5 learners indicated that they place little emphasis on National or Regional Achievement results.

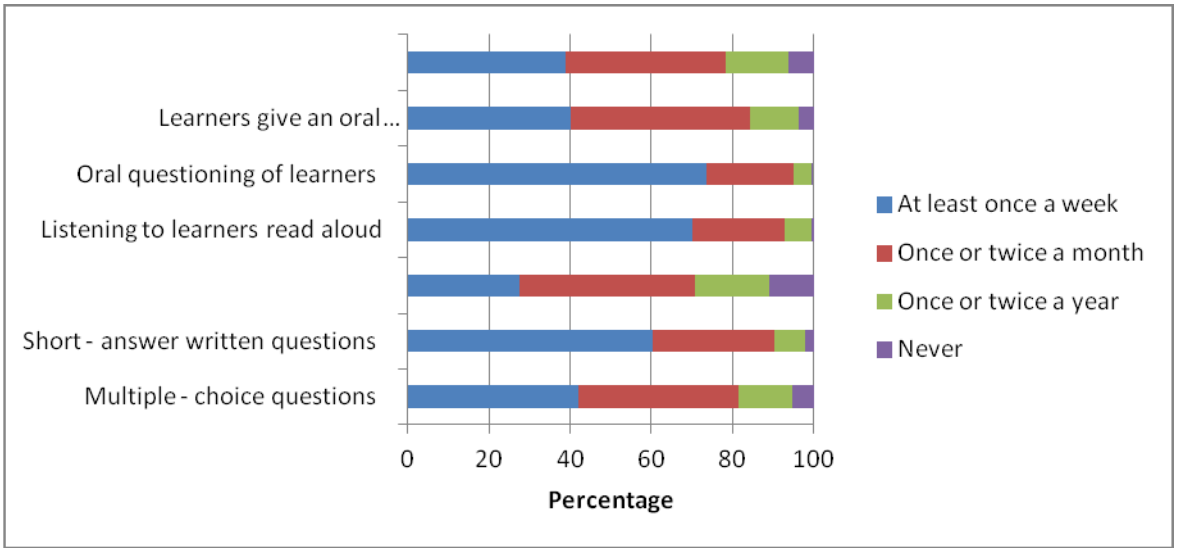


Figure 5.12: Assessment Instruments Used to Monitor Learner Progress

© University of Pretoria

A majority of teachers (95,5%; SE=.01%) of Grade 5 learners concur that assessment information is used to provide information to the parents on the learners progress, closely followed by its use for assigning marks (94,4%; SE=.01%).

There is a high percentage of teachers (93,4%, SE=.01%) of Grade 5 learners reporting that assessment information is used to identify learners in need of remedial instruction. Considering that only 37,2% (SE=.04%) had just an overview of remedial education as an area of focus in their teacher training qualifications (see Table 5.6), it begs the question whether teachers are adequately trained to identify and deal with learners who present with special needs in the classroom.

Furthermore, despite the inclusion approach espoused by the Education Department a high percentage of teachers (83,8%, SE=.01%) of Grade 5 learners indicated using assessment information to group learners for instruction.

Figure 5.13 illustrates the different uses of assessment information by teachers of Grade 5 learners.

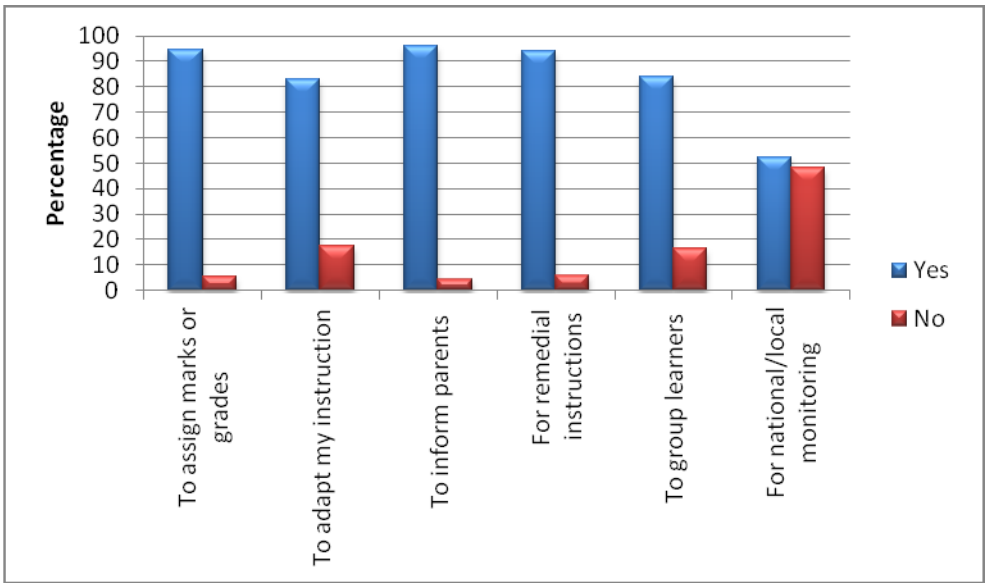


Figure 5.13: Use of Assessment Information

5.4.2.3 Learners with Special Educational Needs

Other than the use of assessment information, learners with special needs also require to be accounted for by teacher assessment practices. In this regard two

© University of Pretoria

important aspects are considered: firstly the availability of resources to deal with such learners; secondly, action taken by the teacher should a learner fall behind or identified as having reading difficulty. Table 5.10 depicts special educational needs variables.

Table 5.10: Special Educational Needs Variables

Description	Variable	Source	Item
Special Educational Needs	ATBDIF 1 - 4	Teacher questionnaire	21
	ATBGHRI	Teacher questionnaire	22

Figure 5.14 depicts available resources that schools reported having in dealing with learner experiencing reading difficulties.

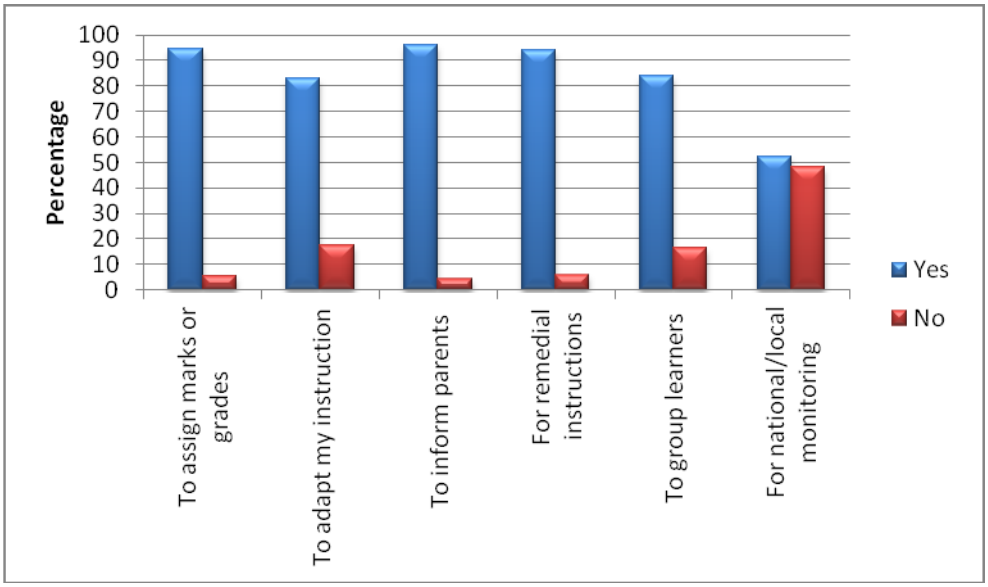


Figure 5.14: Resources for Learner Reading Difficulty

In this regard, a high percentage of teachers (87,3%, SE=.03%) of Grade 5 learners have indicated that no reading specialist was available to work with them in the classroom. Similarly, over 85% (SE=.02%) of teachers of Grade 5 learners report never having other professionals like learning specialists or speech therapists available for assistance.

© University of Pretoria

Figure 5.15 depicts responses of teachers of Grade 5 learners on reading difficulty.

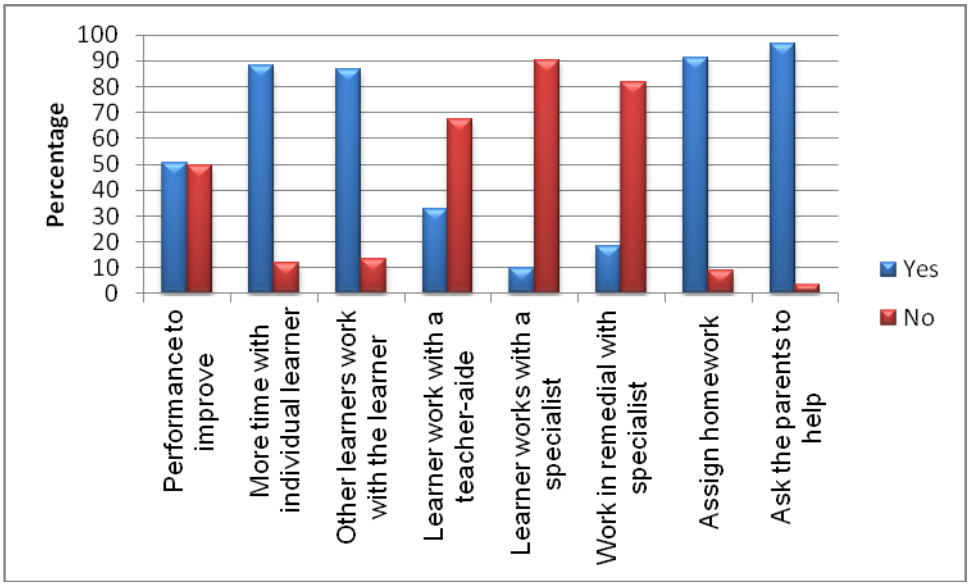


Figure 5.15: Teacher Responses on Reading Difficulty

Consistent with the non-availability of reading specialists, a majority of 90,3% (SE=02%) of teachers of Grade 5 learners say they do not have learners work regularly in the classroom with a reading specialist. Instead 91% (SE=.02%) of teachers of Grade 5 learners either assign homework or ask parents (96,6%, SE=.01%) to help the learner with reading difficulties. Both these strategies may prove fruitless, especially where additional homework only adds to the workload of assignments and tasks the learner already finds problematic and difficult to master, or where parents are unavailable or unable to assist the learner effectively with homework themselves.

5.4.2.4 Efforts for Parental Involvement

With regards to parental involvement the following variables as depicted by Table 5.11 were considered for analysis. The focus was on the availability of school programmes and efforts by schools including principals and teachers to foster parental involvement in reading.

© University of Pretoria

Table 5.11: Parental Involvement Variables

Description	Variable	Source	Item
Parental Involvement	acbgprs 1 - 4	School questionnaire	22
	ACBGZ040 - 52	School questionnaire	23
	acbgpar 1 - 3	School questionnaire	24
	acbgrws	School questionnaire	25
	ATBGPCO 1 - 2	Teacher questionnaire	26

Figure 5.16 illustrates availability of programmes and services in schools geared for parents and learners.

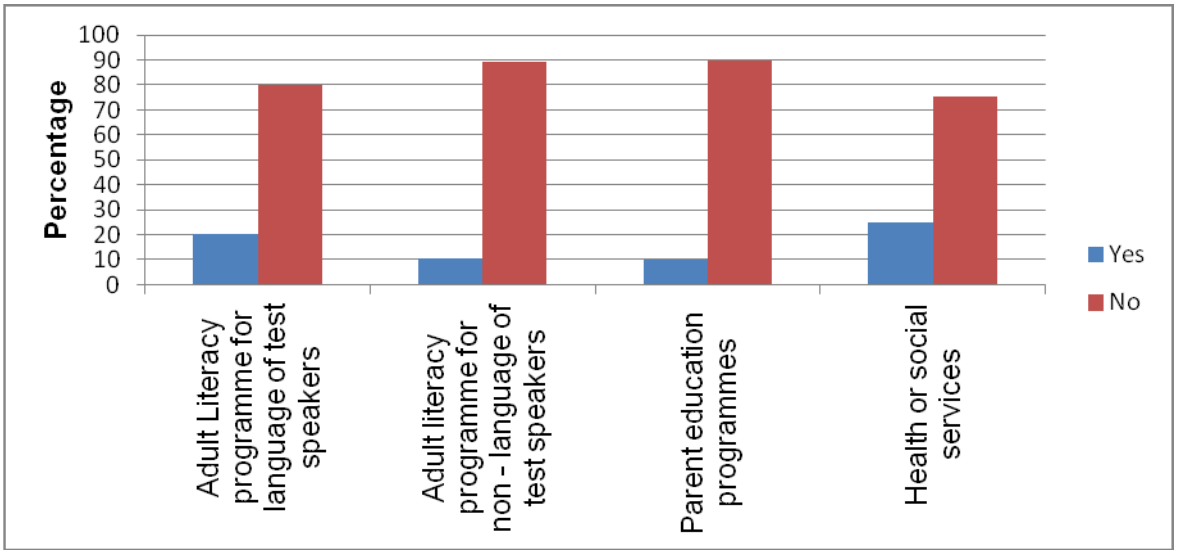


Figure 5.16: Availability of Parental Programmes

The data suggests that schools do not have programmes or services available on site for both learners and their families to interact. For example, the majority of principals (79,9%, SE=.02%) reported that their schools do not have adult literacy programmes for language-of-test speakers or non-test language speakers (89,5%, SE=.02%). Despite schools not having programmes and services for learners in Grade 5 and their parents, a combined average of 74,3% (SE=.05%) of teachers

© University of Pretoria

reported meeting parents between one to six times a year to discuss learner progress. At least 40% (SE=.05%) of school principals report inviting parents two to three times a year to school events. In this regard, interaction between schools and parents seem to exist.

Providing educational programmes for parents on matters such as child development or parenting is also lacking, as indicated by 89,9% (SE= .02%) of principals of Grade 5 learners. Percentages regarding the flow of information to parents are provided by Figure 5.17 below.

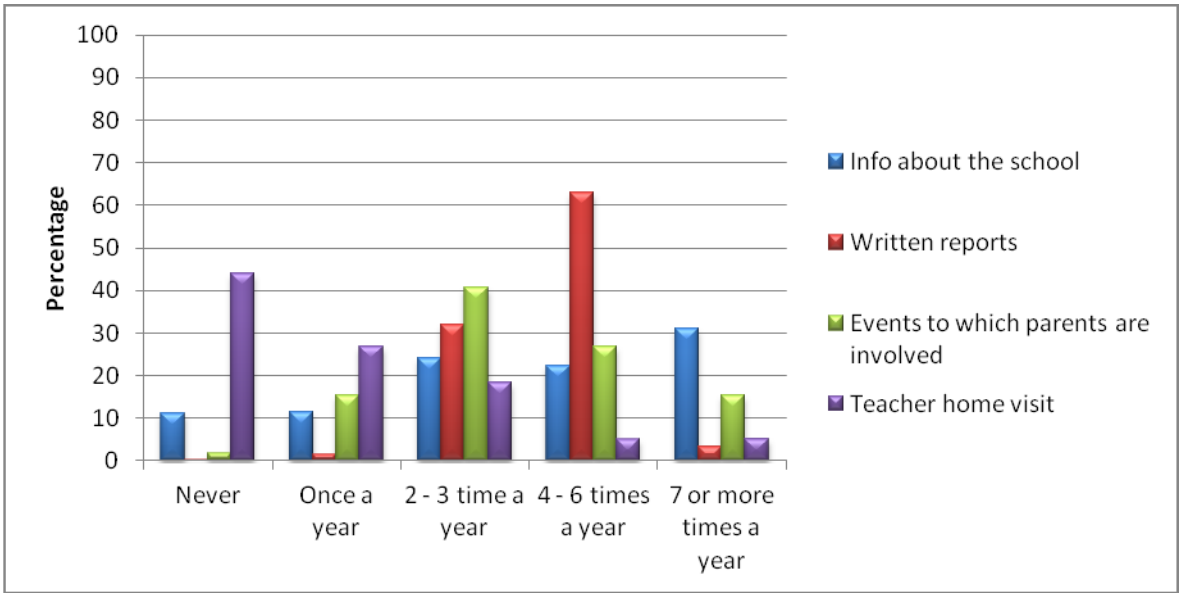


Figure 5.17: School-Home Information Flow

As many as 44% (SE=.06%) of principals of Grade 5 learners indicate that teacher home visits never happen. While interaction and the flow of information between the school and the learners' home seem to be modest, at least 31,1% (SE= .07%) of principals of Grade 5 learners reported sending information about the school home seven or more times a year.

In response to the frequency with which information, mainly learners reports, are sent to parents, 63% (SE=.03%) of principals of Grade 5 learners indicated that written reports are sent four to six times a year. This percentage is an expected reality considering that the academic year has four terms and each term written learner progress report needs to be generated and sent to parents. It may be a matter of compliance from the school side.

© University of Pretoria

5.4.3 Safety and Orderly Atmosphere

A precondition for ensuring that learning takes place is a stable and orderly atmosphere. This is to a large extent free of disturbances or harm. In this study, as mentioned in Chapter 2 (Section 2.4.3 in particular), the focus is on physical safety. That would refer to the extent to which schools are vulnerable to violence. Table 5.12 indicates the variable selected for purposes of the current study, as taken from the school questionnaire, with data on orderliness and safety.

Table 5.12: Safety and Orderly Atmosphere Variable

Description	Variable	Source	Item
Orderly Atmosphere	acbgpb1- 12	School questionnaire	27

Table 5.13 illustrates factors that may be regarded as potential problems in schools.

Table 5.13: Potential Problems of Violence or Threats to Safety

Potential Problem	Not a Problem (%)	Serious Problem (%)	Standard Error (%) (SE)
Learner Tardiness	11.0	9.6	.04
Learner Absenteeism	11.0	13.6	.04
Classroom Disturbances	26.4	6.7	.04
Cheating	23.1	4.4	.04
Profanity	25.8	5.2	.05
Vandalism	23.2	18.1	.05
Theft	16.6	17.9	.05

© University of Pretoria

Intimidation or verbal abuse among learners	16.3	14.5	.05
Physical Conflicts among learners	12.9	13.9	.05
Drug Abuse	66.0	1.8	.03
Weapons	67.3	2.6	.04
Racism	83.8	0.5	.02

More than half of principals (53,2%, SE=.03%) of Grade 5 learners regard their schools as safe, despite vandalism and theft reported as serious threats to the general school safety (18%, SE=,5%). It is disheartening to observe that learner absenteeism seems to be another serious disturbing factor as reported by almost 14% (SE= .04%) of principals of Grade 5 learners. Even though the percentage appears low, absent learners tend to struggle to make meaningful connections thereafter and this has adverse effect on learner achievement. Nonetheless, the relative safety and orderliness of schools that participated in PIRLS 2006 may not be surprising, given that these learners are still of a young age.

5.4.4. Use of Resources

Resources are important school inputs that have an effect on learner achievement. Not only do resources have an effect on learner achievement, but are also an integral component of teaching and learning. In other words, teachers utilise what is available to them in order to plan learning episodes. Against this background, it is vital to describe available school resources as per teachers and principals responses. Table 5.14 lists variables pertaining to school resources. These include:

- Support from non-governmental organisations, universities and other educational organisations
- Parents as resource to the school

© University of Pretoria

- Access to a reading curriculum statement as basic resource in guiding the teaching of reading
- Access to a school library and availability of books of different titles
- Adequate work space for teachers

Table 5.14: School Resources

Description	Variable	Source	Item
Resources	ATGBRIA 1- 8	Teacher questionnaire	9
	ATBGRTX1 - 7	Teacher questionnaire	10
	ATBGPCAV	Teacher questionnaire	16
	ATBGCA1 - 2	Teacher questionnaire	16(a)
	ATBGWWW	Teacher questionnaire	16(b)
	ATBGLICR	Teacher questionnaire	17
	ATBGLIBK	Teacher questionnaire	17(a)
	acbgrws acbgrii acbgrsp	School questionnaire	12
	acbgli acbglibc acbglibm	School questionnaire	18
	ACBG046	School questionnaire	19
	ACBG047	School questionnaire	20

© University of Pretoria

In South Africa, schools often receive additional support from non–governmental organisations, universities or other educational organisations. Support may be human, financial or physical resources, and may vary depending on the school needs and what a particular organisation may provide. However, in this instance fewer than 10% (6.8% (SE=.00%) of principals of Grade 5 learners indicated receiving additional financial support.

Other than additional financial support only 21,2% (SE=.00%) indicated receiving programme development and just under 30% (SE=.00%) indicated receiving additional training.

This reality resonates with the 34% of teachers of Grade 5 learners who reported not having had professional development opportunities in the previous two years. That said, Figure 5.18 illustrates parents of Grade 5 learners who provide various means of support to the school.

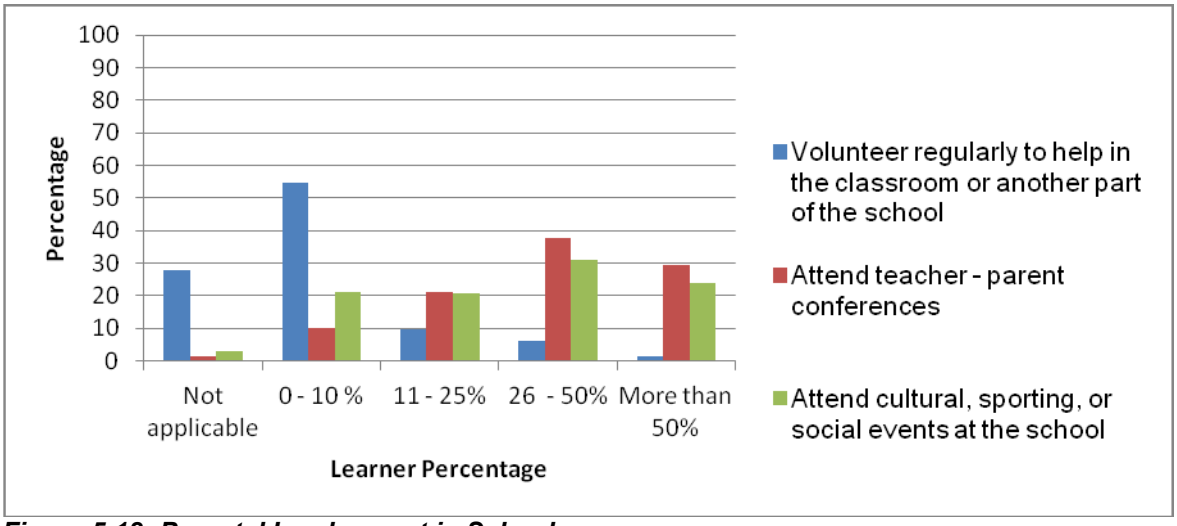


Figure 5.18: Parental Involvement in Schools

Parents are an important component of the school and also a crucial human resource that schools may need. PIRLS 2006 South African data suggests that only a small percentage, at most 10% of parents, actually volunteer to help in the classroom or any other part of the school, as reported by 54,7% (SE=.04%) of principals of Grade 5 learners. Lemmer and van Wyk (2007) emphasise that school practices make a great difference on whether or not parents become involved. Thus parental involvement depends very much on and is rather a direct consequence of school practices.

© University of Pretoria

In responding to the availability of an own reading curriculum statement in schools to refer to as guiding document in the teaching of reading, 64% (SE=.03%) of principals of Grade 5 learners seem to be in schools that do not have a policy to coordinate reading activities across Grade 1 to 5.

With respect to the availability of the library, 62,6% (SE= .03%) of principals of Grade 5 learners manage schools that do not have a library, a resource considered basic and important for the academic success of any child in school. Figure 5.19 provides information on the availability of the number of books with different titles as reported by principals of Grade 5 learners.

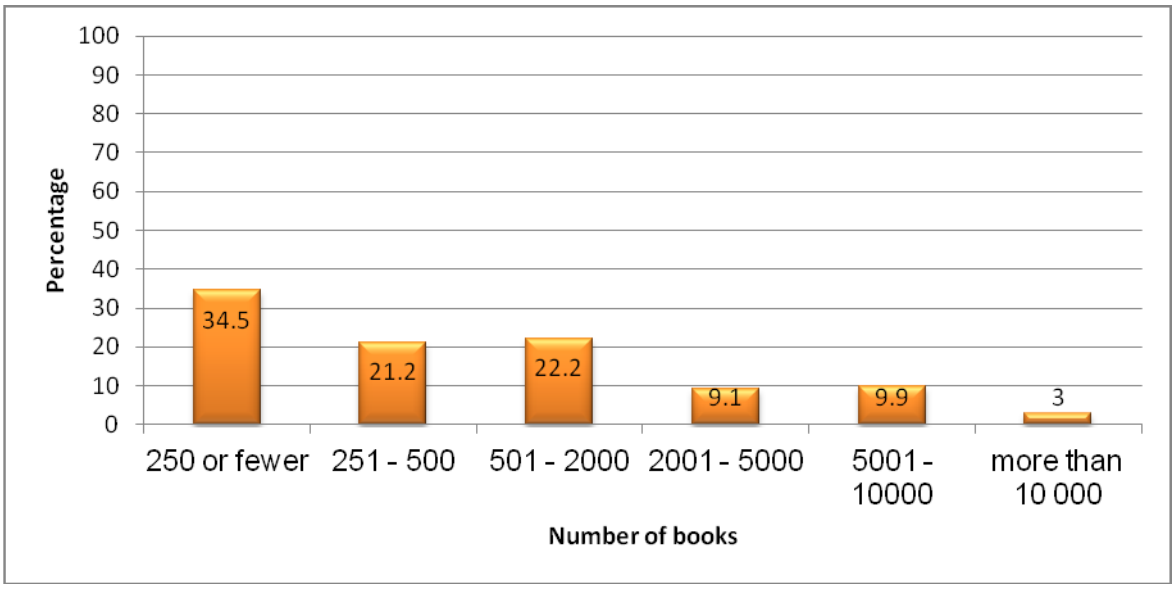


Figure.5.19: Availability of Books with Different Titles

Even for the majority of schools that have reported having a school library, only 32,2% (SE=.01%) of principals reported having fewer than 250 books with different titles excluding periodicals. Magazine titles and other periodicals are reported by 36,6% (SE= .01%) of principals of Grade 5 learners to be at most five in the library (see Figure 5.20).

© University of Pretoria

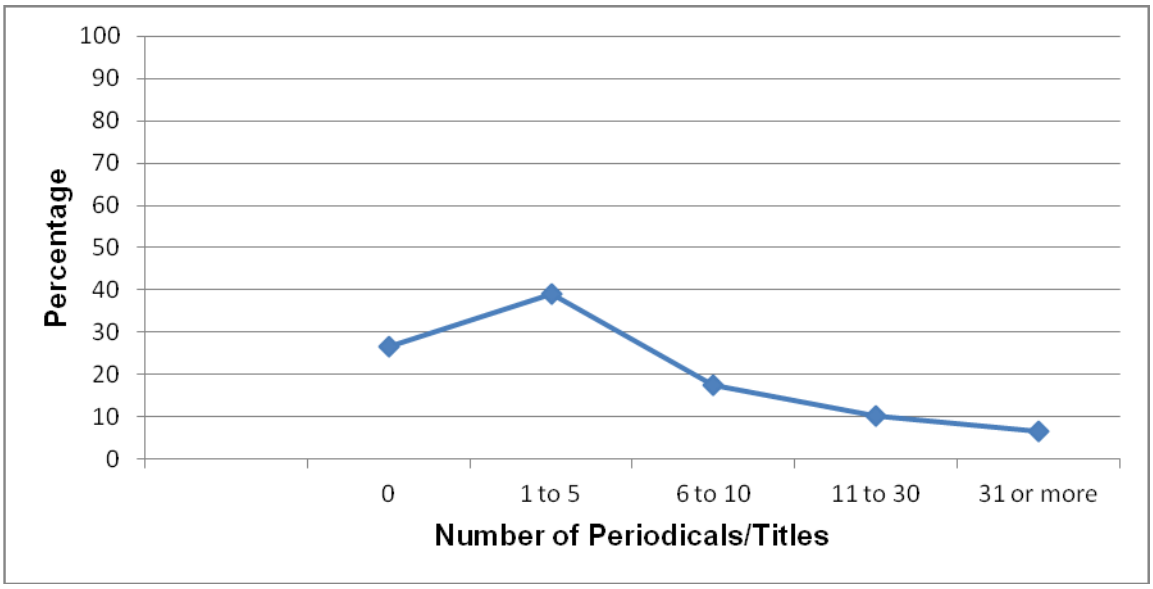


Figure 5.20: Periodicals and Book Titles

Apart from the library, school principals were asked about the availability of workplace for teachers and if such workplaces were shared or not. In this case a majority of principals (84%, SE= .02%) of Grade 5 learners indicated that schools do provide for a workplace in the classroom and that such workplace is to a larger extent shared as reported by 13% (SE=.02%) of principals of Grade 5 learners.

This chapter has presented descriptive results for the Context, Input and Process variables in keeping with Scheerens' Context-Input-Process-Output model. The following section pays particular attention to the Output segment of the model, with specific reference to the overall PIRLS 2006 international results for reading literacy of South African Grade 5 learners. These reading literacy results serve as output against which process variables will be measured in the current study.

5.5. Descriptive Results for the Output Variables

Forty countries, including two education systems from Belgium and five provinces from Canada, resulting in 45 education systems, participated in PIRLS 2006 (Mullis et al., 2007).

© University of Pretoria

Table 5.15 provides a comprehensive list of all the participating countries and their education system including 26 countries and two provinces that had trend data from 2001(as taken from Mullis et al., 2007).

Table 5.15: PIRLS 2006 Participating Countries and Education Systems

PIRLS 2006 & 2001		PIRLS 2006
Bulgaria	Macedonia	**Austria**
Canada, Ontario	Moldova	**Belgium (Flemish)**
Canada, Quebec	Morocco	**Belgium (French)**
England	Netherlands	**Canada, Alberta**
France	New Zealand	**Canada, British Columbia**
Germany	Norway	**Canada, Nova Scotia**
Hong Kong SAR	Romania	**Chinese Taipei**
Hungary	Russian Federation	**Denmark**
Iceland	Scotland	**Georgia**
Iran	Singapore	**Indonesia**
Israel	Slovak Republic	**Kuwait**
Italy	Slovenia	**Luxembourg**
Latvia	Sweden	**Poland**
Lithuania	United States	**Qatar**
		South Africa
		Spain
		Trinidad and Tobago

PIRLS 2006 questions on reading passages required learners to demonstrate a range of abilities and skills in constructing meaning from the texts. Thus purposes for reading and processes of comprehension formed the basis of the written text

© University of Pretoria

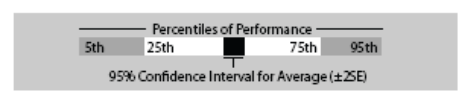
for reading comprehension. Learners only had to respond to two reading passages, which consisted of multiple choice items and constructed–response questions. Not only did the constructed–response questions expect learners to generate and write their own responses, but these questions varied from short to more elaborate responses up to a maximum of three points (Mullis et al., 2007).

Reporting PIRLS 2006 achievement data was based primarily on Item Response Theory (IRT) scaling methods. The IRT method offers an opportunity to produce a score by averaging the responses of each learner to the items that the learner took in such a way that it accounts for the difficulty and discriminating power of each item. In addition, the IRT is capable of estimating a learner's score on an assessment, even though the learner has not responded to all of the items in the assessment pool (Mullis et al., 2007).

For analysis purposes, PIRLS 2006 used achievement distribution to ascribe each learner's achievement conditional on the items responses and background. These generated scores are presented in the form of 'plausible values' (see Chapter 4 for details) and are then used as scale scores in the analysis. The PIRLS 2006 average score is set at 500 and the standard deviation at 100 (Mullis, et al., 2007). As PIRLS 2006 is a comparative study, Grade 5 learner achievement is reported and compared with other participating countries. Figure 5.21 shows the reading achievement distribution, average scale score, years of formal schooling, average age of learners and human development index for each participating country.

© University of Pretoria

Countries	Average Scale Score	Years of Formal Schooling*	Average Age	Human Development Index**
2a Russian Federation	565 (3.4)	4	10.8	0.797
Hong Kong SAR	564 (2.4)	4	10.0	0.927
2a *Canada, Alberta*	560 (2.4)	4	9.9	0.950
Singapore	558 (2.9)	4	10.4	0.916
2a *Canada, British Columbia*	558 (2.6)	4	9.8	0.950
Luxembourg	557 (1.1)	5	11.4	0.945
2a *Canada, Ontario*	555 (2.7)	4	9.8	0.950
Italy	551 (2.9)	4	9.7	0.940
Hungary	551 (3.0)	4	10.7	0.869
Sweden	549 (2.3)	4	10.9	0.951
Germany	548 (2.2)	4	10.5	0.932
† Netherlands	547 (1.5)	4	10.3	0.947
†2a Belgium (Flemish)	547 (2.0)	4	10.0	0.945
2a Bulgaria	547 (4.4)	4	10.9	0.816
2a Denmark	546 (2.3)	4	10.9	0.943
Canada, Nova Scotia	542 (2.2)	4	10.0	0.950
Latvia	541 (2.3)	4	11.0	0.845
†2a United States	540 (3.5)	4	10.1	0.948
England	539 (2.6)	5	10.3	0.940
Austria	538 (2.2)	4	10.3	0.944
Lithuania	537 (1.6)	4	10.7	0.857
Chinese Taipei	535 (2.0)	4	10.1	0.910
Canada, Quebec	533 (2.8)	4	10.1	0.950
New Zealand	532 (2.0)	4.5 - 5.5	10.0	0.936
Slovak Republic	531 (2.8)	4	10.4	0.856
† Scotland	527 (2.8)	5	9.9	0.940
France	522 (2.1)	4	10.0	0.942
Slovenia	522 (2.1)	3 or 4	9.9	0.910
Poland	519 (2.4)	4	9.9	0.862
Spain	513 (2.5)	4	9.9	0.938
2b Israel	512 (3.3)	4	10.1	0.927
Iceland	511 (1.3)	4	9.8	0.960
PIRLS Scale Avg.	**500**	–	–	–
Moldova, Rep. of	500 (3.0)	4	10.9	0.694
Belgium (French)	500 (2.6)	4	9.9	0.945
‡ Norway	498 (2.6)	4	9.8	0.965
Romania	489 (5.0)	4	10.9	0.805
2a Georgia	471 (3.1)	4	10.1	0.743
Macedonia, Rep. of	442 (4.1)	4	10.6	0.796
Trinidad and Tobago	436 (4.9)	5	10.1	0.809
Iran, Islamic Rep. of	421 (3.1)	4	10.2	0.746
Indonesia	405 (4.1)	4	10.4	0.711
Qatar	353 (1.1)	4	9.8	0.844
Kuwait	330 (4.2)	4	9.8	0.871
Morocco	323 (5.9)	4	10.8	0.640
South Africa	302 (5.6)	5	11.9	0.653



SOURCE: IEA Progress in International Reading Literacy Study (PIRLS) 2006

* Represents years of schooling counting from the first year of ISCED level 1.

** Taken from United Nations Development Programme's *Human Development Report 2006*, p. 283-286, except for Chinese Taipei taken from Directorate General of Budget, Accounting and Statistics, Executive Yuan, *R.O.C. Statistical Yearbook 2005*. Data for Belgium (Flemish) and Belgium (French) are for the entire country of Belgium. Data for England and Scotland are for the United Kingdom.

† Met guidelines for sample participation rates only after replacement schools were included (see Exhibit A.7).

‡ Nearly satisfying guidelines for sample participation rates after replacement schools were included (see Exhibit A.7).

2a National Defined Population covers less than 95% of National Desired Population (see Exhibit A.4).

2b National Defined Population covers less than 80% of National Desired Population (see Exhibit A.4).

( ) Standard errors appear in parentheses. Because results are rounded to the nearest whole number, some totals may appear inconsistent.

NOTE: See Exhibit C.1 for percentiles of achievement in reading.

Figure 5.21: Distribution of International Reading Achievement (taken from Mullis, et al; 2007)

© University of Pretoria

As indicated by figure 5.21, South African Grade 5 learners achieved an average scale score of 302 (SE=5.6), the lowest achievement of all participating education systems. Of concern is that this achievement does not only fall below the international average of 500, but is also indicative of South African Grade 5 children's achievement in comparison to Grade 4 counterparts internationally. These findings suggest that internationally, Grade 4 learners outperform South African Grade 5 learners.

5.6 SUMMARY

Chapter 5 provided a detailed discussion of the descriptive results for each of the selected variables for purposes of this study in keeping with Scheerens' conceptual framework of Context-Input-Process-Output. Context was described in terms of school physical location, while Input was described in terms of learner and teacher characteristics. Process was described in terms of educational leadership, curriculum quality (as measured by creating opportunities to learn, assessment practices, learners with special educational needs and efforts for parental involvement), safety and orderly atmosphere and use of resources. Output was lastly described in terms of South Africa's overall reading literacy achievement in PIRLS 2006 internationally as measured at Grade 5 level.

PIRLS 2006 participating schools were mainly from rural areas, with most learners coming from disadvantaged backgrounds who do not speak English as their first language. Teachers in such a context used English as a second language in their teacher training with less focus on language development as an area of study. These are teachers who tend to read daily to their learners as opposed to learners who read themselves daily. Descriptive results described in this chapter point to learners in rural areas who come from disadvantaged areas having an added burden to overcome in disadvantaged socio-economic backgrounds. Despite safety and orderliness reported by the majority of principals, other process factors in schools are not always indicative of providing optimal principal leadership, learning opportunities, quality curriculum delivery, and use of resources.

© University of Pretoria

CHAPTER 6

RESULTS

6.1 INTRODUCTION

This study aims to determine the possible effects of school conditions on Grade 5 learner reading achievement in primary schools in South Africa using school conditions as process factors in an adaptation of Scheerens' conceptual framework of Context, Input, and Process as predictors of Output (learner achievement). This chapter pays particular attention to the process component of the conceptual framework with four identified school conditions, namely Educational Leadership, Curriculum Quality, Safety and Orderly Atmosphere and Use of Resources.

For this study, school conditions variables draw from items in the PIRLS 2006 South African data, with selected items from the teacher and school questionnaires as predictors of Grade 5 learner reading achievement. Section 6.2 explicates all the items that were used as school conditions, trailed by Section 6.3 which presents results of the reliability analysis for each factor. Factor analysis results are provided in Section 6.4. Section 6.5 provides Multiple Regression Analysis results of the school conditions that have been used to describe the Process aspect of Scheerens' conceptual framework.

Field (2009) maintains that Multiple Regression Analysis is used to predict an outcome variable (in this case Grade 5 learner reading achievement) from either one or more predictor variables (processes at school-level as identified for this study). It has to be stated that the current study takes the form of a standard regression using several predictors. Hierarchical methods were not employed, since the study does not seek for factors to be entered in a specific order of importance. The use of IDB Analyzer also allows only for standard regression without options of hierarchical, forced or stepwise entry of predictors. This chapter provides the results of research sub-questions 2, 3, 4 and 5 which were posed in order to adequately answer the main research question. The sub-research questions are posed as follows:

© University of Pretoria

2. To what extent does Educational Leadership (as measured by the principal's daily activities) have an effect on learner reading achievement?

3. What is the effect of Curriculum Quality on learner reading achievement (as measured by the opportunity to learn, attention for learners with special educational needs, assessment practices and programmes aimed at encouraging parental involvement)?

4. What is the role of Safety and Orderly Atmosphere of the school environment (as perceived by school principals) and its effect on learner reading achievement?

5. To what extent does the Use of Resources have an effect on learner reading achievement?

6.2 SCHOOL CONDITIONS VARIABLES CHOSEN FOR THIS STUDY THAT REPRESENT THE PROCESS DIMENSION OF SCHEERENS' FRAMEWORK

Schools are tasked with the responsibility of creating learning experiences for learners and schools engage in certain activities in order to create such experiences. It is these various activities that are regarded as processes (Hoadley & Jansen (2009); Scheerens (2000).

Table 6.1 provides a summary of the four identified school conditions, namely Educational Leadership, Curriculum Quality, Safety and Orderly Atmosphere and Use of Resources regarded as processes factors that may have an effect on learner reading achievement. These factors are drawn from the Grade 5 PIRLS 2006 South African data. For a comprehensive description of these variables, see Appendix B.

© University of Pretoria

Table 6.1: Process Factors at School Level

Factor	Variable Name
Educational Leadership	acbgtac 1- 7
Curriculum Quality	ATBGMSR 1-4
	ATBGASP 1-7
	ATBGPFOL
	ATBGPCO 1-2
Safety and Orderly Atmosphere	acbgsi 1-14
	acbgcha 1 - 6
	acbgpb 1 - 12
Use of Resources	ACBGZ 013 - 18
	ATBGRIA 1 - 8

6.3 RELIABILITY RESULTS

Field (2009) defines reliability as the extent to which an instrument consistently reflects the construct that it is measuring. MacMillan and Schumacher (1993) explain that constructs are intangible and difficult to observe, except through variables. For this reason, reliability of variables directly translates to reliability of a construct, thus the overall consistency of measurement of the instrument. Under these circumstances, internal consistency which assesses a single trait or dimension is utilised using SPSS. Using SPSS to establish reliability coefficients for items that were selected for the current study, a Cronbach Alpha (α) approach is considered to be an appropriate internal consistency reliability procedure since the selected items are on a Likert scale and not dichotomously scored (MacMillan & Schumacher, 2001).

© University of Pretoria

In most cases, reliability coefficients that range from .7 to .8 are acceptable. On the one hand, Kline (1999) in Field (2009) maintains that a reliability coefficient below .7 is acceptable because of the diversity of the construct being measured. On the other hand MacMillan and Schumacher (2001) contend that a reliability coefficient below .5 is acceptable and tolerated, with the proviso that decisions are not made about an individual but a group. Reliability analysis was applied to each item making up each factor in the current model.

For purposes of the current study, it had to be ensured that items all capture meaning in the same direction. Therefore, items were scrutinised and recoded where they were negatively phrased to ensure that response patterns all culminated in the measurement of attitudes in the same direction. The overall reliability coefficient of -325,53 for the role of Educational Leadership factor (acbgtac 1-7) was observed. For this item, principals of Grade 5 learners were expected to indicate (as a total of percentage that adds up to 100%) the amount of time devoted to the development of the curriculum and pedagogy, managing staff and or staff development, administrative duties, parental and community relations, teaching, interacting with individual learners as well as other duties. In most instances percentages exceeded 100% meaning principals did not respond correctly to this item, thereby yielding erroneous responses or rather invalid data. Consequently, a scale for Educational Leadership could not be constructed and the variable was not included in subsequent factor analysis and multiple regression analyses.

Table 6.2 presents reliability coefficients for each of the factors under investigation for the current study.

Table 6.2: Reliability Coefficients

Factor	Reliability Coefficient
Leadership Role	-325.35
Curriculum Quality	.80
Safety and Orderly Atmosphere	.86

© University of Pretoria

Use of Resources	.62

Although the reliability coefficient for the Use of Resources is not between .7 or .8, it is still acceptable as MacMillan and Schumacher (2001) point out that reliability coefficient below .5 are acceptable if decisions are made about a group rather than an individual. Overall, reliability for Curriculum Quality, Safety and Orderly Atmosphere as well as the Use of Resources were at acceptable levels.

6.4 FACTOR ANALYSIS RESULTS

Once reliability for each of the selected items was established, factor analysis was performed. The aim of factor analysis was to reduce data into a manageable size while retaining as much of the original information as possible. ‘‘...factor analysis achieves parsimony by explaining the maximum amount of common variance...using the smallest number of explanatory constructs’’ (Field, 2009, p.629). In other words all those variables that cluster together are sought and are able, through high factor loadings, to relatively contribute or account for the maximum common variance. Moreover, factor analysis is useful to overcome multicollinearity in multiple regression analysis, in this instance the variables that may be responsible for multicollinearity will then combine into a single factor (Field, 2009). The resulting factors were then saved for Multiple Regression Analysis.

In this case, an un-rotated principal component extraction method was utilised to extract factors capable of accounting for maximum common variance. Factor analysis results for Curriculum Quality resulted in the first component accounting for a cumulative common variance of just above 36%. Table 6.3 provides a list of variables that clustered around the first factor for Curriculum Quality together with their factor loading.

© University of Pretoria

Table 6.3: Extracted Components for Curriculum Quality

Variables	Factor Loading
Diagnostic Tests	.423
Classroom Tests	.236
National or Regional Tests	.395
Professional Judgement	.144
Portfolios	.226
Multiple–choice questions	.500
Short-answer written questions	.412
Paragraph length written responses	.648
Listening to learners read aloud	.297
Oral questioning of learners	.280
Learners give oral report/summary of what they have read	.590
Meeting with learners to discuss what they have been reading	.657
To inform parents of learners' progress	.586

Factor analysis was also computed for measures of Safety and Orderly Atmosphere. Table 6.4 lists all the variables that clustered around the first component together with their factor loading and account for the highest cumulative common variance of almost 40%.

© University of Pretoria

Table 6.4: Extracted Components for Safety and Orderly Atmosphere

Variables	**Factor Loading**
Learner tardiness	.427
Learner absenteeism	.574
Classroom disturbance	.570
Cheating	.500
Profanity	.518
Vandalism	.729
Theft	.670
Abuse amongst learners	.634
Physical Conflict amongst learners	.608
Drug Abuse	.393
Weapons	.448
Racism	.107
Teacher job satisfaction	.355
Teacher expectations	.291
Parental support	.444
Respect for school property	.681
Learners desire to do well	.425
Learners regard for others welfare	.468

With regards to the Use of Resources, the first factor accounted for the largest cumulative variance of 26,2%. Similarly, the component was then saved for regression analysis. Table 6.5 provides information about variables that clustered around the first component as well as their factor loadings.

© University of Pretoria

Table 6.5: Extracted Components for Use of Resources

Variables	Factor Loading
Reading Series	1.001
Textbooks	.908
Variety of Children books	.782
Material from other subjects	.728
Newspapers and magazines	.365
Computer software for reading instructions	.175

Table 6.6 provides a summary of the three components extracted and total variance explained by each factor. Therefore, out of the four process factors only three were used for the regression model, namely Curriculum Quality, Safety and Orderly Atmosphere and Use of Resources. The three factors accounted for high cumulative variance, as illustrated by Table 6.6.

Table 6.6: Explained Variance per Factor

Factor Name	Variance (%)
Curriculum Quality	36
Safety and Orderly Atmosphere	40
Use of Resources	26.2

Once satisfactory reliability coefficients of selected variables and cumulative variance per single factor were established, Multiple Regression Analysis could be performed to uncover the possible associations of Curriculum Quality, Safety and Orderly Atmosphere and Use of Resources as predictors of Grade 5 learner reading achievement.

© University of Pretoria

6.5 MULTIPLE REGRESSION ANALYSIS RESULTS

The International Database Analyzer (IDB Analyzer) version 3.0, a plug-in programme to SPSS, was used for multiple regression analysis. The IDB Analyzer was developed mainly to combine and analyse data from the IEA's large–scale assessments such as PIRLS and TIMSS. Furthermore, the IDB Analyzer was chosen not only because weights are correctly applied but also because plausible values are already computed and readily available for analysis.

Multiple regression analysis provides a useful model to predict learner reading achievement as outcome by using multiple predictor variables. Multiple regression analysis is a linear model that seeks to find a linear combination of predictors that correlate very highly with the outcome variable (Field, 2009). The model may be generally represented as follows:

$$Y_i = (b_o + b_1X_{1i} + b_2X_{2i} + b_3X_{3i} \ldots + b_nX_{ni}) + \epsilon_i$$

Y = Outcome variable

b_0= constant or intercept

$b_1 =$ is the coefficient of the first predictor (X_1)

b_2 = is the coefficient of the second predictor (X_2)

b_n = is the coefficient of the nth predictor (X_n)

ϵ_i = is the difference between the predicted and the observed value of Y for the *i*th participant

In the equation, Y is the outcome which in this case denotes learner reading achievement while b_0 is the intercept that depicts the mean reading achievement when controlling for all other variables. Depending on the number of predictors, the b_n represents the coefficients of each predictor and ϵ_i signifies the associated error in the model.

© University of Pretoria

It is expected that each factor in the current study will have some effect on learner reading achievement and together have a combined effect on learner reading achievement. These possible effects may be illustrated as follows:

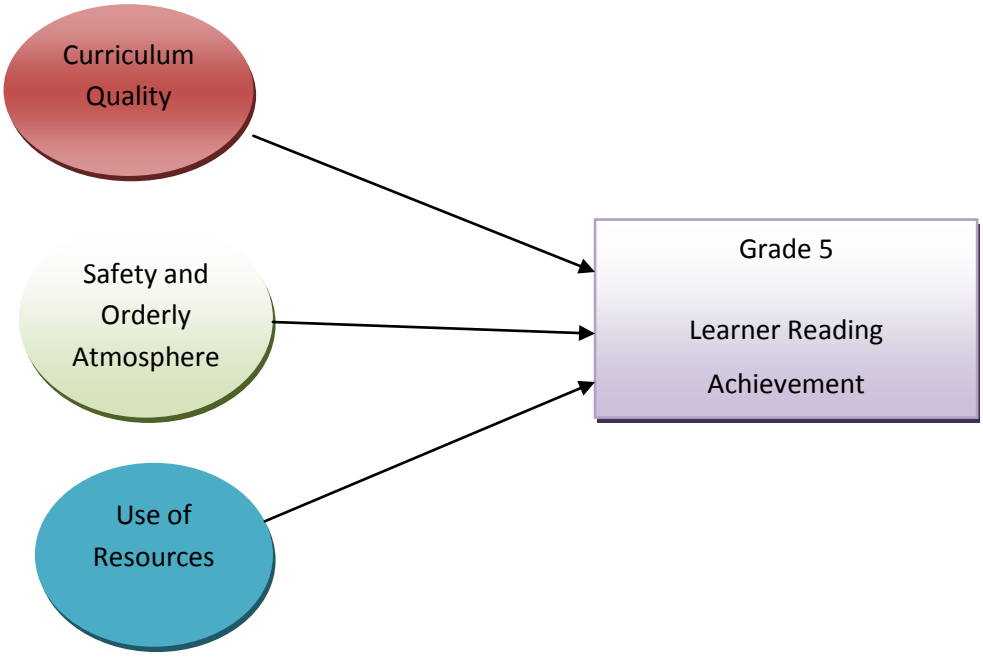


Figure: 6.1: Path Diagram of Possible Effects of School Conditions on Learner Reading Achievement

For purposes of the multiple regression model, three school conditions as illustrated by Figure 6.1 serve as predictors of reading achievement and reading achievement as an outcome variable in the current study. Educational leadership as initially described in previous chapters had to be removed from the analyses due to its unreliability.

A method called forced entry was used for the regression model. In such a method the researcher does not decide on the order in which the predictor variables enter the model (Field, 2009). Table 6.7 displays multiple regression coefficients, standard error (SE) and test statistics (t-value) associated with each coefficient.

© University of Pretoria

Table 6.7: Multiple Regression Coefficients

Factor	B (Unstandardized coefficients)	SE	t-value
Constant	99.58	33.99	2.93
Curriculum Quality	73.34	10.58	6.93*
Safety and Orderly Atmosphere	46.62	10.01	4.66*
Use of Resources	-11.00	12.46	-.88

*Significance is reported at 0.01

A relationship between learner achievement and the school condition is represented by the sign preceding the regression coefficient. A negative (-) sign represents a negative relationship, while a positive relationship is marked by a regression coefficient without a sign. Unstandardised regression coefficients indicate the effect of the predictor when controlling for the other predictors (Field, 2009). The t-values provide for the level of confidence. The model constant (99.41, (SE = 9.31) indicates the mean reading achievement when no effect is present. It also represents the intercept, (that is b_o) in the regression equation. Note that the constant for this model does not coincide with the international reading achievement results for South Africa largely due to the model specifications.

The following sections will pay attention to each research sub-question and how results of the Multiple Regression provide evidence in order to answer the question. The second sub-research question asked:

2. To what extent does Educational Leadership (as measured by the principal's daily activities) have an effect on learner reading achievement?

© University of Pretoria

The regression analysis is unable to answer the second research sub–question because no factor was computed due to the unreliability of the item. However, results for research sub-question three, four and five are respectively presented.

The first predictor in the model is directly related to the third research sub–question pertaining to Curriculum Quality and was posed as follows:

3. What is the effect of Curriculum Quality on learner reading achievement (as measured by the opportunity to learn, attention for learners with special educational needs, assessment practices and programmes aimed at encouraging parental involvement)?

From Table 6.7 an unstandardised coefficient of 73.34 (SE= 10.01) implies that Curriculum Quality has a positive association with learner reading achievement and provides an indication that learner achievement is expected to be higher by at least 73 points. This means that a school that places more emphasis on the delivery of the Curriculum Quality (as measured by the opportunity to learn, attention for learners with special educational needs, assessment practices and programmes aimed at encouraging parental involvement) can expect reading achievement to be higher.

The third predictor attempts to explain the role of a Safety and Orderly Atmosphere and addresses research sub-question 4, framed as follows:

4. What is the role of Safety and Orderly Atmosphere of the school environment factors (as perceived by school principals) and their effect on learner reading achievement?

Safety and Orderly Atmosphere has an unstandardised regression coefficient of 46.62 (SE=10.01). Safety and Orderly Atmosphere is positively associated with learner reading achievement and has the potential to enhance achievement by just over 46 points. This implies that learner achievement is expected to thrive in a school with safety and an orderly atmosphere (as perceived by school principals) and reading achievement may be higher by at least 46 points in such an environment.

© University of Pretoria

The last predictor is concerned with the Use of Resources. Thus, the fifth research sub-question is concerned with possible effects of the Use of Resources may have on learner reading achievement, and was framed as follows.

5. To what extent does the Use of Resources have an effect on learner reading achievement?

Use of Resources, the third predictor in the model, has an unstandardised coefficient of -11.00 (SE=12.46) which indicates a negative relationship with learner reading achievement as outcome. In this case, if resources are under-utilised learner achievement can be expected to be lower by 11 points. This means that inadequate Use of Resources (textbooks, reading series, material from other subjects, and variety of children's books, newspapers and magazines) as teaching and learning aids can be associated with lower reading achievement results.

Total variance explained by the three predictors is illustrated by Table 6.8.

Table 6.8: Model Statistics

R - Square	**R – Square (SE)**	**Adjusted R- Square**	**Adjusted R-square (SE)**
.25	.05	.25	.05

Table 6.8 outlines the value of R-square, adjusted R-square and associated standard errors (SE). The value of R-Square indicates the amount of variability in the outcome (i.e. Grade 5 learner reading achievement) that is accounted for by the three predictor variables. Combined, the three predictors account for 25% (.25 x 100) (SE =.05) of the variation in learner reading achievement.

Moreover, the three predictors have an overall moderate correlation of .5 (i.e. the square root of .25) with the outcome variable.

© University of Pretoria

Field (2009) maintains that an adjusted R–square value may be used for cross-validation or to assess the accuracy of the model across different samples. In other words, the amount of variance in the outcome would be accounted for by the model if it had been taken from the population. Thus an adjusted R–square value that is either close to or at best is equal to R-square is more desirable. In this instance the adjusted R–square value is equal to the value R-square, an indication of good cross validity. Hence, the model may predict learner outcome if the same variables were to be used in a different sample.

Variance explained by the three predictors is graphically represented by Figure 6.2.

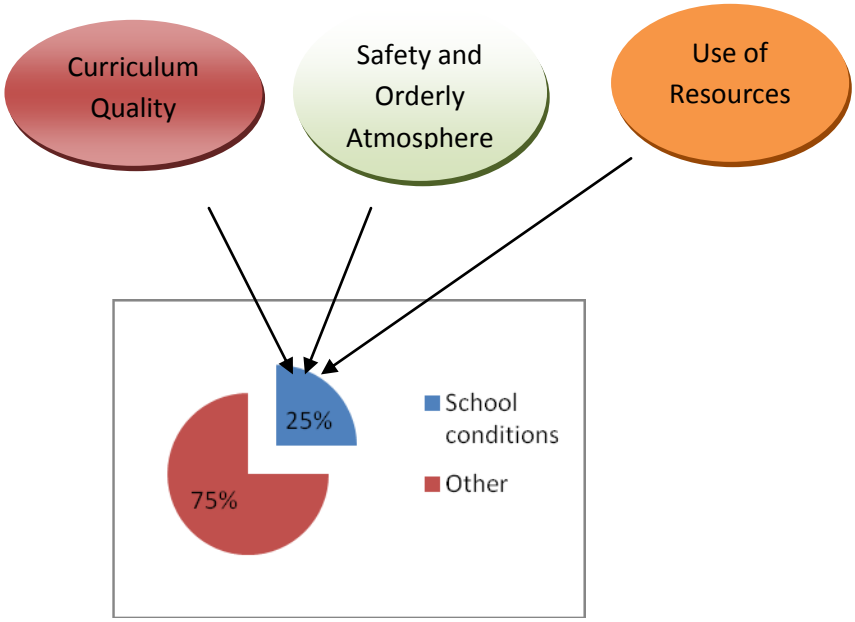


Figure 6.2: Explained Variance of Learner Achievement in terms of Curriculum Quality, Safety and Orderly Atmosphere and Use of Resources

The significance of the model to predict the outcome depends in part on the analysis of variance (Anova). According to Field (2009) Anova determines whether the model is significantly better at predicting learner reading achievement as outcome. Table 6.9 illustrates analysis of variance results for the current model. Field (2009) makes the point that the ratio between the mean square of the model and the mean square of the residual, called the F- ratio, provides an indication of

© University of Pretoria

the significance of the model in predicting the outcome if it is greater than 1. The F-ratio, in this case, is far greater than 1 and significant at p<.00.Therefore, Anova statistics provide evidence that Curriculum Quality, Safety and Orderly atmosphere, and Use of Resources are significant contributors in predicting Grade 5 learner reading achievement as evidenced by PIRLS 2006.

Table 6.9: Anova Statistics

Sum of Squares	Sum of Squares	Sum of Squares (SE)	df	Mean Square	F	Sig
Regression	1728863820.71	462019816.47	3	576287940.2	1659.38	.00
Residual	5088862413.39	497865595.76	14653	347291.50		
Total	6817726234.10	772402770.25	14656			

6.6 SUMMARY

This chapter aimed to provide results for the second, third, fourth and fifth research sub-questions in order to answer the main research question. In this regard, selected variables from the PIRLS 2006 teacher and school questionnaires considered to be process variables were provided. Reliability results were presented and provided evidence that Educational Leadership was found to be unreliable with the reliability coefficient of -325.35. Curriculum Quality (as measured by the opportunity to learn, attention for learners with special educational needs, assessment practices and programmes aimed at encouraging parental involvement), Safety and Orderly Atmosphere (as perceived by school principals) as well as the Use of Resources had reliability within the acceptable range. For data reduction an un-rotated principal component factor analysis was performed to extract factors for regression analysis. Results indicate that the first factor extracted for Curriculum Quality explained 36% of the proportional variance in the model, Safety and Orderly Atmosphere explained 40% of the proportional variance and the Use of Resources explained a little over 26% proportional variance.

© University of Pretoria

The model provided evidence that Curriculum Quality, together with Safety and Orderly Atmosphere, had a positive association with learner reading achievement, where reading achievement could be expected to be higher by 73 and 46 points respectively where these two factors are present in schools. The Use of Resources showed a negative relationship with learner reading achievement, meaning that it can be expected that learner reading achievement can be lower by 11 points in the absence of optimal Use of Resources. Anova statistics was significant with the F- ratio greater than 1, thereby indicating the power of the model to predict learner reading achievement. The combined effect of Curriculum Quality, Safety and Orderly Atmosphere as well as the Use of Resources explained 25% of the proportional variance of learner reading achievement.

© University of Pretoria

CHAPTER 7

CONCLUSIONS AND RECOMMENDATIONS

7.1 INTRODUCTION

In an effort to determine the effect of school conditions on learner reading achievement in primary schools in South Africa, this study drew on selected variables from the PIRLS 2006 South African data, notably from Grade 5 learner reading achievement, teacher and school questionnaires, to understand school conditions that may enhance or improve learner reading achievement.

This final chapter presents the summary of the research (Section 7.2) by providing the study background leading to the framing of the main research question, followed by the summary of main results (Section 7.3), taking into account each of the research sub-questions developed for this study and a summary of literature on the topic. A reflection of Scheerens' (2000; 2005) school effectiveness model of context-input-process and output was used as a lens in this study, as discussed in Section 7.4. The main research conclusions are presented in Section 7.5, with reflections on the design and methodology applied in this study presented in Section 7.6. Limitations of the study are presented in section 7.7, while additional reflections are shortly discussed and presented in Section 7.8. Policy, practice and further research recommendations are made in Section 7.9.

7.2 SUMMARY OF THE RESEARCH

PIRLS 2006 forms part of a trend study that is conducted every five years with the main focus on measuring trends in children's literacy achievement coupled with policy and practices related to literacy. In addition to the reading literacy tests, background information was collected on the experiences learners have both at home and school. PIRLS 2006 was the second such study internationally (Mullis et al., 2006) but the first for South Africa. Although PIRLS 2006 measured the reading literacy of learners who have had at least four years of schooling, which translated to Grade 4 for most participating countries, Grade 5 learners were also

© University of Pretoria

included in the South African sample (Howie et al., 2008). To further assist with background information on PIRLS 2006, a comprehensive discussion on the IEA, the PIRLS 2006 study, and the background questionnaires used to collect information for the South African study were presented in Chapter 2.

Research has revealed that various factors such as school buildings, resources and learner achievement are indicators of educational quality (see Mortimore & Stone 1991). In South Africa the level of teacher qualification, learner educator ratio as well as learner achievement have also been used as indicators of the quality of education (DBE, 2011). Various initiatives aimed at measuring the quality of education have been undertaken over the years. As observed by Kanjee (2007), systemic evaluation was aimed at establishing the level of learner achievement, with similar initiatives undertaken by the SACMEQ III study and PIRLS 2006. Of relevance to this study are the poor learner performance results, particularly those from PIRLS 2006 where Grade 4 (253, SE=4.6) and Grade 5 (302, SE=5,6) performance was below the international mean of 500 (Howie et al., 2008). Poor learner performance may be attributed to a host of factors, ranging from intrinsic factors such as learner cognitive ability and home factors, as well as extrinsic factors such as low parent educational level and school environment (Lessing & Mahabeer, 2007).

School conditions are firmly embedded within the school environment, and the current study focused on school conditions that may enhance or impede learner achievement. Although this study is located within the body of school effectiveness research, school conditions identified in this study are drawn from the school effectiveness research, school improvement research, as well as school climate literature. Chapter 3 presented a review of the relevant literature and Scheerens' (2000; 2005), Context-Input-Process-Output model acted as a conceptual framework for this study to investigate school conditions at the process level. Scheerens' conceptual framework is derived from systems theory, and links educational outcomes or learner achievement with antecedent conditions within a particular context. Evidence of its use in school effectiveness research is found in Scherman (2002) and Nkosi (2007) to mention just two. That said, this study

© University of Pretoria

followed the traditions of school effectiveness research by measuring the relative relationship between school conditions and learner achievement.

With poor learner achievement consistently observed, initiatives undertaken by the Department of Basic Education such as the Kha Ri Gude Mass Literacy campaign and Quality Learning and Teaching Campaign, aimed at improving learner performance. Besides initiatives taken to improve the quality of education, educational spending also increased from R140,4 billion in 2009 to R189,5 billion in 2011. Despite such initiatives and investment, learner performance is still very low. Therefore, the main research question was posed as follows:

What is the effect of school conditions on learner reading achievement in primary schools in South Africa?

In order to answer the main research question the following research sub-questions guided the study with the first research sub-question aimed at describing the context in which PIRLS 2006 was undertaken.

1. What is the context in which PIRLS 2006 was undertaken in terms of both inputs (as measured by learner enrolment, teacher characteristics and available physical resources) and the school's physical location?

Identified school conditions included Educational Leadership (measured by principals' daily activities), Curriculum Quality (as measured by the creation of learning opportunities, assessment practices, attention to learners with special educational needs and efforts for parental involvement), Safety and Orderly Atmosphere (as perceived by principals) as well as the Use of Resources in literacy development. In order to determine the effect of school conditions on learner reading achievement, particular attention was paid to the process component of the conceptual framework with accompanying research sub-questions posed as follows.

2. To what extent does Educational Leadership (as measured by the principal's daily activities) have an effect on learner reading achievement?

© University of Pretoria

3. What is the effect of Curriculum Quality on learner reading achievement (as measured by the opportunity to learn, attention for learners with special educational needs, assessment practices and programmes aimed at encouraging parental involvement)?

4. What is the role of Safety and Orderly Atmosphere in the school environment factors (as perceived by school principals) and its effect on learner reading achievement?

5. To what extent does the Use of Resources have an effect on learner reading achievement?

This study is a secondary data analysis embedded within a quantitative approach (see Chapter 4) that utilised multiple regression analysis to answer the main research question. Utilising multiple regression analysis, it was possible to determine the effect of school conditions (as represented by Educational Leadership, Curriculum Quality, Safety and Orderly Atmosphere and Use of Resources) on Grade 5 learner reading achievement and their combined effect on learner reading achievement as evidenced by PIRLS 2006.

7.3 SUMMARY OF MAIN FINDINGS

Zimmerman (2010) points out that learner literacy development is influenced by a multitude of school conditions. School conditions that have an effect on learner achievement include class size effect (Lessing & Mahabeer, 2007), educational management (Scheerens, 2005), and poor teaching and learning (DBE, 2013) to mention only a few. The effect of school conditions manifest in poor learner achievement, particularly learner reading achievement. In this study, Educational Leadership, Curriculum Quality, Safety and Orderly Atmosphere as well as the Use of Resources were explored to establish their effect on learner reading achievement. Table 7.1 presents a summary of the relationship of each of the selected school conditions with learner reading achievement.

© University of Pretoria

Table 7.1: Unstandardised Regression Coefficients

Factor	B (Unstandardized coefficients)	SE	t-value
Constant	99.58	33.99	2.93
Educational Leadership	-	-	-
Curriculum Quality	73.34	10.58	6.93*
Safety and Orderly Atmosphere	46.62	10.01	4.66*
Use of Resources	-11.00	12.46	-.88

*Significance is reported at 0.01

Chapter 6 detailed how reliability coefficients were established for each of the factors mentioned in Table 7.1. Credibility of such results rests on the reliability of each factor. MacMillan and Schumacher (1993) state that reliability of variables translates to the reliability of the instrument, thus internal consistency of variables had to be established for this study. In this regard, internal consistency was determined through the Cronbach Alpha approach as the items were not dichotomous. Reliability coefficients that range from .5 (MacMillan &Schumacher, 2001) to .8 or above (Kline, 1999 as cited by Field (2009)) are generally acceptable. The reliability coefficients were within the acceptable range with the exception of Educational Leadership (with a reliability coefficient of -325,35) and thus not included in further analysis. Curriculum Quality had a reliability coefficient of .80, with Safety and Orderly Atmosphere at .86. The Use of Resources had a reliability coefficient of .62.

While Table 7.1 presents a summary of the contribution of each factor to the regression model, these factors are discussed individually as per research sub-questions 2, 3, 4 and 5:

© University of Pretoria

2. To what extent does Educational Leadership (as measured by the principal's daily activities) have an effect on learner reading achievement?

The effect of school leadership has been dominated by discussions on two types of leadership styles, namely instructional leadership (directing teachers and a strong focus on the curriculum is foremost) together with transformational leadership (the main focus is on developing the school's capacity to innovate) within the school effectiveness paradigm (Hallinger, 2003). Findings on the direct effect of school leadership on learner achievement seems to be divergent, as Hallinger (2003) points out that the effect of school leadership is linked to both the external environment of the school as well as the internal school context.

Although the effect of school leadership may benefit teacher classroom practices more than learner achievement (Leithwood & Jantzi, 2006), school leadership dimensions have been identified that could have an effect on learner achievement (Robinson, Lloyd & Rowe, 2008). These dimensions include setting goals, strategic resourcing, ensuring an orderly and supportive environment, planning, coordinating and evaluating teaching and the curriculum, and promoting and participating in teacher learning and development.

It is the principal of the school who is responsible for most of the school conditions that foster a culture of effective teaching and learning (Masitsa, 2005; Kruger, 2003). With this background in mind, PIRLS 2006 measured the different activities of school leadership. Principals, through the school questionnaire, were asked to indicate the amount of time (as a percentage) they spend performing the following tasks: developing curriculum and pedagogy for the school, managing staff/staff development, administrative duties (for example, budgeting, hiring), parent and community relations, teaching, interacting with individual learners and any other tasks. These various tasks encapsulated the leadership factor. However, the reliability coefficient of the item was -325,35. Accordingly, a decision was taken not to include the item in the regression analysis which means that the study failed to answer the research sub question in the absence of a reliable indicator of

© University of Pretoria

Educational Leadership as evidenced by principal behaviour. Sub-question 3 asked:

3. What is the effect of Curriculum Quality on learner reading achievement (as measured by the opportunity to learn, attention for learners with special and efforts for parental involvement)

Curriculum quality is regarded as a degree of fit between the implemented curriculum and the achieved curriculum (Scheerens, 2005). It is the extent to which the achieved curriculum reflects the implemented curriculum. William (2001) notes that reading in effective schools are those that design learning activities in a less threatening and risk-free environment, together with effective instructional strategies (Alvermann, 2002). In this study, the creation of learning opportunities, assessment practices together with attention to learners with special educational needs and efforts by schools to improve parental involvement were identified as curriculum quality variables. With regard to the creation of learning opportunities, teachers of Grade 5 learners were asked to indicate how often they perform activities such as reading aloud to the class or how often they teach new vocabulary. Teachers of Grade 5 learners also had to provide information about their assessment practices by indicating how often or how much emphasis is placed on the use of multiple choice questions, oral questioning or paragraph length questions to assess learner performance (for a detailed list of all selected items and their reliability coefficients, refer to Chapter 6).

Table 7.1 illustrates that an unstandardised coefficient of 73.34 (SE= 10.01) implies that Curriculum Quality has a positive association with learner reading achievement and provides an indication that learner achievement is expected to be higher, by at least 73 points. This means that a school that places more emphasis on the delivery of the Curriculum Quality (as measured by the opportunity to learn, attention to learners with special educational needs, assessment practices and programmes aimed at encouraging parental involvement) can expect reading achievement to be higher.

Results of this study are supported by research conducted by Taylor, Pearson, Clark and Walpole (2000) that showed that effective schools have accomplished

© University of Pretoria

teachers that ask high-level questions coupled with getting learners to write in response to reading. Pretorius and Ribbens (2005) point out that effective language teaching involves a focus on enhanced decoding and comprehension skills that are aligned to assessment. Teachers need to be able to develop assessment practices that incorporate formative assessment that is characterised by questioning (by the teacher as well as the learner), by learner writing, sharing of assessment criteria, self-assessment and feedback (William, Lee, Harrison, and Black, 2004). Hence, creating a non-threatening and an effective learning environment cannot be separated from teachers who ask high-level questions that are dovetailed with the expectation to have learners write in response to reading instructions.

Sub-question 4 asked:

4. What is the role of Safety and Orderly Atmosphere in the school environment (as perceived by school principals) and its effect on learner reading achievement?

Bucher and Manning (2005) observe that an effective school not only creates but also strives to maintain a safe and orderly environment. A safe and orderly environment is considered to open opportunities and foster enhanced learner performance (Merrow, 2004). In other words, enhanced learner performance is to be expected in a safe and orderly environment (Macneil, Prater & Busch, 2009). In contrast, in an unsafe and conflict-laden environment, learner performance is expected to be lower (Neser, 2005). The safe and orderly atmosphere factor was measured through selected variables extracted from the school questionnaire. School principals were asked to indicate the degree to which their schools experienced problems such as learner tardiness, cheating and drug abuse amongst others.

Safety and Orderly Atmosphere has an unstandardised regression coefficient of 46.62 (SE=10.01). Safety and Orderly Atmosphere is positively associated with learner reading achievement and has the potential to enhance achievement by 46 points. This implies that learner achievement is expected to thrive in a school with

© University of Pretoria

safety and an orderly atmosphere (as perceived by school principals) and reading achievement may be higher by at least 46 points in such an environment.

Enhanced learner performance is to be expected in a safe and orderly atmosphere on one hand. On the other hand a highly unsafe school is most likely to be an enabling environment for poor learner achievement as declared by Nettles, Mucherah and Jones (2000) who provide evidence of a coefficient of -.25 ($p<.05$ level) in their study of school safety. Results of this study are thus comparable to that of Nettles et al. (2000) and confirm the role that safety and orderliness play in ensuring an optimal environment in which learning can take place.

Lastly, research sub-question 5 asked:

5. To what extent does the Use of Resources have an effect on learner reading achievement?

Resources range from human resources (school teachers), financial resources (money paid to the school by parents, donors or government), physical resources (school library, textbooks and or worksheets) to informational resources (learner report cards or minutes of parent meetings). These resources are vital inputs that an organisation, such as a school, need to ensure to achieve its objectives (Smit & Cronje, 2002). Equitable distribution of funds does not translate to enhanced learner achievement as is revealed by Fiske and Ladd (2005). Furthermore, Taylor (2006), observed no significant improvement in learner achievement, despite the availability of physical resources. It can then be said that distributing funds or just having physical resources without optimally utilising such physical resources does not enhance learner achievement.

The importance of resources in education lies in the extent to which they enhance or impede learner achievement. The Use of Resources in teaching reading was explored in this study as a school condition for its possible contribution to reading literacy achievement and utilised selected variables from the teacher questionnaire. Teachers were expected to respond to how often they use various physical resources (textbooks, children magazines and or books, workbooks during reading instructions as well as reading activities). This implies that learner

© University of Pretoria

achievement stands to benefit from the optimal use of available physical resources.

In the current study, Use of Resources had an unstandardised coefficient of -11.00 (SE=12.46), which indicates a negative relationship with learner reading achievement as an outcome. In this case, if resources are under-utilised learner achievement can be expected to be lower by 11 points. This means that inadequate Use of Resources (textbooks, reading series, material from other subjects, and variety of children's books, newspapers and magazines) as teaching and learning aids can be associated with lower reading achievement results.

Effects of physical resources on learner achievement are not restricted to Grade 5 learner achievement, but are also applicable in Grade 12. Although a different and smaller sample was used in a study by Crouch and Mabogoane (2001) by focusing on the Gauteng province, a negative relationship between physical resources and Grade 12 learner achievement was observed. Therefore, results of this study are supported by results of Crouch and Mabogoane (2001).

Table 7.2 provides the combined effect of school conditions on learner achievement as observed in this study.

Table 7.2: Model Statistics

R - Square	**R – Square (SE)**	**Adjusted R- Square**	**Adjusted R-square (SE)**
.25	.05	.25	.05

In Table 7.2, R-square indicates the amount of variability accounted for by the three school conditions, namely Curriculum Quality, Safety and Orderly Atmosphere and the Use of Resources in learner reading achievement. The three school conditions account for 25% (.25 x100) of variance on learner achievement. In other words, school conditions explain a quarter of learner reading

© University of Pretoria

achievement, while adjusted R–square provides an indication of the probability of the three school conditions accounting for the same variance in another sample (see Chapter 6); that is, the ability to generalise sample results on the entire Grade 5 learner population. Although they used different school conditions, Bacolod and Tobias (2005) have indicated that school conditions account for 6% of learner achievement. The two results are not in conflict but provide evidence that school conditions do have an effect on learner achievement and may also be due to the different countries' contexts.

7.4. CONCEPTUAL FRAMEWORK REFLECTIONS

Scheerens' (2000, 2005) Context-Input-Process-Output school effectiveness model was useful in guiding the selection of variables and the main analysis in this study. A key tenet of the model is that it allows for sub-divisions of the whole into sub-systems. The main research question was broadly framed within the school effectiveness tradition, hence the selection of Scheerens' conceptual framework. Furthermore, the study aimed to identify school conditions that may enhance or impede learner achievement at school level. A direct, one-way association between the process component as well as the output component was the focus of the current study.

In the current study, the context component described the background of schools that participated in PIRLS 2006. Similarly, input variables were only described to provide profiles of Grade 5 learners and their teachers. However, the extent to which information from context and input variables influences the process components was not explored. The current study (see Chapter 6) adapted Scheerens' (2000;2005) model which provided an opportunity to identify enhancing or impeding school conditions associated with learner reading achievement at the process level only.

In summary, Scheerens' conceptual framework was suitable for this study in guiding both the selection of process variables and the main analysis. Only the process component received attention and evidence from the current study

© University of Pretoria

suggests that process factors as conceptualised consist of school conditions in terms of Curriculum Quality, Safety and Orderly Atmosphere and Use of Resources explained as much as 25% of variance in the current model.

7.5. MAIN CONCLUSIONS

The main conclusions for this study are as follows:

Main conclusion 1: Ineffective use of physical resources constrain learner reading achievement

Cohen, Raudenbush and Ball (2003) identified those factors that made a difference in effective schools, these being ones that have teachers with a strong commitment to learners' achievement, collegial relations and a strong belief to help improve their learner achievement. However, in addition to traditional conceptions of resources, learner attributes are also regarded as resources to the extent that learners have to rethink their intellectual orientation when coming to class. This line of inquiry was premised on the belief that changing the learners' personal image and beliefs about learning has the promise for better and improved learner achievement. Nonetheless, an important lesson emerges when these views are taken together, that resources, whether physical or in terms of teacher or learner attributes, are a crucial element in the education environment, and play a pivotal role in learner achievement and thus cannot be ignored.

The quality of education as measured through learner achievement in PIRLS 2006 is disappointing. Fleisch (2008) offers various explanations for these results, ranging from policy (early shift from mother tongue to the second language), human resources (un- and under-qualified teachers) to instructional process (limited time spent on instructions), among others, as affecting learner achievement. Howie, Venter and van Staden (2008) are of the view that lower learner achievement in South Africa is a function of under-resourcing. In the current study, textbooks as a reading resource had a lower factor loading compared to worksheets. However, their importance cannot be ignored and, as

© University of Pretoria

van Staden and Howie (2010) point out, textbooks may be the only resource that learners have exposure to in their learning environment.

The availability of resources and the use thereof go hand in hand. There is a reliance on the textbook with the majority (54,9% (SE=.04)) of teachers using the textbook on most days. Just over a third of teachers use material from other subjects, with children's magazines or newspapers used once or twice a month. Longer books with chapters are almost never used. Results of this study show that over 60% of principals reported that their schools do not have a library. Of those that have libraries, these are likely to be under-resourced, with 32,2%(SE=.0126) of principals reported having fewer than 250 book and magazine titles. Results of this study suggest that the majority of learners are disadvantaged on two fronts: firstly, the non-availability of educational resources place learners at a disadvantage, and secondly the inability to effectively use available resources means lost opportunities for many learners.

While optimal use of available resources ensures that the learning experience is enhanced and highly stimulated, efforts by school management should be directed towards acquisition of physical resources. Thus, teachers should be able to effectively utilise these resources or be empowered to use available resources to enrich the teaching and learning process. Drawing from the work of Heather and Haycock (2006), it can be said that South African primary schools can benefit from the re-engineering of the education Human Resources policies on the hiring and current teacher distribution. Specifically altered plans could include attracting effective English first language teachers to rural schools across the country.

Main Conclusion 2: Of importance is creating and maintaining an enabling school environment

It is well established (Bacolod & Tobias, 2004; Scheerens, 2005) that learner performance is adversely affected by various factors, which may be outside the school control while some are within. For instance, learner socio-economic status (SES) (Howie, 2004), home language of the learner as well as school location are

© University of Pretoria

factors outside the school control (Howie, 2002). However, factors such as classroom disturbance and conflict between learners may be found inside the school. Violence amongst learners tends to affect the atmosphere of the school and it disrupts the learning environment (DBE, 2012).

Results of this study highlight the importance of creating and maintaining an enabling environment for learner performance in reading to thrive. Improved learner performance is a promise for better quality of education. A safe and orderly environment foregrounds efforts in the creation of learning experiences. Bucher and Manning (2005) suggest that a safe school ensures that learners, teachers, visitors, parents and district officials interact in a positive and inviting manner. Thus, school management, the immediate school community and school district offices and officials should take all necessary precautions to ensure that schools are safe and that security measures are in place so that the environment fosters teaching and learning. Similarly, the current study also highlights the importance of ensuring curriculum quality in terms of the opportunity to learn, attention for learners with special educational needs, assessment practices and programmes aimed at encouraging parental involvement. South Africa has undergone sweeping curriculum changes over the last two decades. Changes to curriculum documents are not a guarantee of quality curriculum delivery and do not happen as a single event that happens in isolation outside the classroom. Inevitably, changes to curriculum documents permeate all activities in the classroom, opportunities afforded to learners to learn, how learners with special needs are dealt with, the emphasis placed on assessment practices and the extent to which parents are encouraged to become involved in the education of their children.

Main Conclusion 3: Enhanced teaching and learning of literacy, specifically reading and writing, across all 11official languages is warranted

Low quality of teaching and learning is a major problem in South African primary schools (Pretorius & Machet, 2004; Pretorius & Ribbens, 2005; Fleisch, 2008). It is a problem most pronounced in early grades and gives rise to an incomplete acquisition of foundational skills such as reading, writing and numeracy across 11

© University of Pretoria

official languages (DBE, 2013). A host of school conditions contribute to this reality, for instance, large teacher–learner ratios, lack of language principles underpinning bilingual language teaching (Lessing & Mahabeer, 2007), lack of resources such as libraries with sufficient reading material and poor parental involvement (Zimmerman, 2010).

This study revealed that over 60% (SE=.03%) of principals of Grade 5 learners reported that schools place a major emphasis on oral language while just below 60% (SE=.04%) of teachers of Grade 5 learners rely on written tests for monitoring learner progress. Stiggins and Chappuis (2005) are of the opinion that assessment needs to have a clear focus with an alignment to instructional purpose. While assessment is part of teaching and learning it is imperative that teaching of reading is centred around decoding and comprehension, as foundational aspects of teaching reading (Pretorius & Ribbens, 2005) across languages and through to the Senior Phase. In order for learners' reading and writing skills to improve, the reliance on an oral tradition in many schools has to be eradicated so that oral skills find equal expression in learners' ability to communicate effectively using mechanisms of reading and writing.

7.6. REFLECTION ON RESEARCH DESIGN AND METHODOLOGY

In an effort to answer the main research question, multiple regression analysis in a secondary analysis design was used for the purposes of this study. This study used items from the PIRLS 2006 teacher and school questionnaire as predictors of Grade 5 learner achievement. Overall, PIRLS 2006 South African learner achievement data was used as available for all South Africa's 11 official languages.

This study was designed as a secondary analysis wherein the researcher utilised data collected for a different purpose from the primary study and so was unable to make any modification or addition to the data. Items on the role of leadership were highly unreliable and therefore not suitable for inclusion in the final analysis. That said, the following methodological reflections can be made:

© University of Pretoria

- Perhaps the current study's findings could be corroborated using the same factors in a different sample. So for example, the study could be replicated using PIRLS 2011 data, the cycle following PIRLS 2006 for which data had not yet been available when the current study was undertaken.
- A block-wise entry or hierarchical method of entering predictors to the model may provide a better understanding of the importance of predictors to reading literacy achievement.
- A stratified study of the role of school conditions on learner reading achievement by language, school background and province could shed light on the differences between the different languages, school background and provinces.
- The study could have benefitted from a mixed method design. Principals could have provided more qualitative data on their daily activities in order for the role of leadership to be explored more thoroughly.

7.7. STRENGTHS AND LIMITATIONS OF THE STUDY

This study builds on a body of knowledge on large scale studies that have been conceptualised and developed over many years. More importantly, this study is positioned in the Intermediate Phase that seems to have a scarcity of literature, as also observed by Zimmerman (2010).

As this is a secondary data analysis study, strength of the study is found in the data size as well as the quality of the data supplied by the IEA. The data records a high response rate of 96,5% (Howie et al., 2008). School response rate for learners of Grade 5 was above 96%, which translated to available data for 14,657 learners (Howie et al., 2008). The strength of the study is marked by the quality assurance measures taken to ensure that data is accurately captured and made available for secondary analysis.

© University of Pretoria

However, the study has its limitations. Firstly, learners of Grade 5 were assessed across 11 languages but a decision was made to use the overall reading literacy achievement scores and to not separate this score into reading achievement scores for individual language groups. Secondly, the effect of the role of leadership as a research sub-question for this study was not included in the final regression model because the item was unreliable and no opportunity to collect additional data was at hand. In the absence of other proxy data that could serve as indicators of leadership, the question and its possible effects in the current study had to be discarded.

7.8. ADDITIONAL REFLECTIONS

Personal experience as an educational practitioner frames the following discussion. As a Mathematics educator in a township high school over the last 12 years, I have made some observations that lead me to believe that the lack of reading literacy ability at the lower grades, as illustrated by PIRLS 2006 results, become dire by the time learners progress to high school. The inability to read with comprehension permeates learners' ability to do Mathematics adequately. In reflecting on the results of this research, the complexity of implementing large scale educational reforms becomes clear. Levin and Fullan (2008) encapsulate this complexity when they suggest that the greatest challenge facing large-scale reforms is in changing large numbers of schools and classrooms. South Africa has large numbers that are situated in rural areas coupled with diverse languages, classrooms marked with extreme inequalities with respect to the teacher quality, varying teacher-learner ratio and unequal distribution of relevant educational resources. As a teacher in a township setting I can attest to such circumstances, where lack of resources, lack of parental involvement and large classes, among other factors, are hindrances that compound the challenges already faced by an ineffective system.

Furthermore, I have observed that at the heart of the literacy problem is the unspoken yet glaring tension between parents and educational authorities. A majority of South African children are forced to learn in English as a second, or

© University of Pretoria

even third, language by the time they reach Grade 4. Parents often insist on English instruction from as young as Grade 1 and do not seem to believe that the role of mother-tongue education can form a firm foundation from where development can take place. Of serious concern is teachers' inability to effectively teach English, thus an opportunity is missed to build on a solid foundation. In such situations it is common, as Pretorius and Machet (2003) observed, that learners tend to struggle even in their home language. If learners struggle with language early on in their school careers it can be expected that these problems continue and increase in later years with consequences for a school-leaving population that are not able to meet the demands of everyday life.

7.9. RECOMMENDATIONS FOR POLICY, PRACTICE AND FURTHER RESEARCH

In view of the conclusions drawn from the study, educational policy recommendations are presented, followed by teaching practices recommendations as well as further research recommendations.

7.9.1 Policy Recommendations

At the time of conducting this study, certain noticeable shifts in the education system were undertaken as a result of the PIRLS 2006 study. These include the National Reading Strategy and the Foundations for Learning Campaign (DBE, 2008). Understood against this background, the Education White Paper 6 espouses an inclusive education and training system which ensures that no learner lags behind. It advocates maximum access to education for all. Poor learner achievement is a glaring indicator that a majority of learners have major learning difficulties and thus many are left behind. The full extent of the aim of White Paper 6 will be realised when teachers are empowered to uncover and minimise learning barriers at an early stage. Therefore, policymakers should take every necessary step to ensure that funds are allocated for teacher development

© University of Pretoria

in this area. The current study's findings point to the importance of curriculum quality and the creation of opportunities for all learners to learn.

In the South African context, opportunities to learn are linked to the languages available in which these opportunities are provided to learners. Some researchers (e.g., Fleisch, 2008) propose extending the number of years before a learner can be offered an additional language, since learners tend not to succeed in mastering the fundamentals of literacy when confronted too early with an additional language. In this regard, learners need to understand the structures of their own language to fully understand a second language (Landsberg, Kruger & Swart, 2013).

However, such a stance is more useful if coupled with access to all other subject areas through the first language. That is, learners are taught and learn other school subjects in their first language. Alternatively, strengthening of the second language by teaching its underlying important principles as early as Grade 1 are needed. Findings of the current study highlighted the persistence of the role of oral tradition in many schools (see Chapter 5). The importance of opportunities to learn cannot be over-emphasised, but debates around language will remain unresolved in the face of a dominant oral tradition that persists in the system.

7.9.2 Practice Recommendations

In Chapter 5, it emerged that over 80% (SE=, 03) of principals reported that in their schools English is the preferred language of instruction. However, just over half of teachers (52%, SE=, 04) reported having very limited focus on reading theory in their teacher training qualifications. In addition, almost 35%(SE=.8) of teachers of Grade 5 learners do not engage in professional development activities related to reading or teaching reading. Considering this reality, it is probable that such teachers lack the necessary skills to be able to identify learners experiencing reading difficulties as reported by just over 40% (SE=.042) of teachers. PIRLS 2006 reports that teacher training did not focus on remedial reading, so it can be expected that teachers will not be empowered to design appropriate support

© University of Pretoria

programmes aimed at addressing the learning barrier of the learner. Learner differences can be viewed as useful resources to build from (Wilson & Peterson, 2006). It is then recommended that teachers are afforded the opportunity to incorporate technical skills needed to effectively identify and design appropriate programmes to address reading deficiencies through effective teacher development, to carry out the following:

- Focus on the decoding and comprehension skills that integrate reading and assessment.
- Enhance teacher skills in developing formative assessment.
- Develop teachers in language learning difficulties and appropriate interventions.

7.9.3 Research Recommendations

Research recommendations presented in this study draw mainly on literature and this study. Hence, the following recommendations are made:

- Possible ways to package interactive educational content that will incorporate and draw from indigenous languages other than textbooks should be explored.
- Further research is needed to explore possibilities to enhance parental involvement in reading.
- The development and implementation of effective intervention programmes within and outside school aimed at literacy development, reading and writing across all 11 official languages are needed to address the reliance on oral traditions of teaching and learning.

Since the completion of this study, PIRLS 2011 took place with results yet again pointing to low performance by South African Grade 4 and Grade 5 learners. At the start of the current study, PIRLS 2011 data had not yet been made available, hence data analysis using PIRLS 2006 data was done for this study. PIRLS 2011 results pointed to continued under performance by learners from rural

© University of Pretoria

backgrounds, continued lack of basic resources (such as school libraries) and ineffective use of learning opportunities (Howie, van Staden, Tshele, Dowse, & Zimmerman, 2012).

This study's contribution lies in its use of PIRLS 2006 data that served as a benchmark against which learner reading achievement was measured along with background factors for learners, their parents, teachers and principals. The evidence that was provided in this study for the effects of school conditions was used to make policy, practice and research recommendations. As a secondary analysis, the current study highlighted the insufficiency of leadership measures as evidenced by the PIRLS 2006 school questionnaire that was completed by school principals. In this regard, subsequent PIRLS cycles could include more robust measures of leadership, even if these were only available as national option items in questionnaires that would be of interest to the South African study only.

As stated by van Staden (2010) the cultivation of a desire for reading, a culture of reading in South African households, classrooms and schools and the monitoring of reading achievement remain essential for the South African schooling system in years to come.

The current study concludes with a quote by Mullis et al. (2007), for whom the importance of a reading literate country is emphasised in the introduction of the PIRLS 2006 International Report:

> In today's information society, the ability to read is essential for maximising success in the endeavours of daily life, continuing intellectual growth, and realizing personal potential. Similarly, a literate citizen is vital to a nation's social growth and economic prosperity (p.15).

© University of Pretoria

REFERENCES

Akiba, M., LeTendre, G.K. & Scribner, J.P. (2007). Teacher Quality, Opportunity Gap, and National Achievement in 46 Countries. *Educational Researcher,* 36 (7) pp. 369–387.

Aldridge, J. M., Laugksch, R.C., & Fraser, B.J. (2006). School – Level Environment and Outcomes Education in South Africa. *Learning Environment Research,* 9 pp. 123 – 147.

Aldridge, J. M., Fraser, B.J., & Laugksch, R.C. (2011). Relationships between the school – level and classroom – level environment in secondary schools in South Africa. *South African Journal of Education,* 31 (1) pp. 127–144.

Allington,R.L. (2002). What I've learned about effective Reading Instructions from a Decade of Studying Exemplary Classroom Teachers. *The Phi Delta Kappan,* 83 (10) pp. 740–747.

Allodi, W. M. (2010). The meaning of social climate of learning environment: Some reasons why we do not care enough about it. *Learning Environmental Research,* 13, 89–104.

Alverman, D. E. (2002). Effective Literacy Instructions for Adolescents. *Journal of Literacy Research,* 34 (2) pp. 189–208.

Anderson, C. S. (1982). The search for school climate: A review of the Research. *American Educational Research Association,* 52 (3) pp. 368–420.

Au, K.H. (1998). Social Constructivism and the Literacy Learning of Students of Diverse Background. *Journal of Literacy Research,* 30 (2) pp. 297–319.

August, D., Carlo, M., Dressler, C., & Snow, C. (2005). The Critical Role of Vocabulary Development for English Language Learners. *Learning Disabilities Research and Practice*, 20 (1) pp. 50 - 57.

Babbie, E. (2013). *The Practice of Social Research.* 13th Edition, International Edition. Wadsworth:Canada.

Babbie, E. & Mouton, J. (2001). *The Practice of Social Research.* Oxford University Press: London.

Bacolod, M. & Tobias ,J.L. (2005). *Schools, School Quality and Academic Achievement. Evidence from the Phillippines*. Working Paper no 05006.

Bahg, C. (1990). Major systems theories throughout the world. *Behavioral Science,* 35 (2) pp. 79 – 107.

Barth, J., Kennedy, A.M. & Trong, K. (2007). PIRLS Survey Operations Procedures. In M.O. Martin, I.V.S. Mullis, A.M. Kennedy (Eds). TIMSS and PIRLS International Study Centre: Boston College.

© University of Pretoria

Barth, R.S. (2002). Beyond Instructional Leadership. *Educational Leadership.* 59 (8) pp. 6–11.

Bell, J. (2005). *Doing your Research Project.* (4th Edition). London. Open University Press.

Bennett, J. (2005). Curriculum Issues in National Policy–Making. *European Early Childhood Education Research Journal,* 13 (2) pp. 5–23.

Blaxter, L., Hughes, C. & Tight, M. (2009). *How to do Research* (3rd Edition). London. Open University Press.

Bohlmann, C. & Pretorius, E. (2008). Relationship between Mathematics and Literacy: Exploring the Underlying Factors. *Pythagoras,* 67 pp. 42–55.

Boulding, K. E. (1956). General Systems Theory-The Skeleton of Science. *Management of Science,* 2 (3) pp. 245 – 260.

Brown, J. S., Collins, A., & Duguid, P. (1989). Situated cognition and the culture of learning. *Educational Researcher*, 18 (1) pp. 32 – 42.

Bucher, K. T., & Manning, M. L. (2005). Creating Safe Schools. The Clearing House, 79 (1) pp. 55–60.

Chamberlain, M. (2012). The Impact of PIRLS in New Zealand. In K. Schwippert, & J. Lenkeit (2012). *Progress in Reading Literacy in National and International Context: The Impact of PIRLS 2006 in 12 Countries*. New York: Waxmann.

Chisholm, L., Hoardley, U., Kivilu, M., Brookes, H., Prinsloo, C., Kgobe, A., Narsee, H., & Rule, S. (2005). *Educator Workload in South Africa.* Cape Town. HSRC Press.

Chuck, A. (2009). Disparities in the System: The effects of Free Primary Education (FPE) on the Quality of Education in Nairobi's Public Schools. SIT Kenya: Development, Health and Society.

Cohen, D.K., Raudenbush, S.W. & Ball, D.L. (2003). Resources, Instructions, and Research. *Educational Evaluation and Policy Analysis*, 25 (2) pp. 119 – 142.

Cohen, L., Manion, L. & Morrison, K. (2000). *Research Methods in Education*. RoutledgeFalmer: USA.

Creemers, B.P.M. (2002). From School Effectiveness and School Improvement to Effective School Improvement. Background, Theoretical Analysis, and Outline of the Empirical Study. *Educational Research and Evaluation,* 8(4): 343 – 362.

Creemers, B.P.M. & Reezigt, G. (1997). School Level Conditions Affecting the Effectiveness of Institutions. *School Effectiveness and School Improvement.* 7(3) pp. 197–228.

© University of Pretoria

Creswell, J.W. (1994). *Research Design Qualitative and Quantitative Approaches*. United States of America. SAGE Publications.

Creswell, J.W. (2009). *Research Design Qualitative, Quantitative and Mixed Methods Approaches.* SAGE Publications: Thousand Oaks.

Cross, M., Mungadi, R. & Rouhan, S. (2002). From Policy to Practice: Curriculum Reform in South African Education. *Comparative Education,* 38(2) pp.171–187.

Crouch, L. & Mabogoane, T. (2001). No magic bullets, just tracer bullets: The Role of learning Resources, Social Advantage, and Educational Management in Improving the Performance of South African Schools, Social Dynamics. *Journal of African Studies*, 27(1) pp. 60-78.

De Grauwe, A., Lugaz, C., Balde, D., Diakhate, C., Dougnon, D., Moustapha, M.E. & Odushina, D. (2005). Does decentralization lead to school improvement? Findings and lessons from research in West–Africa. *Journal of Education for International Development*, 1(1) pp. 1–15.

De Villiers, E. (2006). *Educator's perceptions of the school Climate in Primary Schools in the Southern Cape.* (Unpublished Master's Dissertation). University of South Africa.

Department of Basic Education. (2010). *Report on the Annual National Assessment of 2011.* Department of Basic Education: Pretoria.

Department of Basic Education. (2011). *Report on the 2009 general household report: Focusing on Schooling.* Department of Basic Education: Pretoria.

Department of Basic Education. (2008). *Education Statistics in South Africa.* Pretoria. South Africa.

Department of Education. (2002). *Revised National Curriculum Statements Grades R–9 (Schools).* Pretoria: South Africa.

Department of Basic Education. (2008). *White Paper 6: Special Needs Education: Building an Inclusive Education and Training System.* Pretoria.

Department of Basic Education. (2013). *The Internal Efficiency of the School System: A report on selected aspects of access to education, grade repetition and learner performance.* Pretoria.

Department of Basic Education. (2012). *Addressing Bullying in Schools*. Centre for Justice and Crime Prevention. Pretoria.

Drack, M., Schwartz, G. (2010). Recent Developments in General Systems Theory. *Systems Research and Behavioral Science*, 27 pp. 601 – 610.

Elmore, R.F. (2000). *Building a New Structure for School Leadership.* The Albert Shanker Institute. USA.

© University of Pretoria

Field, A. (2009). *Discovering Statistics using SPSS.* (3rd Edition). London. SAGE Publications.

Fillmore, L.W. & Snow, C.E. (2000). *What Teachers need to know about Language. Clearing House on Languages and Linguistics (Special Report).* USA.

Fiske, E.B. & Ladd, H.F. (2004). *Racial Equality in Education: How Far Has South Africa Come?* Working Papers Series SAN 05–03.

Fleisch, B. (2008). *Primary Education in crisis.* Cape Town: Juta.

Flynn, K. & Hill, J. (2005). English Language Learners: A Growing Population. *Mid–Continent Research for Education and Learning,* pp. 1–12.

Fullan, M. (2009). Large–scale reform comes of age. *Journal of Educational Change,* 10 (1) pp. 101–113.

Gay, L.R., Mills, G.E. & Airasian, P. (2009). *Educational Research. Competences for Analysis and Applications.* Pearson: Boston.

Glover, D. & Coleman, M. (2005). School Culture, Climate and Ethos: Interchangeable or distinctive concepts? *Journal of In-service Education,* 31 (2) pp. 251–272.

Goddard, Y.L., Goddard, R.D. & Tschannen–Moran, M. (2007). A Theoretical and Empirical Investigation of Teacher Collaboration for School Improvement and Student Achievement in Public Elementary Schools. *Teachers College Record,* 109 (4) pp. 877–896.

Grant, C., Gardner, K., Kajee, F., Moodley, R., & Somaroo, S. (2010). Teacher leadership: a survey analysis of KwaZulu–Natal teacher's perceptions. *South African Journal of Education,* 30 (1) pp. 401–419.

Graziano, A.M., & Raulin, M. L. (2000). *Research Methods. A process of enquiry*. Allyn & Bacon: Needham Heights.

Hair, J.F., Anderson, R.E., Tatham, R.L. & Black, W.C. (1998). *Multivariate Data Analysis*. Upper Saddle River: New Jersey.

Hallinger, P. (2003). Leading Educational Change: Reflects on the Practice of Instructional and Transformational Leadership. *Cambridge Journal of Education*, 33 (3) pp. 329–352.

Hammond, L. D. (2006). Securing the Right to Learn. Policy and Practice for Powerful Teaching and Learning. *Educational Researcher*, 35 (7) pp. 13 – 24.

Hammond, L. D. (2007). Race, inequality and educational accountability. The irony of 'No child Left Behind'. *Race, Ethnicity and Education*, 10 (3) pp. 245 – 260.

Hanushek, E. A. & Wobmann, L. (2007). The Role of Educational Quality in Economics Growth. *World Bank Policy Research Paper 4122*.

© University of Pretoria

Hanushek, E.A. & Kimko, D.D. (2000). Schooling, Labour – Force Quality, and the Growth of Nations. *The American Economic Review*, 90 (5) pp. 1184–1208.

Hasselbring, T.S. & Glaser, C. H. W. (2000). Use of Computer Technology to Help Students with Special Needs. *The Future of Children*, 10 (2) pp. 102–122.

Haycock, E., & Labuschagne, H.J. (2006). Achieving performance excellence by aligning startegies and operations in local government context in South Africa. *Politeia*, 25 (3) pp. 257–272.

Heather, G.P. & Haycock, K. (2006). Teaching Inequality: How Poor and Minority Students Are Shortchanged on Teacher Quality. The Education Trust.

Heinesen, E. & Graversen, B.K. (2005). The effects of School Resources on Educational Attainment: Evidence from Denmark. *Bulletin of Economic Research*, 57 (2) pp. 3307–3378.

Heyneman, S.P. & Loxley, W.A. (1983). The Effect of Primary School Quality on Academic Achievement across twenty-nine high- and low-income countries. *American Journal of Sociology*, 88 (6) pp. 1162–1194.

Heystek, J. (2003). Parents as Governors and Partners in Schools. *Education and Urban Society*, 35 (3) pp. 328–351.

Heystek, J., & Lethoko, M. (2001). The contribution of teacher unions in the restoration of teacher professionalism and the culture of learning and teaching. *South African Journal of Education*, 21(4): 222 – 228.

Hlalele, D. (2012). Social Justice and rural education in South Africa. *Perspectives in Education*, 30 (1) pp. 111 – 118.

Hoadley, U. & Jansen, J. (2009). *Curriculum.* Oxford University Press: Cape Town.

Hoy, W. K. (1990). Organisational Climate and Culture. A Conceptual Analysis of the School workplace. *Journal of Educational and Psychological Consultation*, 1 (2) pp. 149 – 168.

Hoy, W. K., Tarter, C.J., & Hoy, W. A. (2006). Academic Optimism of Schools. A Force for Student Achievement. *American Educational Research Association*, 43 (3) pp. 425 – 446.

Hoover–Dempsey, K.V. & Sandler, H.M. (1995). Parental Involvement in Children's Education: Why Does It Make a Difference? *Teachers College Record,* 97 (2) pp. 311–331.

Hopkins, D. & Reynolds, D. (2001). The Past, Present and Future of School Improvement: Towards the Third Age. *British Educational Research Journal*, 27 (4) pp. 459–475.

Howie, S. (2004). A national assessment in Mathematics within an international comparative assessment. *Perspectives in Education*, 22 (2) pp. 149–162.

© University of Pretoria

Howie, S.J. (2002). *English Language proficiency and contextual factors influencing mathematics achievement of secondary school pupils in South Africa.* Enschede Printparteners Ipskamp.

Howie, S., van Staden, S., Tshele, M., Dowse, C., & Zimmerman, L. (2012). PIRLS 2011, South African Children's Reading Literacy Achievement. University of Pretoria. Centre for Evaluation and Assessment.

Howie, S., Venter, E., van Staden, S., Zimmerman, L., Long, C.,du Toit, C., Scherman, V. & Archer, E. (2008). *Progress in International Reading Literacy Study: Summary Report.* Centre for Evaluation and Assessment: University of Pretoria.

Howie, S.J. (2000). Conditions of Schooling in South Africa and the Effects on Mathematics Achievement. European Conference on Educational Research. Scotland.

Howie, S.J. (2004). A National Assessment in Mathematics within an International Comparative Assessment. *Perspectives in Education*, 22 (2) pp. 149–169.

Howie, S.J. (2006). Multi-level factors affecting the performance of South African pupils in mathematics. In S.J. Howie & T. Plomp (Eds), *Contexts of Learning and Science.* Oxon: Routledge

Howie, S., Venter, E., & van Staden, S. (2008). The effect of multilingual policies on performance and progression in reading literacy in South African primary schools. *Educational Research and Evaluation*, 14 (6) pp. 551 – 560.

Jeynes, W.H. (2005). A Meta–Analysis of the Relation of Parental Involvement to Urban Elementary School Student Academic Achievement. *Urban Education*, 40 (3) pp. 237–269.

Johansone, I. & Kennedy, A. (2007). Quality Assurance in the PIRLS 2006 Data Collection. In M.O. Martin, I.V.S. Mullis & A.M. Kennedy (Eds), *PIRLS 2006 Technical Report.* TIMSS and PIRLS International Study Centre: Boston College.

Johnson, B. & Stevens, J.J. (2006). Student achievement and elementary teachers' perceptions of school climate. *Learning Environment Research*, 9 pp.111-222.

Johnson, J.P., Livingston, M, Schwartz, R.A. & Slate, J.R. (2000). What makes a good elementary school? A critical examination. *The Journal of Educational Research*, 93 (6) pp. 339–348.

Joncas, M. (2007). PIRLS 2006 Sampling Design. In M.O. Martin, I.V.S. Mullis & A.M. Kennedy (Eds), *PIRLS 2006 Technical Report.* TIMSS and PIRLS International Study Centre: Boston College.

Kamper, G. (2008). A profile of effective leadership in some South African high-poverty schools. *South African Journal of Education*, 28 (1) pp. 1–18.

© University of Pretoria

Kanjee, A. (2007). Grade 6 Systemic Evaluation Study. Findings and Intervention options. Pretoria. Human Science Research Council.

Kast, F. E., & Rosenzweig, J. E. (1972). General System Theory. Application for Organizational and Management. *Academy of Management,* 15 (4) pp. 447 – 465.

Katou, A.A. & Budhwar, P.S. (2006). Human Resource Management System and Organizational Performance: A test of a mediating model in the Greek manufacturing context. *International Journal of Human Resource Management*, 17 (7) pp. 1223–1253.

Katyal, K. R. & Evers, C.W. (2004). Teacher leadership and autonomous student learning: Adjusting to the new realities. *International Journal of Educational Research,* 41: 367 – 382.

Kennedy, A. (2007). Developing the PIRLS 2006 background questionnaires. In M.O. Martin, I.V.S. Mullis, & A.M. Kennedy (Eds), *PIRLS 2006 Technical Report.* TIMSS & PIRLS International Study Center: Boston College.

Khoza, H.R. (2004). A comparison of Teacher Stress, Commitment and School Climate. (Unpublished Master's Dissertation). University of Witwatersrand.

Khuluse, N.L. (2006). The effects of discipline on Academic Achievement in Secondary School. (Unpublished Master's Dissertation). University of Zululand.

Konishi, C., Hymel, S., Zumbo, B.D. & Li, Z. (2010). Do school bullying and student–teacher relationship matter for academic achievement? A Multilevel Analysis. *Canadian Journal of School Psychology*, 25 (11) pp. 19–39.

Kotze, G. S., & Strauss, J. P. (2006). Contextual Factors of the Mathematics Learning environment of Grade 6 Learners in South Africa. *Pythagoras*, 63 pp. 38 – 45.

Kruger, A.G. (2003). Instructional leadership: the impact on the culture of teaching and learning in two effective secondary schools. *South African Journal of Education*, 23 (3) pp, 206–211.

Landsberg, E., Kruger, D., & Swart, A. (2013). *Addressing Barriers to learning*. A South African Perspective. Van Schaik. Pretoria.

Le Condeur, M. (2010). The struggling reader. Identifying and addressing reading problems successfully at an early stage. *Per Linguam*, 26 (2) pp. 77 – 89.

Lee, J. & Barro, R.J. (2001). Schooling quality in a cross-section of countries. *Economica*, 68 (272) pp. 465–488.

Lee, V.E. & Loeb, S. (2000). School size in Chicago Elementary Schools: Effects on Teachers' Attitudes and Student Achievement. *American Educational Research Journal,* 37 (1) pp. 3–31.

© University of Pretoria

Leithwood, K. A. & Riehl, C. (2003). *What we know about successful school leadership*. Temple University: Philladelphia.

Leithwood, K. & Jantzi, D. (2006). Transformational School Leadership for Large Scale reform: Effects on Students, Teachers and Their Classroom Practices. School Effectiveness and School Improvements. *International Journal of Research, Policy and Practice*, 17 (2) pp. 201–227.

Lemmer, E., & van Wyk, N. (2004). Schools reaching out: Comprehensive parent involvement in South African primary schools. *Africa Education Review*, 1 (2) pp. 259–278.

Lemmer E.M. & van Wyk, J.N. (2007). Comparative Education*, Education Systems and Contemporary Issues*. Van Schaik: Pretoria.

Lemmer, E. & van Wyk, N. (2007). Parental Involvement in Education. In C.Wolhuter, E.M. Lemmer & N.C. De Wet (Eds). (2007). *Comparative Education: Education systems and contemporary issues.* Van Schaik: Pretoria.

Lessing, A.C. & Mahabeer, S.D. (2007). Barriers to Acquiring English reading and writing skills by Zulu–speaking Foundation–phase learners. *Journal for Language Teaching*, 41(2) pp. 139–151.

Lethoko, M.X., Heystek, J., & Maree, J.G. (2001). The role of the principal, teachers and students in restoring the culture of learning, teaching and service (COLT) in black secondary schools in the Pretoria region. *South African Journal of Education*, 21 (4) pp. 311–317.

Levin, B. (2010). The challenge of large-scale literacy improvement. *School Effectiveness and School Improvement*, 21(4) pp. 359–376.

Levin, B., & Fullan, M. (2008). Learning about System Renewal. *Educational Management Administration & Leadership*, 36 (1) pp. 289–303.

Liu, H.,Knipprath, H. & Van Damme, J. (2012). The Impact of PIRLS in Belgium (Flemish). In K. Schwippert & J. Lenkeit. (2012). *Progress in Reading Literacy in National and International Context: The Impact of PIRLS 2006 in 12 Countries.* Waxmann: New York.

Lubienski, S. T., Lubienski, C. & Crane C. C. (2008). Achievement differences and school type: The Role of School Climate, Teacher Certification, and Instructions. *American Journal of Education*, 115 (1) pp. 97–138.

Luyten, H., Visscher, A. & Witziers, B. (2005). School Effectiveness Research: From a review of the criticism to recommendations for further development. *School Effectiveness and School Improvement*, 16 (3) pp. 249–279.

MacKinnon, D.P., Fairchild, A.J. & Fritz, M.S. (2007). Mediation Analysis. *Annual Review Psychology*. 58 (593) pp. 1–22.

© University of Pretoria

MacNeil, A. J., Prater, L. D., & Busch, S. (2009). The Effects of School Culture and Climate on Student Achievement. *International Journal of Leadership in Education*, 12 (1) pp. 73 – 84.

Maile, S. (2002). Accountability: An essential aspect of school governance. *South African Journal of Education*, 22 (4) pp. 326–331.

Malak, B., Trong, K. L. (2007). Translation and Translation Verification of the PIRLS Reading Assessment and Questtionnaires. In. M.O. Martin, I.V.S. Mullis & A.M. Kennedy. *PIRLS 2006 Technical Report*. TIMSS and PIRLS International Study Centre. Boston College.

Martin , M.O., Kennedy, A.M. & Trong, K.L. (2007). Item Analysis and Review. In M.O. Martin, I.V.S. Mullis & A.M. Kennedy (Eds). TIMSS and PIRLS international Study Centre: Boston College.

Martin, M. O., Mullis, I,V.S., & Kennedy, A.M. (2006). *PIRLS 2006 Technical Report.* TIMSS and PIRLS international Study Centre. Boston College.

Masitsa , M. G. (2005). The principal's role in restoring a learning culture in township secondary schools. *Africa Education Review*, 2 (2) pp. 205–220.

Matoti, S. N. (2010). The unheard voices of educators: Perceptions of educators about the state of education in South Africa. *South African Journal of Higher Education,* 24 (4) pp. 568–584.

McEvoy, A. & Welker, R. (2000). Antisocial Behaviour, Academic Failure, and School Climate: A Critical Review. *Journal of Emotional and Behavioural Disorders*, 8 (3) pp. 130–140.

McGregor, S. G., Cheung, Y. B., Cueta, S., Glewwe, P., Ritcher, L. & Strupp, B., (2007). Developmental potential in the first 5 years for children in developing countries. *The Lancet*, 1 (369) pp. 60-70.

McMillan, J.H. & Schumacher, S. (1993). *Research in Education* (3rd Edition). HarperCollins College Publishers: USA.

McMillan, J.H. & Schumacher, S. (2001). *Research in Education. A conceptual Introduction.* HarperCollins College Publishers: USA.

Merrow, J. (2004). Safety in Schools. Safety and Excellence. *Educational Horizons*, 83 (1) pp. 19–32.

Milner, K. & Khoza, H. (2008). A comparison of teacher stress and school climate across schools with different matric success rates. *South African Journal of Education*, 28 pp. 155–173.

Mncube, V. (2009). The perceptions of parents of their role in the democratic governance of schools in South Africa: Are they on board? *South African Journal of Education*, 29 (1) pp. 83–103.

© University of Pretoria

Modisaotsile, B. M. (2012). Policy Brief: The falling standard of Basic Education in South Africa. *Africa Institute*, 72 pp. 1– 8.

Mokhele, P.R. (2006). The teacher–learner relationship in the management of discipline in public high schools. *Africa Education Review*, 3 (3) pp. 148–159.

Mortimore, P. & Stone, C. (1991). Measuring Educational Quality. *British Journal of Educational Studies*, 39 (1) pp. 69–82.

Muijs, D., Harris, A., Chapman, Chapman, C., Stoll, L. & Russ, J. (2004). Improving Schools in Socioeconomically Disadvantaged Areas – A Review of Research Evidence, School effectiveness and School Improvement. *An International Journal of Research, Policy and Practice*, 152 (2), pp. 149 – 175.

Muijs, D. & Harris, A. (2006). Teacher led school improvement. Teacher Leadership in the U.K. *Teaching and Teacher Education*, 22 pp. 961–972.

Mullis, I. V.S., Martin, M.O (2007). Overview of PIRLS 2006. In. M.O. Martin, I.V.S. Mullis & A.M. Kennedy. *PIRLS 2006 Technical Report*. TIMSS and PIRLS International Study Centre. Boston College.

Mullis, I.V.S., Martin, M. O., Kennedy, A.M., & Foy, P. (2007). *PIRLS 2006 International Report*. Chestnut Hill: Boston College.

Mullis, I.V.S., Kennedy, A.M., Martin, M.O. & Sainsbury, M. (2004). *PIRLS 2006 Assessment Framework and Specifications.* Chestnut Hill: Boston College.

Nel, C., Dreyer, C., & Kopper, M. (2004). An analysis of the reading profiles of first-year students at the Potchefstroom University. A cross-sectional study and a case study. *South African Journal of Education*, 24 (1) pp. 95 – 103.

Neser, J. (2005). An exploration of learner's views on certain aspects of school safety. *Acta Criminologica*, 18 (3) pp. 61–81.

Nettles, S. M., Mucherah, W., & Jones, D. S. (2000). Understanding Resilience. The role of social resources. *Journal of Education for students placed at risk,* 5 (1) pp. 47 – 60.

Neville, P.T (1995). International empirical research in comparative education. An example of the studies of the International Association for the Evaluation of Educational Achievement. *Tertium Comparationis*, 1 (1) pp. 1–19.

Ngidi, D., & Qwabe, J. (2006). The partnership of parents, educators and principals in creating a culture of teaching and learning in schools. *South African Journal of Education*, 26 (4) pp. 529–539.

Niemann, R., & Kotze, T. (2006). The relationship between leadership practices and organizational culture: an education management perspective. *South African Journal of Education*, 26 (4) pp. 609–624.

Nkosi, M. E. G. (2007). *School Climate and Adult Basic Education Centres.* Unpublished Masters Dissertation: University of Pretoria.

© University of Pretoria

Ntuta, N.P. & Schurink, W.J. (2010). Towards Sustaining Performance in a Gauteng Secondary School. *South African Journal for Human Resource Management*, 8 (1) pp. 1–9.

O' Donnell, R. J. & White, G.P. (2005). Within the accountability era: Principals instructional Leadership Behaviours and Student Achievement. *NASSP Bulletin*, 89 (645) pp. 56–71.

Oakland, J.S. (2004). *TQM: Text with cases*. Elsevier Butterworth–Heinemann. London.

Opdenakker, M.C., van Damme, J. (2007). Do School context, Student composition and school Leadership affect school practices and outcomes in Secondary Education? *British Educational Research Journal*, 33 (2) pp. 179–206.

Penney, D., Brooker, R., Hay, P., Gillespie, L. (2009). Curriculum, Pedagogy and Assessment: Three message systems of schooling and dimensions of quality physical education. *Sport, Education and Society*, 14(4): 421 – 442.

Pill, S. (2004). Quality Learning in Physical Education. *Active & Healthy Magazine.* 11(3): 13 – 14.

Postlethwaile, T.N., & Ross, K.N. (1992). Effective Schools in Reading: Implications for Educational Planners. An Exploratory study. *IEA Report*.

Preacher, K.J. & Hayes, A.F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behaviour Research Methods, Instruments, & Computers*. 36 (4) pp. 717–731.

Pretorius, E. J., & Machet, M. P. (2004). Literacy and disadvantage. Learners' achievement in early primary school years. *Africa Education Review,* 1 (1) pp.128 – 146.

Pretorius, E. & Ribbens, R. (2005). Reading in a disadvantaged high school: Issues of accomplishment, assessment and accountability. *South African Journal of Education*, 25 (3) pp. 139–147.

Pretorius, S. & De Villiers, E. (2009). Educators' perceptions of school climate and health in selected primary schools. *South African Journal of Education,* 39 (1) pp. 33 – 52.

Pretorius, S. G (2007). South Africa. In C.C. Wolhuter, E.M. Lemmer & N.C. De Wet (2007). *Comparative Education: Education systems and contemporary issues.* Van Schaik. Pretoria.

Purkey, S.C. & Smith, M.S. (1983). Effective schools: A Review. *The Elementary School Journal*. 83 (4) pp. 426–452.

Ramothlale, E.F. (2008). *An Investigation into the Appropriateness of the Current Assessment Model Continuous Assessment (CASS) and Common Task for Assessment (CTA) for the General Education and Training Band*. Unpublished Master's Dissertation. University of Pretoria: Pretoria.

© University of Pretoria

Reezigt, G. J. & Creemers, B.P.M. (2005). A Comprehensive Framework for Effective School Improvement, School Effectiveness and School Improvement. *International Journal of Research, Policy and Practice,* 16 (4) pp. 407-424.

Rivkin, S. G., Hanushek, E.A. & Kain, J.F. (2005). Teachers, Schools and Academic Achievement. *Econometrica,* 73 (2) pp. 417–458.

Robinson, V.M.J. (2007). School Leadership and Student Outcomes: Identifying What Works and Why. *Australian Council for Educational Leaders*.

Robinson,V.M.J., Lloyd,C.A.,Rowe, K.J. (2008). The Impact of Leadership on Student Outcome: An analysis of the Differential Effects of Leadership types. *Educational Administration*, 44 (5) pp. 635–674.

Rockoff, J.E. (2004). The impact of individual teachers on Student Achievement:Evidence from panel–data. *The American Economic Review*, 94 (2) pp. 247–252.

Saito, M. & van Capelle, F. (2009). *Approaches to Monitoring the Quality of Education in Developing Countries*. UNESCO: IIEP.

Scheerens, J. (2000). Improving school effectiveness. *United Nations Educational, Scientific and Cultural Organisations*, No.68.

Scheerens, J. (2005). *Review and Meta–Analysis of School and Teaching Effectiveness.* University of Twente: The Netherlands.

Scherman, V. (2002). *School Climate Instrument: A pilot study in Pretoria and Environs.* Unpublished Master's Dissertation: University of Pretoria.

Schoen, L. & Teddlie, C. (2008). A new model of school culture: A response to a call for conceptual clarity, school effectiveness and school improvement. *International Journal of Research, Policy and Practice*, 19 (2) pp. 129–153.

Schwippert, K., & Lenkeit, J. (2012). *Progress in Reading Literacy in National and International Context: The Impact of PIRLS 2006 in 12 Countries.* Waxmann: New York.

Setati, M. (1998). Code – Switching in a Senior Primary Class of Second – Language Mathematics Learners. *For the Learning of Mathematics*, 18 (1) pp. 34 – 40.

Singh, P., Mbokodi, S.M. & Msila, V.T. (2004). Black parental involvement in education. *South African Journal of Education*, 24(4) pp. 301–307.

Slack, N., Chambers, S. & Johnston, R. (2010). *Operations Management.* Pearson Education Limited. England.

Smit, P.J. & Cronje, G.J (2002). *Management Principles.* Juta: Pretoria.

© University of Pretoria

South African School Act 84 of 1996. Norms and Standards for Language Policy in Public Schools.

Steyn, J. (2007). Learner, Educator and community views on the school safety at Strelitzia Secondary School. *Acta Criminologica*, 20 (3) pp. 1–20.

Steyn, J., & Naicker, M. K. (2007). Learner, educator and community views on school safety at Strelitzia Secondary School. Acta Criminologica, 20 (3) pp. 1 -20.

Stiggins, R. & Chappuis, J. (2005). Using Student–Involvement Classroom Assessment to Close the Achievement Gaps. *Theory into Practice*, 44 (1) pp. 11–18.

Stoll, L. (2009). Capacity building for School Improvement or Creating capacity for Learning? A changing landscape. *Journal of Educational Change,* 10 (2) pp. 115 -127.

Sunday, J. O., Olatunde, Y. P. (2011). School Location and Academic Achievement of Secondary School in Ekiti State, Nigeria. *Asian Social Science*, 7 (5) pp. 170 – 175.

Swanepoel, C. (2008). The perceptions of teachers and school principals of each other's disposition towards teacher involvement in school reforms. *South African Journal of Education*, 28 (1) pp. 39 – 51.

Sweetland, S.R. & Hoy, W.K. (2000). School Characteristics and Educational Outcomes: Towards an organizational Model of Student Achievement in Middle Schools. *Educational Administration Quarterly*, 36 (5) pp. 703 – 729.

Taylor, B.M., Pearson, P.D., Clark, K. & Walpole, S. (2000). Effective Schools and Accomplished Teachers: Lessons about Primary–Grade Reading Instructions in Low–Income Schools. *The Elementary School Journal,* 101(2) pp. 121–165.

Taylor, N. (2006). *Accountability and Support in School development in South Africa*. Umalusi: Pretoria.

Teddlie, C. & Reynolds, D. (2001). Countering the critics: Responses to Recent Criticisms of School Effectiveness Research, School Effectiveness and School Improvements. *International Journal of Research, Policy and Practice*, 12 (1) pp. 41–82.

Terre Blanche, M., Durrheim, K., & Painter, D. (2006*). Research in Practice. Applied Methods for The Social Sciences.* University of Cape Town Press. South Africa.

Thomas, A.R. (1976). The Organizational Climate of Schools. *International Review of Education*, 22 (4) pp. 441–463.

Timperley, H.S. (2005). Distributed leadership: Developing theory from practice. *Journal of Curriculum Studies*, 37 (4) pp. 395–420.

© University of Pretoria

Twist, L. (2012). *The impact of PIRLS in England.* In K. Schwippert & J. Lenkeit. (2012). *Progress in Reading Literacy in National and International Context: The Impact of PIRLS 2006 in 12 Countries*. Waxmann: New York.

Uline, C. & Tschannen–Moran, M. (2008). The walls speak: The interplay of quality facilities, school climate and student achievement. *Journal of Educational Administration*. 46 (1) pp. 55–73.

Van der Berg, S. (2001). Resource shift in South African Schools after the political transition. *Development Southern Africa*, 8 (4) pp. 405–421.

Van Houtte, M. (2005). Climate or Culture? A Plea for Conceptual Clarity in School Effectiveness Research. *School Effectiveness and School Improvement*. 16 (1) pp. 71–89.

Van Staden, S. (2010). Reading *between the lines: contributing factors that affect Grade 5 learner reading performance*. Unpublished doctoral thesis: University of Pretoria.

Van Staden, S. & Howie, S.J. (2008). Learners' Reading Attitudes, Self–Concept and Out of School Activities. In S.J. Howie, E. Venter, S. van Staden, L. Zimmerman, C. Long, C. du Toit, V. Scherman & E. Archer. *Progress in International Reading Literacy Study: Summary Report.* Centre for Evaluation and Assessment. University of Pretoria.

Van Staden, S. & Howie, S.J. (2010). South African Teacher Profiles and Emerging Teacher Factors: The picture painted by PIRLS 2006. *Reading and Writing*, (45) pp. 39-53.

Vanderstoep, S.W. & Johnson, D.H. (2009). *Research Methods for Everyday Life*. Jossey–Bass: USA.

Venter, E. & Howie, S.J. (2008). South Africa Learners' Performance in Reading Achievement. In **S.J.** Howie, E. Venter, S. van Staden, L. Zimmerman, C. Long, C. du Toit, V. Scherman & E. Archer. *Progress in International Reading Literacy Study: Summary Report.* Centre for Evaluation and Assessment: University of Pretoria.

Wallace, B. (2008). Raising the motivation and self–esteem of all learners by creating a climate for all talents to flourish: Developing empowerment for life. *Perspectives in Education*, 26 (3) pp. 19–28.

Welman, C., Kruger, F. & Mitchell, B. (2005). *Research Methodology (3rd Edition).* Oxford University Press: Southern Africa.

Welsh, W. N. (2000). The effects of school climate on school disorder. *Annals of the American Academy of Political and Social Science*, 567 pp. 88–107.

William, D., Lee, C., Harrison, C. & Black, P. (2004). Teachers Developing Assessment for Learning: Impact on Student Achievement. *Assessment in Education*, 11 (1) pp. 49–65.

© University of Pretoria

William, J.A. (2001). Classroom Conversations: Opportunities to Learn for ESL Students in Mainstream Classrooms. *The Reading Teacher*, 54 (8) pp. 750–757.

Wilson, S.M. & Peterson, P.L. (2006). *Theories of Learning and Teaching. What Do They Mean for Educators*? National Education Association: USA.

Wobmann, L. & West, M.R. (2002). Class–size effects in schools systems around the world: Evidence from between–Grade variations in TIMSS. *Program on Education Policy and Governance* (PEPG). 1 – 34.

Xu, J. (2009). School Location, Student Achievement, and Homework Management Reported by Middle School Students. *The School Community Journal,* 19 (2) pp. 27 – 43.

Xulu, M. (2006). An investigation into basic safety and security status of schools' physical environment. *South African Journal of Education*, 26 (6) pp. 565–580.

Yamauchi, F. (2010). School quality, clustering and government subsidy in post–Apartheid South Africa. *Economics of Education Review*, 30 (2011) pp. 146–156.

Zhang, Y. (2006). Urban-Rural Literacy Gaps in Sub–Saharan Africa. The Roles of Socioeconomic Status and School Quality. *Comparative Education Review,* 50 (4) pp. 581 – 602.

Zimmerman, L. (2010). *The Influence of schooling Conditions and Teaching Practices on Curriculum Implementation for Grade 4 Reading Literacy Development.* Unpublished PhD Thesis: University of Pretoria. Pretoria.

Zimmerman, L. & Van Staden, S. (2008). Reading Curriculum and Language Policies in South Africa. In S.J. Howie, E. Venter, S. van Staden, L. Zimmerman, C. Long, C. du Toit, V. Scherman & E. Archer. *Progress in International Reading Literacy Study: Summary Report.* Centre for Evaluation and Assessment: University of Pretoria.

Zulu, B.M., Urbani, G., van der Merwe, A., & van der Walt, J.L. (2004). Violence as an impediment to a culture of teaching and learning in some South African schools. *South African Journal of Education,* 24 (2) pp. 170–175.

© University of Pretoria

APPENDIX A

Conceptual Framework	PIRLS 2006 Variables	Source	Measurement Level
Input			
School Enrolment and characteristics	What is the total enrolment of learners in your school	School Questionnaire (SQ)	Ratio Scale
	What is the total enrolment of Grade 5 learners in your school as of 1 April 2005	SQ	Ratio Scale
	How many people live in the city, town or area in which your school is located	SQ	Ratio Scale
	How would you characterise the area in which your school is located	SQ	Nominal Scale
	For the Grade 5 in your school, does your school provide any of the following?	SQ	Nominal Scale
	About how many learners receive free or reduced-priced lunch?	SQ	Ratio Scale
	Approximately what percentage of learners in your school	SQ	Ratio Scale
School Resources	Does your school have a school library?	SQ	Nominal Scale
	a. Approximately how many books with different titles does your school library have (excluding magazines and periodicals)?	SQ	Interval Scale
	b. Approximately how many titles of magazines and other periodicals does your school		

© University of Pretoria

	library have?	SQ	Interval Scale
	What is the total number of computers that can be used for instructional purposes by Grade 5?	SQ	Ratio Scale
	How many of the computers in question 19a (if more than 0) have access to the internet (e-mail or World Wide Web) for instructional/educational purposes?	SQ	Nominal Scale
	Does your school provide the following facilities for teachers?	SQ	Nominal Scale
About you	By the end of this school year, how many years will you have been teaching altogether?	Teacher Questionnaire (TQ)	Ratio Scale
	By the end of this school year, how many years in total will you have been teaching Grade 5?	TQ	Ratio Scale
	By the end of this school year how many years in total will you have been teaching this class of learners?	TQ	Ratio Scale
	How old are you?	TQ	Ratio Scale
	Are you female or male?	TQ	Nominal Scale
	What is the highest level of formal education you have completed?	TQ	Ordinal Scale
	Do you have a teaching diploma or certificate?	TQ	Nominal Scale
	What type of diploma or certificate do you hold?	TQ	Ordinal Scale
	As part of your formal education and / or training, to what extent did you study the following areas?	TQ	Nominal Scale

© University of Pretoria

	In the past two years how many hours have you spent in in-service/professional development workshop or seminars that dealt directly with reading or teaching reading?	TQ	Ratio Scale
	For your professional development, about how often do you read each of the following?	TQ	Ordinal Scale
	When you are at home how often do you read for the following reasons?	TQ	Ordinal Scale
	Besides you, do any of the teachers teach the Grade 5 learners in this class for a significant portion of the school week?	TQ	Nominal Scale
	Do you work full time or part time	TQ	Nominal Scale
	Where do you prepare materials for reading instruction?	TQ	Nominal Scale

© University of Pretoria

Conceptual Framework	PIRLS 2006 Variables	Source	Measurement Level
Process			
Instructions	For the Grade 5 learners:	SQ	Ratio Scale
	A. How many days per year is your school open for instructions?		Ratio Scale
	B. What is the total instructional time, excluding breaks, in a typical day?		
	C. In one calendar week, how many days is the school open for instructions?		Ratio Scale
	How long do learners in your school typically stay with the same classroom teacher?	SQ	Ordinal Scale
	How often do you have reading instruction and/or do reading activities with the learners?	TQ	Ordinal Scale
	How much emphasis do you place on the following sources to monitor learner's progress in reading?	TQ	Ordinal Scale
	How often do you use each of the following to assess learners' performance in reading?	TQ	Ordinal Scale
	How do you use the following information?	TQ	Nominal Scale
	How much are portfolios a part of your assessment of learners' progress in reading?	TQ	Ordinal Scale
	How many learners need remedial instruction in reading?	TQ	Ratio Scale
	How many learners from above receive remedial instructions?	TQ	Ratio Scale
	Is there any provision for enrichment reading instruction in your school? If yes, how many learners receive enrichment	TQ	Nominal Scale

© University of Pretoria

	reading instruction because they are advanced readers?	TQ	Ratio Scale
	How much influence does the following have on your school's Grade 5 curriculum? a. National Curriculum b. Regional Curriculum c. Local Curriculum d. National Examinations/ assessment of learner achievement e. Regional examinations/ assessment of learner achievement f. Local examinations/ assessment of learner achievement g. Other standardised tests h. Parents' wishes i. Teacher unions	SQ	Nominal Scale
Reading in your school	About how many learners in your school can do the following when they begin Grade 1? a. Recognise most of the letters of the alphabet b. Read some words c. Read sentences d. Write letters of the alphabet e. Write some words	SQ	Interval Scale
	Compared with other areas of the curriculum, how much emphasis does your school place on teaching the following language and literacy skills in Grade 1 to 5? a. Reading b. Writing (not hand writing) c. Speaking/listening (oral language)	SQ	Ordinal Scale

© University of Pretoria

	Does your school have the following? a. Its own written statement of the reading curriculum to be taught in the school (in addition to the national or regional curriculum guides) b. Informal activities to encourage learners to read(for example, book clubs, independent reading contests, school wide recreational reading periods) c. School-based programs for teachers geared towards the improvement of reading instruction	SQ	Nominal Scale
	a. Does your school have a policy to coordinate reading instructions across Grade 1 to 5? b. Please indicate the preferred language of instructions in Grade 5	SQ	Nominal Scale
	How does your school use the following materials in your reading instructional programme for learners in Grade 1 to 5? a. Reading series(basal readers, grade readers) b. Textbooks c. A variety of children's books d. Material from different curricular areas e. Children's' newspapers and/ or magazines f. Computer programs that teach learners to read	SQ	Nominal Scale
	At which grade do the following reading skills and strategies first receive a major emphasis in the instruction in your school?	SQ	Interval Scale
	Which of the following statement best describe how the reading instructional programme in your school is implemented for	SQ	Nominal Scale

© University of Pretoria

	learners at different reading levels?		
	Does your school make provision for reading instruction in mother tongue for learners whose mother tongue is not English?	SQ	Nominal Scale
	If yes, in which other language(s) does your school provide for reading instruction?	SQ	Nominal Scale
	How much is your school's capacity to provide instruction affected by a shortage or inadequacy of the following?	SQ	Ordinal Scale
	Are computers available for use by your class? a. Where are computers available for use by your class? b. Do any of the computers have access to the internet (e-mail or World Wide Web)	TQ	Nominal Scale
	Which of the following best describes how you use reading instructional materials for learners at different reading levels?	TQ	Nominal Scale
	How often do you have learners do the following computer activities	TQ	Ordinal Scale
	Do you have a library or reading corner in your classroom?	TQ	Nominal Scale
	How often do you take or send learners to the library other than your classroom library?	TQ	Ordinal Scale
	When you have reading instruction and /or do reading activities with learners, how often do you have learners read the following text?	TQ	Ordinal Scale

© University of Pretoria

	When you have reading instruction and/or do reading activities with the learners, how often do you use the following resources?	TQ	Ordinal Scale
Home and School	Are any of the following programmes and services available at your school site for the children and families in your school?	SQ	Nominal Scale
	How often is each of the following provided by your school for Grade 5 learners and / or their families?	SQ	Ordinal Scale
	Approximately what percentage of learners in your school has parents or guardians (care givers) who do each of the following?	SQ	Ordinal Scale
	For the typical Grade 5 learner in this class, how often do you do these things?	TQ	Ordinal Scale
	For the typical Grade 5 learner in this class, how often do you do these things	TQ	Ordinal Scale
	Does your school have its own school board (school governing body) where the parents are represented?	SQ	Nominal Scale
School Climate	How would you characterise the following within your school?	SQ	Ordinal Scale
	To what degree is each of the following a problem in your school?	SQ	Ordinal Scale
	Does your school have an official policy statement related to promoting cooperation and collaboration among teachers?	SQ	Nominal Scale
	About how often do the teachers in your school have formally scheduled time to meet to share or develop instructional materials and approaches	SQ	Nominal Scale

© University of Pretoria

	How much do you agree with the following statement?	TQ	Ordinal Scale
Your role as principal	As principal of this school, approximately what percentage of your time is devoted to the following activities?	SQ	Ratio Scale
	Does your school receive additional support in terms of reading literacy from non - governmental organisations, Universities or other institutions?	SQ	Nominal Scale
	Which of the following opportunities are available to teachers responsible for reading instructions in your school?	SQ	Nominal Scale

© University of Pretoria