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The relationship between bullying and Grade 4 boy learners reading literacy achievement

by

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Declaration of originality

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Abstract

Reading can improve the quality of life for individuals and is widely considered the cornerstone of learning. However, many boys who enjoy reading are bullied. The direct, negative effects of bullying on academic achievement have been exposed in previous research. The purpose of this empirical study was to examine whether any statistical relationship existed between the low *overall reading literacy achievement scores* of Grade 4 boy learners and whether they experienced being the victims of peer bullying. Three research questions underpinned this quantitative, non-experimental, secondary data analysis. The primary data were collected from 8 196 Grade 4 boy learners in South Africa as part of the Progress in International Reading Literacy Study 2011. The three research questions were:

- What is the relationship of bullying with Grade 4 boy learners' *overall reading literacy achievement scores* when categorised for each of the individual prePIRLS 2011 benchmarks?
- What is the correlation between *overall reading literacy achievement scores* and being a victim of bullying as measured by the *Learners Bullied at School Index*?
- What is the potential statistical relationship between the *overall reading literacy achievement scores* of Grade 4 boy learners and the degree to which they have experienced bullying as measured by prePIRLS 2011, looking at the *Learners Bullied at School Index* as well as the six independent bullying variables individually?

Bronfenbrenner's *Ecological Model of Human Development* served as a theoretical framework for the study, and a post-positivistic epistemological paradigm was adopted. *Overall reading literacy achievement scores* from the reading assessments were positioned on a common reading achievement scale using item response theory methods that offered an overall image of the assessment outcomes. The prePIRLS 2011 Learner Questionnaire itself was based on the Likert scale, while the variable *Learners Bullied at School Index* is a contextual scale based on Rasch modelling.

The descriptive statistical analysis revealed that the more frequently the Grade 4 boy learners experienced bullying, the lower their *overall reading literacy achievement scores* were and vice versa. The Pearson correlation revealed that, as bullying increased, *overall reading literacy achievement scores* decreased proportionately. The multiple regression revealed that a school that had higher levels of bullying could expect *overall reading literacy achievement scores* to be lower.

Finally, the model statistics revealed that bullying accounted for only 5% of the variation in the target population's *overall reading literacy achievement scores*. Therefore, other associated

variables can be investigated in future research, including, but not limited to, cyberbullying. If the statistical relationship between bullying (including cyberbullying) and reading literacy receives immediate attention, it could lead to stronger design, improved development, and implementation of preventative measures.

Keywords:

Boy learners, bullying, multiple regression, prePIRLS 2011, reading culture, reading literacy achievement, secondary data analysis.

Opsomming

Die sleutel tot leer is geletterdheid. Geletterdheid word bereik deur te lees. Lees beskik oor die vermoë om die lewensgehalte van individue te verbeter. Vir dié rede is die leesgedrag van Graad 4-skoolseuns, wat die teikenpopulasie van die huidige studie is, die fokuspunt. Vorige navorsing het reeds die negatiewe en regstreekse gevolge van afknouery (boeliegedrag) op akademiese prestasie onthul. Dus, as lees die hoeksteen van leer is, moet afknouery as 'n moontlike struikelblok tot leer ondersoek word. Die doel van die studie was om te ondersoek of daar enige statistiese verhouding bestaan tussen die lae algehele leesgeletterdheidsprestasie van Graad 4-skoolseuns en of hul die slagoffers is van afknouery. Die studie het gebruik gemaak van Bronfenbrenner se *Ekologiese Model van Menslike Ontwikkeling* as teoretiese raamwerk. Verder het die studie ’n post-positivistiese epistemologiese paradigma aangewend. Die studie is gegrond op 'n kwantitatiewe, nie-eksperimentele, sekondêre data-ontleding van data versamel van 8 196 Graad 4-skoolseuns in Suid-Afrika. Die data is versamel as deel van die *Progress in International Reading Literacy Study 2011*. Algehele leesgeletterdheidsprestasie is geplaas op 'n algemene leesprestasieskaal met behulp van itemresponsteoriemetodes. Die prePIRLS 2011-leerdervraelys is gebaseer op die Likert skaal. Die *Leerders Afgeknou by die Skool Indeks* is ’n kontekstuele skaal wat gebaseer is op Rasch-modellering.

Die drie navorsingvrae wat ondersoek is, was die volgende:

- Wat is die verhouding tussen afknouery van skoolseuns en die algehele leesgeletterdheidsprestasie gemeet teen elk van die prePIRLS 2011 individuele maatstawwe?
- Wat is die korrelasie tussen algehele leesgeletterdheidsprestasie en om ‘n slagoffer te wees van afknouery soos gemeet deur die *Leerders Afgeknou by die Skool Indeks*?
- Wat is die potensiële statistiese verhouding tussen die algehele leesgeletterdheidsprestasie van Graad 4-skoolseuns en die mate waarin hulle afknouery ervaar het soos gemeet deur

prePIRLS 2011, met inagneming van die *Leerders Afgeknou by die Skool Indeks* asook die ses onafhanklike afknouveranderlikes individueel beskou?

Die beskrywende statistiese analise het getoon dat meer gereelde ervarings van afknouery ’n verhouding het met laer algehele leesgeletterdheidsprestasies van Graad 4-skoolseuns. Die Pearson-korrelasie het getoon dat, indien afknouery vermeerder, algehele leesgeletterdheidsprestasies proporsioneel afneem. Die veelvoudige regressie-analise het getoon dat by skole waar hoër vlakke van afknouery gevind is, die algehele leesgeletterdheidsprestasie laer is.

Ten slotte, het die modelstatistieke aan die lig gebring dat afknouery verantwoordelik is vir slegs 5% van die variasie in Graad 4-skoolseuns se algehele leesgeletterdheidsprestasie. Daarom moet ander veranderlikes, met inbegrip van kuberafknouery, met 'n moontlike verhouding met leesgeletterdheid deur toekomstige navorsing ondersoek word. Indien afknouery dringende aandag ontvang, kan dit lei tot verbeterde ontwerp, ontwikkeling en implementering van voorkomende maatreëls.

Sleutelwoorde:

Afknou, boeliegedrag, leesgeletterdheid, leeskultuur, veelvoudige regressie, sekondêre data-analiese, skoolseuns.

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List of acronyms

CEA	Centre for Evaluation and Assessment
DBE	Department of Basic Education
DME	Data Management Expert
DPC	Data Processing and Research Center [sic]
IBM	International Business Machines Corporation
ICT	Information and Communication Technologies
IDB	International Database
IEA	International Association for the Evaluation of Educational Achievement
IRT	Item Response Theory
LoLT	Language of Learning and Teaching
NRS	National Reading Strategy
NSSF	National School Safety Framework
prePIRLS	preProgress in International Reading Literacy Study
SA	South Africa
SAPS	South African Police Service
SAT	Scholastic Aptitude Test
SAS	Statistical Analysis System
SES	Socio Economic Status
SMT	School Management Team
SPSS	Statistical Package for the Social Sciences
UNESCO	United Nations Educational, Scientific and Cultural Organization [sic]
WinDem	Windows Data Entry Manager

Chapter 1: Introduction and background to study

1.1. Introduction

The study aimed to uncover the possible statistical relationship between being a victim of bullying and the Grade 4 boy learners *overall reading literacy achievement scores* in South Africa. This was achieved by utilising data gathered by the easier version of the Progress in International Reading Literacy Study completed in 2011 (PIRLS 2011) known as prePIRLS 2011. Per the United Nations (UN), literacy has been characterised by the capacity to read and write with comprehension, a brief and basic declaration about an individual's daily life (UN, 2008). The United Nations Educational, Scientific and Cultural Organization (UNESCO) censuses and investigations were not conducted annually because literacy levels adjusted considerably slower than alternative indicators like school enrolment levels. Consequently, the Institute for Statistics (UIS) conveyed literacy insights per census decade. The present UNESCO census decade covered the years 2005 to 2014. June 2013 saw the publication of the UNESCO UIS information paper on adult and youth literacy with regards to national, regional, and international patterns for the time covering from 1985 to 2015. Within the UNESCO publication, South Africa formed part of the sub-Saharan Africa district (UNESCO, 2013).

The current study followed a deductive structure to guide the research as represented by Figure 1. The discussion started with the investigation of global literacy trends, followed by the exploration of literacy trends within sub-Saharan Africa and how the adult and youth literacy rates varied within the sub-Saharan Africa context. The current state of reading literacy in South Africa was explored next, followed by the main characteristics of Grade 4 boy learners and finally a description of bullying.

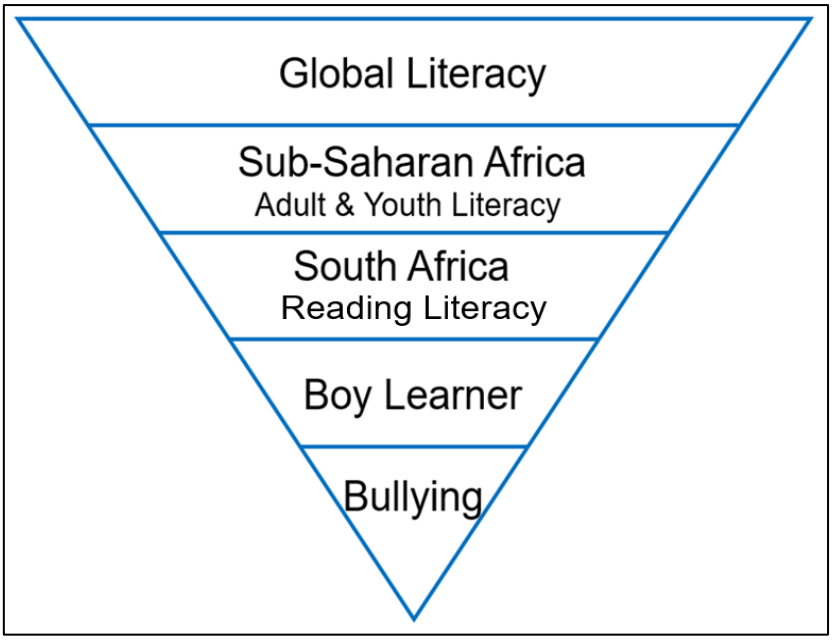


Figure 1: Deductive research structure of the study.

International literacy levels were examined and according to UNESCO, in 2011 the international adult literacy level for adults for the population aged 15 years, and older was 84%. Sub-Saharan Africa adults came in last place with 59% (182 million) which indicated that one-third of adults could not read and write in sub-Saharan Africa. Sub-Saharan Africa additionally showed the poorest improvement over the previous three decades, within the first census decade spanning from 1985-1994 sub-Saharan Africa scored 53%, in the second census decade between 1995 – 2004 sub-Saharan Africa scored 57%, and in the third census decade spanning 2005-2014 59%.

Figure 2 provided a summary of the adult literacy scores for the global and sub-Saharan Africa participants. From the adult literacy scores, it was evident that the progress made in sub-Saharan Africa was a great deal more modest, with an increase of merely 6%. The moderate increase could potentially be due to inadequate adult education infrastructure and difficult economic environments. With the growth of only 6%, sub-Saharan Africa witnessed a rise in the number of illiterate adults from 133 million in 1990 to 182 million in 2011 (UNESCO, 2013). According to Meeks, Kemp, and Stephenson (2014), low measures of literacy and numeracy are considered a significant concern in economic terms, particularly when inadequate adult literacy necessitates a substantial monetary responsibility from government authorities and business chambers. The consequences associated with inadequate abilities in literacy and numeracy has a substantial impact on the potential to access more appealing and properly remunerated, occupation possibilities. The UNESCO (2013) report also evaluated gender differences in performance and discovered that in sub-Saharan Africa female literacy levels were lower than male literacy levels where male adults reached a rate of 68%, and female adults could only achieve a rate of 51%.

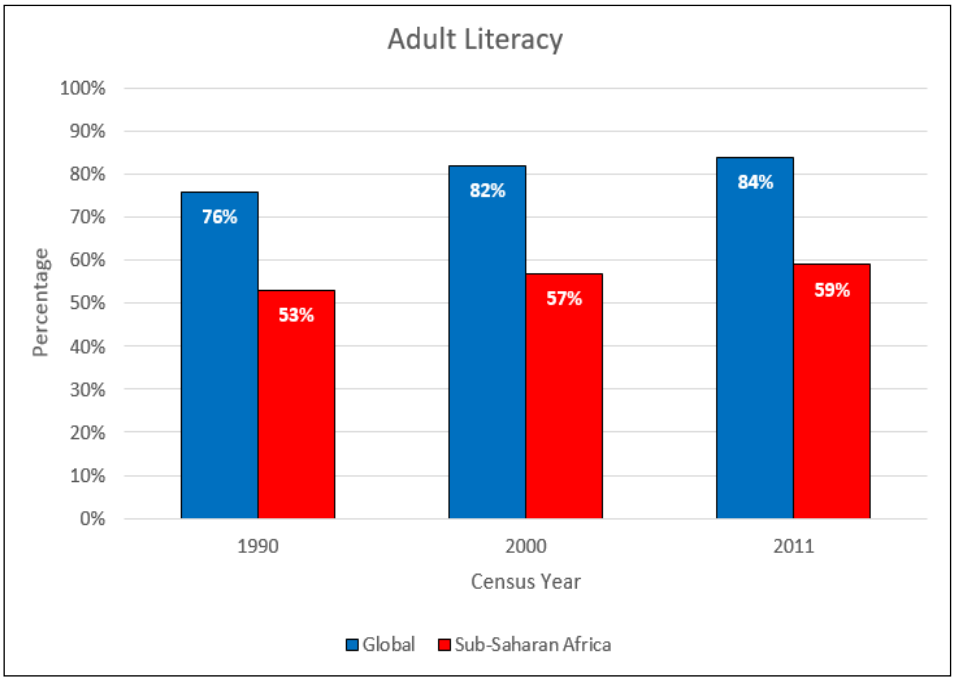


Figure 2: Global and sub-Saharan Africa adult literacy rates (UNESCO, 2013).

Within the same UNESCO report, youth literacy levels for individuals aged 15 to 24 years were greater than adult literacy levels in all districts in 2011, which indicated improved accessibility to primary and secondary schooling amongst more youthful populations. The international youth literacy level was 90% when compared with an adult literacy level of 84%. Figure 3 presents an overview regarding the youth literacy scores for the international and sub-Saharan Africa participants. For all three the census decades' sub-Saharan African participants scored almost 20% lower than their international counterparts.

From Figure 2 and Figure 3, the differences between adult and youth literacy in sub-Saharan Africa are noticeable. Adult literacy was 59%, and the youth literacy was 70%. The sub-Saharan youth was additionally positioned last with a total 30% of 15-24-year-olds turning out to be illiterate; it is speculated the lower literacy levels could be because of higher school dropout rates and overcrowded classrooms. The same gender differences documented for adults were present in the youth literacy levels, the international youth literacy level was 92% for young males and 87% for young females, with sub-Saharan Africa males scoring a level of 76% and female youths a level of 64%.

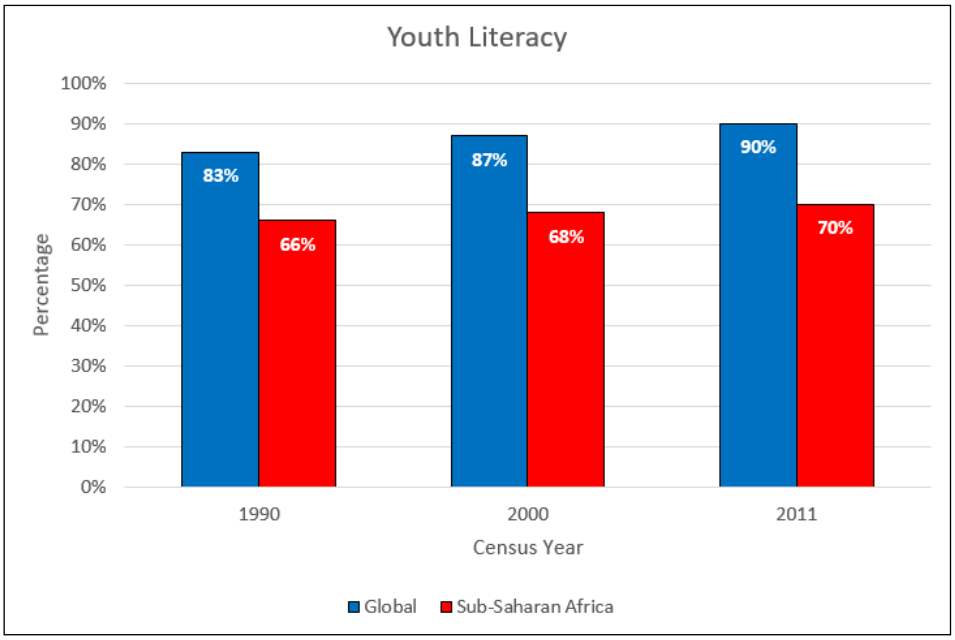


Figure 3: Global and sub-Saharan Africa youth literacy rates (UNESCO, 2013).

Given that an improved comprehension of the overall performance of sub-Saharan Africa's reading literacy has been established, the focus shifts to South Africa to acquire a significantly better understanding of the setting where the present study was situated. Within the South African context, dramatic changes within the education space occurred after the demise of apartheid in 1994. The Department of Education brought about several changes (i.e. Education White Paper 6: Special Needs Education – Building an inclusive education and training system in 2001) to the education system which had previously been designed to exclude most learners in South Africa from access to quality public education. The most important focus point associated with the overhaul was that all learners ought to receive, irrespective of their race, class, gender, religion and/or other characteristics, access to free basic education that is of good quality (DoE, 2003). In 2001, the Department of Education undertook a systematic evaluation approach to report the progress that was made. Their study involved a random sample of 5% (almost 54 000 learners) of the Grade 3 learners nationally. The sample incorporated all districts in each province and was stratified to incorporate learners from metropolitan, non-urban and village schools. The nationwide standard scores attained by regular Grade 3 learners in the South African education system were as follows:

- Life Skills learners achieved an average of 54%
- Numeracy the learners scored 30%
- Literacy 54%

Literacy was separated into listening comprehension with learners scoring an average of 68% and in reading comprehension and writing with learners scoring an average of 39% (DoE, 2003). Although the performance of learners in Literacy was considerably higher, it should be mentioned that the better Literacy score was mainly due to the higher scores achieved in listening comprehension in comparison to the reading and writing aspects of Literacy. Additionally, the scores obtained for the multiple-choice questions were significantly higher than those obtained for the free response questions. The Literacy results suggested that learners performed better in activities that expected them to recognise a correct answer rather than in activities that expected them to generate their unique response (DoE, 2003).

The key to lifelong learning is literacy (UNESCO, 2013). Reading can elevate the standard of living for individuals, families, and neighbourhoods through empowering them with the necessary knowledge to eliminate poverty, decrease child mortality, reduce over-population, accomplish gender equality and guarantee development that is sustainable and democratic (UNESCO, 2013). Previous research by Howie, Van Staden, Tshele, Dowse, and Zimmerman (2012) highlights the importance of reading as they found that learners without the appropriate reading abilities battle through school, and drop out due to struggling to master the required reading skills. From the UNESCO (2013) report it was clear that literacy was not merely a problem encountered by young learners but a progressive problem spanning youth and adulthood. Educational achievements, in turn, was an important forecaster of work-related income realisation (Dufur, Parcel, & Troutman, 2013). Low levels of understanding exist regarding the value of reading for personal and career development (Le Roux, 2012). Nevertheless, it was considered that within the current century, reading and writing practices were essential to living a prosperous life, and therefore, illiteracy was associated with the inability to deal with the expectations of life and excel in present times (Ruterana, 2014). By having a more aggressive approach to tackling illiteracy at a younger age, it ought to, over time, address youth and adult illiteracy levels.

1.2. Purpose statement and rationale

Within the prePIRLS 2011 study, Colombia ranked in first place, Botswana came in second, and South Africa came last out of the three participating countries. South Africa was unable to reach the prePIRLS 2011 scale centrepoint of 500 and merely managed to achieve an average overall reading literacy achievement score of 461 (Mullis, Martin, Foy, & Drucker, 2012). In addition, prePIRLS 2011 found that South African girl learners consistently outperformed the Grade 4 boy learners with a 29 points difference in the *overall reading literacy achievement scores* (Howie et al., 2012). A detailed discussion of the prePIRLS 2011 study has been covered in Chapter 2.

A recent Burt Word Test conducted by Klapwijk and Van Der Walt (2011) on a sample of 68 Grade 5 learners in English Home Language classes, revealed that 76% of the learners in South Africa measured a reading age that was 1.6 to 2.4 years lower than their real age. From the Burt Word Test results, it was evident that the level of reading literacy in South Africa was not on an appropriate level and raises concern that must be investigated to reveal an improved understanding of why learners were not performing.

Additional research by Sommers (2001) has found that the boy learners' under achievement could be damaging for South Africa in the long run as boy learners who score lower in primary reading assessments tend to get poorer grades, and were less likely to finish high school and obtain a tertiary qualification. Supporting research by Barson-Leeds (2013) also found that girl learners' higher scores in reading might result in advantages in admissions to selected higher education institutional programmes, and subsequent careers.

Studies were done on mathematics achievement and bullying offers valuable insight for the current study. Lower mathematics achievement for learners was reported in schools where principals documented greater frequency of bullying, and vice versa (Konishi, Hymel, Zumbo, & Li, 2010). Past research (Juvonen, Wang, & Espinoza, 2011; Swearer, Espelage, Vaillancourt, & Hymel, 2010) has already revealed the negative effects of bullying on academic achievement, academic disengagement and academic adjustment difficulties. Being a victim of indirect bullying, attending a rural school, and low SES are all important predictors of academic achievement (Woods & Wolke, 2004). Considering that the negative effects of bullying on mathematics achievement had already been identified, the question at hand was whether the same were to be true for *overall reading literacy achievement scores*. Therefore, the purpose of the current study was to ascertain whether any statistical relationship existed between the low *overall reading literacy achievement scores* of the Grade 4 boy learners and whether they experienced being the victims of peer bullying.

The evidence of the relationship was based on data collected on Grade 4 boy learners in South Africa (SA) by the easier version of the Progress in International Reading Literacy Study concluded in 2011 (PIRLS 2011) referred to as prePIRLS 2011. It was speculated that being a victim of peer bullying has a negative relationship with the *overall reading literacy achievement scores* as it is speculated that the Grade 4 boy learners were bullied by their peers because they read, thus the victims of the bullying behaviour were withdrawing from reading which may have resulted in a negative relationship with their *overall reading literacy achievement scores*.

1.3. Research questions and hypotheses

The main research questions that guided the study were:

- What is the relationship of bullying with Grade 4 boy learners' *overall reading literacy achievement scores* when categorised for each of the individual prePIRLS 2011 benchmarks?
- What is the correlation between *overall reading literacy achievement scores* and being a victim of bullying as measured by the *Learners Bullied at School Index*?
- What is the potential statistical relationship between the *overall reading literacy achievement scores* of Grade 4 boy learners and the degree to which they have experienced bullying as measured by prePIRLS 2011 looking at the *Learners Bullied at School Index* as well as the six independent bullying variables individually?

It is important to clarify that the first two questions differ in the sense that the first question looks at reading literacy achievement for each of the individual benchmarks and the second questions look at the *overall reading literacy achievement* scores (as a whole) against the *Learners Bullied at School Index.*

The above-mentioned research questions look at Grade 4 boy learners as the sample population and align with the theoretical framework that guides the current study, which is Bronfenbrenner's Ecological Model of Human Development (discussed in detail in Chapter 3), in the following way. Within the aforementioned model, the individual (i.e. Grade 4 boy learners) is situated in a multitude of surroundings (school environments where bullying occurs) that have relationships with the individual's abilities to learn how to read. Furthermore, the three research questions align with the methodology of the current study by using quantitative data gathered by the prePIRLS 2011 study and conducting a secondary data analysis to either accept or reject the hypothesis of the current study. A positive alternative hypothesis (H_A) was expected, as it was argued that the greater the extent of bullying Grade 4 boy learners experienced, the lower their *overall reading literacy achievement scores* would be. On the other hand, a null hypothesis (H_0) made provision for evidence of no relationship, in which case no statistical significance was found between the Grade 4 boy learners' experience of bullying and their *overall reading literacy achievement scores*.

1.4. Key terminology

Although many different definitions for certain key terminology are available on different research platforms, it is necessary to ring-fence the following terms for the current study to prevent any misunderstanding and misinterpretation of concepts:

Bullying

According to Olweus (1993) a learner is being bullied or victimised when he or she is subjected, continuously and as time passes to negative actions (e.g. hitting, kicking, name calling, gossiping, etc.) on the part of one or more other learners.

Grade 4 boy learner(s)

The boy learners were in Grade 4 and their average age at the time of testing was 10.5 years. These learners had completed 4 years of schooling as stipulated as a requirement by prePIRLS 2011 (Mullis et al., 2012). Boys at the age of 10.5 years can be extremely competitive, and achievements in sports activity, as well as their social ranking on the playground, are of major concern to them (Health, 2014). The competitive nature of boy learners is of interest to the current study as it could lead to bullying behaviour.

prePIRLS 2011

Throughout the current study, the acronym prePIRLS 2011 was used to refer to the preProgress in International Reading Literacy Study completed in 2011 (PIRLS 2011) known as prePIRLS 2011. The prePIRLS 2011 study provided the data set used for the secondary data analysis of this study.

Reading literacy

To align the current study with the study that provided the data the same definition of reading literacy was adopted. PrePIRLS 2011 defined reading literacy ‘as the ability to understand and use those written language forms required by society and/or valued by the individual’ (Mullis, Martin, Kennedy, Trong, & Sainsbury, 2009).

1.5. Research design and methodology

The selected epistemological paradigm of the present study was post-positivism since it was governed by a philosophy whereby research investigates reasons that most likely shape relationships. Subsequently, the issues examined by post-positivism required the evaluation of the relationships between variables as was the case in the current study (the relationship of being a victim of bullying with *overall reading literacy achievement scores* of Grade 4 boy learners (Creswell, 2013). The current study collected secondary data from the prePIRLS 2011 Learner Questionnaire and analysed the data through established, accurate and valuable statistical techniques. To ultimately achieve the research objectives, a comprehensive literature review was required.

The current study has a quantitative, non-experimental design, as the data used were originally gathered by the prePIRLS 2011 study in the form of a cross-sectional survey. Survey research supplies a numeric explanation of patterns, mindsets, and/or viewpoints of a population by studying a sample thereof. (Creswell, 2013). The study was underpinned by a quantitative, secondary data analysis of data gathered by the prePIRLS 2011 study and investigated, whether being a victim of bullying, could have contributed to the Grade 4 boy learners' underperformance in *overall reading literacy achievement scores* in South Africa.

For the current study, the sample consisted of the 8 196 Grade 4 boy learners who participated in the prePIRLS 2011 study during October and November 2011. The focus of the study attempted to identify any possible statistical relationship between being a victim of bullying and *overall reading literacy achievement scores*. The study used data collected with the following questions from the prePIRLS 2011 Learner Questionnaire:

- During this year, how often were you made fun of or called names at school?
- During this year, how often were you left out of games or activities by other learners at school?
- During this year, how often did someone spread lies about you at school?
- During this year, how often was something stolen from you at school?
- During this year, how often were you hit or hurt by other learner(s) at school?
- During this year, how often were you made to do things you didn't want to do by other learners at school?

These questions have been discussed in more detail in Chapter 4. The above-mentioned questions suggested were learners were bullied by their peers. *Overall reading literacy achievement scores* from the reading assessments were positioned on a common reading achievement scale using item response theory methods that offered an overall image of the assessment outcomes (Mullis et al., 2009). The benchmarks (discussed in Chapter 2 in detail) and overall achievement scores were used in the descriptive statistics to test if *overall reading literacy achievement scores* by benchmark, and the percentage bullying experienced per benchmark, had any correlation. Descriptive and inferential statistical analysis were conducted on the data to answer the three research questions that guided the current study. The data were analysed using a multiple regression which allowed the study to predict categorical outcomes (dependant variable) based on the predictor variables (independent variables) in an attempt to learn more about the relationship between the variables (Creswell, 2013; Field, 2009). The current study did not attempt to prove any causality between the dependant and independent variables, only that a statistical relationship was present.

To be valid, the instruments had to be reliable. In this study, internal reliability of the instrument items was established employing Cronbach's alpha coefficient to verify inter-item correlation (Maree, 2007). A self-report measure/questionnaires assessed the extent to which individual items represented the construct being assessed. Content validity is the proof that the information of an examination matches the information of the construct it was developed to cover (Field, 2013).

Ethical clearance was obtained from the Research Ethics Committee of the Faculty of Education at the University of Pretoria. With regards to the participants in the current study the following five ethical considerations were addressed as stipulated by the Faculty of Education's Ethics committee: (1) voluntary participation, (2) informed consent, (3) safety in participation, (4) privacy and (5) trust. The current investigation was limited by the fact that it did not gather the data directly. Thus, there was no familiarity with the physical collection environment and processes involved in the data collection. Another important limitation was the fact that using only *overall reading literacy achievement scores* implies that the results cannot be generalised to any other subjects.

1.6. Structure of the dissertation

Creswell (2013) suggested that the final compiled report of a quantitative research study has a distinctive framework comprising of an introduction, literature review, theoretical framework, research methods, research results and a discussion of the findings. The current study followed the structure but added chapter 2, which discussed the original prePIRLS 2011 study which provided the data used in the current study.

Chapter 1: Introduction and background to the current study

The first chapter introduced the current study as well as the purpose statement and rationale behind the current study. The research questions and hypotheses were highlighted and the key terminology defined. A brief overview of the research design and methodology of the study were given as well as the scope of the study explained.

Chapter 2: The Progress in International Reading Literacy Study (PIRLS) 2011

The chapter provides an overview of the prePIRLS 2011 study. It starts off with the introduction to the purpose of reading followed by the processes of comprehension and then the reading behaviours and attitudes. In addition, the theoretical framework, research design and research methodology were reviewed, looking at the participants, sampling, assessment instruments, question types and scoring procedures as well as the translation of the instruments in South Africa as well as the data collection process and how missing data were handled. The data capturing and processing, as well as the scoring, were discussed followed by the ethical considerations. The

international benchmarks and centrepoint were introduced, and a summary of the prePIRLS 2011 findings were provided and the chapter ends with criticism on PIRLS.

Chapter 3: Literature review and theoretical framework

The chapter provides a deeper understanding on the significance of reading literacy by focussing on teaching reading and the factors that influence the acquisition of reading. Reading in the South African context is discussed. Subsequently, the reading culture in Africa is reviewed and the benefits of a reading culture are explored. The concept of bullying is elaborated on and the consequences of being a victim of bullying are discussed. The characteristics of Grade 4 boy learners are also explored. Bronfenbrenner's Ecological Model of Human Development is the theoretical framework that guides the current study and is discussed in terms of the levels of human development and critique regarding the framework is added.

Chapter 4: Research design and methodology

The chapter presents the epistemological paradigm and research design of the current study. The research methodology of this study is discussed regarding the sample of the study, the data source and collection processes. The data analysis is also outlined and the reliability and validity are explained. The inferential statistics of the current study are explained by taking a look at the Pearson correlation, multiple regression analysis and the accompanying inferential assumptions. The chapter ends with a look at the ethical considerations that guide the current study.

Chapter 5: Results

The focus areas of Chapter 5 start with an introduction followed by the reliability results and the descriptive statistics of the current study. The percentages and means calculated using plausible values are presented as well as the benchmarks with plausible values used. The inferential statistics are presented next with a detailed interpretation of the correlations with plausible values used and the multiple regression with plausible values used. The model statistics are covered and the chapter ends with a succinct summary of the main results.

Chapter 6: Overview and recommendations

This chapter reflections on the theoretical framework that was used and discusses the results of the current study. The implications and significance for governing legislation, school safety and teaching practice are highlighted. Cyberbullying as a future topic of research is explored and possible future recommendations are mentioned. The limitations of the current research study are acknowledged before closing with concluding remarks.

1.7. Scope of study

The current study had to take note of the following demarcations to ensure that they did not affect the outcome.

- The data used were not gathered by the current study directly. Thus, there was no familiarity with the physical collection environment and processes involved in the data collection. The dataset was chosen because of the strenuous quality assurance standards of the prePIRLS 2011 study.
- Using only the *overall reading literacy achievement scores* of Grade 4 boy learners, limited the study by that the results could not be generalised to any other subjects. However, it was not the intention to generalise the findings to other subjects. The main purpose of this study was to gain a better understanding of the possible statistical relationship between being a victim of bullying and *overall reading literacy achievement scores* of Grade 4 boy learners.
- Using only Grade 4 boy learners as the selected sample limited the possibility that the findings could be generalised to Grade 4 girl learners. Grade 4 boy learners were the chosen sample as they were the segment of the prePIRLS 2011 study sample that was underachieving.

1.8. Conclusion

The chapter gave a brief introduction to the study that will follow. The main purpose and rationale of the study were discussed, and the research questions and hypotheses were set forth. Key terminology was introduced and explained, and an overview of the research design and methodology of the current study were given. The structure of the dissertation was explained, and the scope of the study was mentioned. The next chapter is a comprehensive overview of the Progress in International Reading Literacy Study conducted in 2011.

Chapter 2: The Progress in International Reading Literacy Study

2.1. Introduction

The previous chapter provided a broad overview of the current study. This chapter sheds light on the Progress in International Reading Literacy Study conducted in 2011. An overview of the following elements of the prePIRLS 2011 study is given. The background and purpose of prePIRLS 2011, the theoretical framework, the research design and methodology, data capturing and processing techniques, scoring, quality assurance, ethical considerations, international benchmarks and centrepoints, and the chapter ends with a review of the main prePIRLS 2011 findings.

The Progress in International Reading Literacy Study (PIRLS) was a study that was first carried out in 2001 by the International Association for the Evaluation of Educational Achievement (IEA). PIRLS has been repeated every four years since, to gather internationally comparative data in 49 countries, about learners' reading achievement at Grade 4 level of schooling. The PIRLS study also gathered data about the experiences learners had at their homes and schools with regards to learning to read. PIRLS intention was to acquire a comprehensive insight into the impact of policies and practices' throughout the education system (Mullis et al., 2009).

During October and November 2011 South Africa participated in the PIRLS study for a second consecutive time, the first time was in 2006. Both the PIRLS 2006 and PIRLS 2011 studies were carried out by the Centre of Evaluation and Assessment (CEA) at the University of Pretoria with the support of the IEA (Howie et al., 2012). Given the success of the PIRLS 2001 and PIRLS 2006 studies to gather accurate data for the countries that participated, the IEA in 2011 decided to extend the PIRLS study to accommodate countries whose learners had not yet mastered the process of learning how to read by Grade 4. This was accomplished by developing an assessment less difficult than the original PIRLS assessment (Mullis et al., 2009).

The new assessment, known as prePIRLS was developed by the IEA and administered for the first time in 2011 to cater to the needs of countries whose learners had not fully developed their reading skills and who did not meet the prerequisite for the original PIRLS 2011 study. PrePIRLS 2011 offered those countries the opportunity to measure and improve the learners learning outcomes by providing precise statistics to advance teaching and learning to cultivate proficient independent readers (Mullis et al., 2012; Mullis et al., 2009). PrePIRLS 2011 offered learners tests with simpler vocabulary, texts that were easier and shorter, as well as simpler grammar and syntax. PrePIRLS

2011 also focused less on higher-order reading skills. Thus, it assessed basic reading skills and measured the comprehension skill of learners still learning to read (Mullis et al., 2012). Botswana, Colombia, and South Africa were the only three countries that participated in the prePIRLS 2011 study.

According to Howie et al. (2012) some of the research objectives for the prePIRLS 2011 study in South Africa were to:

- Explain country-wide results and worldwide comparisons for *overall reading literacy achievement scores* of Grade 4 learners.
- Examine Grade 4 learner capabilities about targets and requirements for reading education.
- Investigate the association between the home atmosphere and societal circumstances on Grade 4 learner achievement.
- Teaching strategies as well as techniques for the teaching of reading in Grade 4.

Both PIRLS 2011 and prePIRLS 2011 defined reading literacy as 'the ability to understand and use those written language forms required by society and/or valued by the individual'. Therefore, developing learners who could build understanding through a range of materials. Learners read to learn, to be able to engage in societies of readers and to participate in educational institutions, for day-to-day living, as well as for the pleasure thereof (Mullis et al., 2009). For the current study, only data from the prePIRLS 2011 study were utilised and referred to from this point onwards in the dissertation.

2.2. Purposes of reading, processes of comprehension and reading behaviour and attitudes

According to Mullis et al. (2009) prePIRLS 2011 had three main focus areas regarding learners reading literacy, these were the purpose for reading, the processes of comprehension and the behaviours and attitudes associated with reading.

2.2.1. Purposes of reading

The purposes of reading focused on two aspects which were affiliated with the style of the materials, namely reading for literary experience, and/or reading to acquire and use information. Reading for a literary experience was usually achieved because of reading fiction, whereas reading to acquire and use information was mainly linked with informative and educational materials commonly utilised in a classroom. Texts were categorised by their specific primary functions and according to the kinds of questions posed for the reading evaluation. Consequently, texts that were

labelled as educational came with questions regarding the information enclosed in the materials and the texts labelled as literary came with questions dealing with the theme, plot events, characters, and setting of the text.

- Reading for literary experience

  When reading for literary experience, the learner interacted with the content to become engaged in imaginary happenings, the setting of the text, the behaviour, and emotions of the characters, the consequences of actions by the characters, and to indulge in the language internally. Literary works provided the possibility to discover circumstances and emotions that young learners had not yet experienced. The learners had to add to the content their encounters, emotions, and understanding of language and the information of literary forms to fully comprehend and value the literature (Mullis et al., 2009).

- Reading to acquire and use information

  When reading for facts and insights, the learners interacted with elements of the genuine world and not with a fictional reality. By using educational materials, the learners could comprehend the way the world worked. Learners could move past the pure acquisition of understanding and use it in thinking and activities (Mullis et al., 2009).

2.2.2. Processes of comprehension

The second focus area, processes of comprehension, looked at the four key aspects related to the different ways learners constructed meaning when reading.

- Focus on and retrieve explicitly stated information

  Learners used numerous techniques to determine and comprehend information that applied to the question asked. Effective recovery necessitated a relatively instant or instinctive comprehension of the content. The procedure warranted minimal or no inferring or interpreting. Recognising facts that were appropriate to the particular objective of reading, comprised of searching for particular suggestions, looking for explanations (words or phrases), recognising the setting of the narrative, and discovering the primary concept whenever specified (Mullis et al., 2009).

- Make straightforward inferences

  As learners built understanding from the content, they generated inferences regarding ideas or facts not freely given. Making inferences enabled the learners to progress past the superficial level of the content (Mullis et al., 2009).

- Interpret and integrate ideas and information

  Learners were creating associations that were not exclusively implied. Whenever learners understood and incorporated content information and suggestions, learners were required to draw on their historic understanding and encounters more as compared to what learners did for direct inferences (Mullis et al., 2009).

- Examine and evaluate content, language, and textual elements

  The focus moved away from developing an understanding to critically thinking about the material on its own. This happened once learners explored and assessed the information, language, and characteristics of the material. When it came to the information, learners used their perceptions and considered their comprehension of the material in opposition to their knowledge of the community surrounding them. When considering content components, like the structure and language, learners explored the way meaning was passed on. The content was regarded as a means to communicate concepts, emotions, and information (Mullis et al., 2009).

2.2.3. Reading behaviours and attitudes

- Learner reading literacy behaviours

  The amount of time learners dedicated to reading and additional hobbies, became important as learners proceeded to improve their reading literacy. The trademark of lifelong reading was reading for pleasure or examining subjects of fascination. Reading literacy stretched further than the capability to formulate understanding through a range of materials to incorporate the habits and mindsets that supported lifelong reading. These habits and mindsets brought about the whole recognition of the individual's perspective inside a literate community (Mullis et al., 2009).

- Positive attitudes toward reading

  One of the more significant characteristics of a lifelong learner was a favourable mindset towards reading. Learners who read properly exhibited a more favourable mindset when compared to learners who struggled with reading (Mullis et al., 2009). Furthermore, learners with a favourable mindset and self-concept about reading read more for recreational purposes. (Mullis et al., 2009).

- Learner attitudes toward learning to read

  Learning to read properly required the investment of a substantial amount of time on reading. Learners' appreciation of reading and their choices of reading resources impacted the amount of time they invested with reading both at school and elsewhere. Inspiration and determination to learn to read entailed becoming inquisitive or involved in things that were read. Individual curiosity towards a topic drove the learner and encouraged the learner in moving further than surface-level understanding (Mullis et al., 2009).

2.3. prePIRLS 2011 theoretical framework

prePIRLS 2011 built the framework for learning to read on the acknowledgement that the broader environments in which the learners moved (other than school and home environments) also had a relationship with learners learning (Mullis et al., 2009). Learners' homes and schools were positioned in neighbourhoods with distinctive resources and ideas. These features of the neighbourhood possibly had associations with home and school's circumstances and consequently a learner's reading literacy achievement. These features were replicated in a more comprehensive setting, in this case, the countrywide setting in which learners existed. The amount of resources commonly accessible in a nation was based on the governments' choices regarding the focus allocated to education and the curricular objectives, programs, and guidelines relevant to reading education. Considering that the aspects that could promote or obstruct accomplishments in learning were diversified through the home, neighbourhood, and school settings, prePIRLS 2011 implemented a framework that accommodated the nesting of the different settings as demonstrated in Figure 4 on the next page.

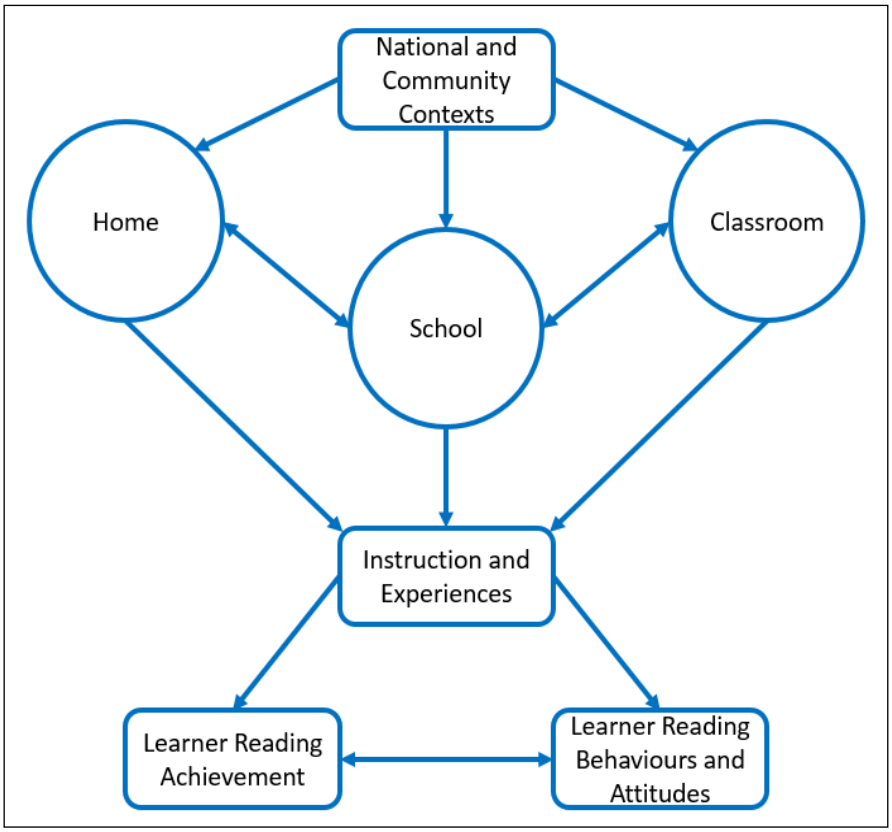


Figure 4: Contexts for developing children's reading literacy as obtained from Mullis et al. (2009).

2.4. Quantitative research design

PrePIRLS 2011 was a survey and trend study (Howie et al., 2012). Learners' reading comprehension was measured using comprehensive assessments which included a series of questionnaires to determine reading literacy achievement. Background questionnaires focused on the contexts of reading literacy improvement to collect information regarding the community, home environment (completed by a parent), class (completed by the teacher of the class that was sampled) and school contexts (completed by a principal) for developing reading literacy. The learner comprehension and background questionnaires were translated for the South African context to accommodate speakers of all 11 official languages, however, the parents, teachers and principal background questionnaire were only translated into Afrikaans and English.

2.5. Research methodology

2.5.1. Participants

The prePIRLS 2011 sample in South Africa, consisted of 15 744 learners. The sample comprised of 7 548 girl learners and 8 196 boy learners. The sample was drawn from 341 schools with an average class size of 40 learners. The learners were in Grade 4 and their average age at that moment of testing was 10.5 years. These learners had completed 4 years of schooling as

stipulated as a requirement by prePIRLS 2011 (Mullis et al., 2012). The learners that partook in the prePIRLS 2011 study were assessed in the 11 official languages of South Africa. However, they were not necessarily tested in their home language, but rather in the language of learning and teaching used in their Foundation Phase education.

2.5.2. Sampling

A three-stage stratified cluster sampling corresponding to language was used (Howie et al., 2012). Throughout the initial stage, schools were sampled in ratio to capacity, after that by classrooms, and finally by learners in the classroom as a sample unit. The main consideration when sampling the schools was the language of instruction (Howie et al., 2012). A total of 345 schools were tested for prePIRLS 2011 however merely 341 (99.1%) were suitable for involvement as some schools had withdrawn from participating in the study, amalgamated with other schools, or simply no longer existed (Howie et al., 2012). In every school, a complete class was tested and all the learners present on the day of testing were assessed.

2.5.3. Assessment instruments

The prePIRLS 2011 Assessment Design employed the PIRLS 2011 learner populations and assessment design as meticulously as was reasonably feasible. However, the reading comprehension process scales differed from the PIRLS 2011 study because of the increased focus on the process of focusing on and retrieving explicitly stated information in the prePIRLS 2011 items. PrePIRLS 2011 offered a comprehensive understanding of learners' reading literacy achievement through positioning learner answers upon a standard scale and determining patterns in achievement as time passed.

- Learner reading assessment

  Passages selected for prePIRLS 2011 were no longer than 400 words in length to ensure that learners had ample time to read the passage and respond to the accompanying items. As an additional step to help learners locate information within the text, items were interspersed throughout the passages. When possible, items that required learners to focus on a particular page of text were placed on the facing page, so that learners could view both the items and the relevant text simultaneously. This distribution of items also helped to ensure that learners could provide answers to some questions, even if they could not complete the entire passage.

  The prePIRLS 2011 items used multiple-choice and constructed response formats. There was a slightly higher percentage of constructed-response items in the prePIRLS 2011 assessment,

comprising up to 60 percent of the total points. This decision was made because constructed-response items that require a very short response were often easier for younger learners' due to the lighter reading load. Especially when compared with multiple-choice items that required learners to read and evaluate four possible response options. In addition, multiple-choice items could lose some of their effectiveness in passages as short as those used in prePIRLS 2011, as there were fewer plausible distracters that could be drawn from the text.

To ensure a balance of different types of texts, which represented the spread of reading materials to which learners were exposed, a matrix assessment design was followed. The prePIRLS 2011 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 systematic arrangement. The eight prePIRLS 2011 reading assessment instruments included four fictional and four informational texts on Grade 4 level and were distributed across 12 booklets (containing two passages each). Each learner responded to one fictional and one informational text, which was randomly assigned.

Following the data collection, learner responses were placed on a common reading achievement scale using the item response theory method that provided an overall picture of the assessment results for each country.

Background questionnaires were focused on gathering information relevant to the reading behaviours and attitudes of learners, parents, teachers, and school principals. The Learner Questionnaires focused learners' attitudes towards reading and their reading practices, at home and school. The Parent Questionnaires tried to discover the learners' residential atmosphere and parents' behaviour and attitudes towards reading. The teachers and school principal's questionnaires focused on collecting data concerning the learners' school and classroom contexts, with the specific focus on the teaching and learning associated with reading and language.

1. Learner Questionnaire

A questionnaire was completed by each learner who participated in the prePIRLS 2011 reading assessment. It asked about aspects of learners' home and school lives, including demographic information, home environment, school climate for learning, out-of-school reading behaviours, and attitudes toward reading. The Learner Questionnaire required 15–30 minutes to complete.

2. Learning to Read Survey (Home Questionnaire)

This short questionnaire was addressed to the parents or primary caregivers of each learner taking part in the prePIRLS 2011 data collection. It asked about home language, preschool experiences, homework activities, home-school involvement, books in the home, and parents' education and involvement. It also collected information on early literacy and numeracy activities, reading and quantitative readiness, parents' reading activities and attitudes toward reading. Together with information collected from the learners, parents' responses provided a more complete picture of an important context for learning to read. This questionnaire was designed to take 10–15 minutes to complete.

3. Teacher Questionnaire

The reading teacher of each fourth-grade class in prePIRLS 2011 was asked to complete this questionnaire, which was designed to gather information about teacher characteristics and classroom contexts for developing reading literacy. The questionnaire asked teachers about their background and education, the school climate for learning, attitudes toward teaching, classroom characteristics, and learner engagement. It also asked about reading instructional time, approaches, activities, and materials, computer and library resources, homework, and preparation to teach reading. This questionnaire required about 30 minutes of the teacher's time.

4. School Questionnaire

The principal of each school in prePIRLS 2011 was asked to respond to this questionnaire. It asked about school characteristics, instructional time, resources and technology, parental involvement, school climate for learning, teaching staff, the role of the principal, and learners' reading readiness. It was designed to take about 30 minutes.

5. Curriculum Questionnaire

To provide information about the goals of reading instruction, the national research coordinator in each country completed a questionnaire about the country's reading curriculum, incorporating nationwide policy on reading, objectives, and requirements for teaching reading, the time designated for reading, and the distribution of books and additional reading materials.

2.5.4. Question types and scoring procedures

Multiple-choice questions were utilised to evaluate the comprehension processes. Learners were supplied with four feasible answer possibilities, however only one of the options was correct. For constructed-response questions assessment items, instead of choosing an answer from a fixed list of possibilities, learners were expected to produce a written answer. These answers had an associated rating manual that characterised the crucial characteristics of relevant and comprehensive answers.

2.5.5. Translation of instruments in South Africa

According to the prePIRLS 2011 requirements, every one of the evaluation instruments had to be carried out in the language of learning and teaching (LoLT) which was utilised from Grades 1 to 3 of official schooling. This posed a challenge for translators in South Africa as all the instruments that were developed in English had to be translated into all 11 official languages as well as contextualised for the South African setting (Howie et al., 2012). Qualified translators were designated to guarantee translations were of excellent quality for all the languages. All translated assessment instruments and surveys were provided to the secretariat at the IEA to ensure that they could conform to rigorous quality control guidelines. The secretariat designated impartial translation verifiers to ensure the quality of the translation and the calibration of the instrument for every nation that took part in prePIRLS 2011. With regards to the background questionnaires, only the parent and Learner Questionnaires were translated into all the official languages, and it was assumed that the teachers and the principals were proficient in either Afrikaans or English. Therefore, their questionnaires were not translated into all the official languages.

2.5.6. Data collection

The CEA employed a market research business to undertake the primary data gathering in South Africa. Fieldworkers and fieldwork managers received training to guarantee consistent procedures and agreement with the IEA's rigorous guidelines for assessing and data gathering. The data collection of prePIRLS 2011 in South Africa consisted of 176 different instruments (Howie et al., 2012). The large number of instruments were due to the translation into the 11 official languages. All applicable instruments were randomly allocated to learners before the assessment day, and data gathering happened throughout October and November 2011 (Howie et al., 2012).

Testing sessions were scheduled for approximately three hours of data collection from the learners, teachers, and principals. During the day of testing learners had to complete the reading achievement assessment in two periods of 40 minutes each and the Learner Questionnaire in one

session of 30 minutes, however, learners were motivated to take the time necessary to thoroughly answer the Learner Questionnaire. Teachers and principals received their questionnaires for completion at the beginning of the testing day and had to submit the questionnaires towards the end of the assessment day. The learners were given the Parent Questionnaires and were encouraged with a small incentive to return the completed questionnaire the following day (Howie et al., 2012).

2.5.7. Missing data

A subset of the values for each variable type was reserved for specific codes related to different categories of missing data. *"Omitted"* response codes were used for items that a learner should have answered but did not. An omitted response code was given when an item was left blank or when two or more response options were checked for a multiple-choice item (Foy & Drucker, 2013b).

Special codes were given to items that were *"Not Administered"* to distinguish these cases from data that were missing due to non-response. In general, the *"Not Administered"* code was used when an item was not administered, either by design arising from the rotation of items across the assessment booklets or unintentionally when an item was misprinted or otherwise unavailable for a learner to respond (Foy & Drucker, 2013b). The *"Not Administered"* code was used in the following cases:

- Achievement item not assigned to the learner—All learners participating in prePIRLS 2011 received one of 12 booklets. All variables corresponding to items that were not present in a learner's assigned booklet were coded as *"Not Administered"* (Foy & Drucker, 2013b).
- Learner absent from session—When a learner was not present for a particular testing session, all variables relevant to that session were coded as *"Not Administered"* (Foy & Drucker, 2013b).
- Item left out or misprinted—When a particular item (or a whole page) was misprinted or otherwise not available to the learner, the corresponding variable was coded as *"Not Administered"* (Foy & Drucker, 2013b).
- Item deleted or mistranslated—An item identified during translation verification or item review as having a translation error such that the nature of the question was altered, or as having poor psychometric properties, was coded as *"Not Administered"* (Foy & Drucker, 2013b).

An item was considered *"Not-Reached"* (response code) when, within passage 1 or passage 2 of a booklet, the item itself and the item immediately preceding it were not answered, and there were no other items completed in the remainder of that passage (Foy & Drucker, 2013b). For most

purposes, prePIRLS 2011 treated the "*Not-Reached"* items as incorrect responses, except during the item calibration step of the IRT scaling, when "*Not-Reached"* items were considered to have not been administered (Foy & Drucker, 2013b).

"Not Applicable" response codes were used for the background questionnaire items for which responses were dependent upon a filter question. A *"No"* response to a filter question lead to any follow-up questions being coded as *"Not Applicable"* because there were no appropriate responses to these follow-up questions (Foy & Drucker, 2013b). It is important to mention that for the current study no missing data were manually removed from the data analysis.

2.6. Data capture and processing

Data capturing and verification by participants were done by making use of the program Windows Data Entry Manager (WinDEM), a program designed by the IEA (Howie et al., 2012). The prePIRLS 2011 reading assessment instruments and background questionnaires were captured by an external company. The data were provided in ASCII structure to the information supervisor at the CEA. IEA requirements stated that Statistical Analysis System (SAS) software be used to access, clean up and cross-check the data. The data were then transformed into a dBASE (database management system) format and imported into WinDEM. 100% of South African data were checked and verified (Howie et al., 2012).

2.7. Scoring

Scoring inspections were carried out for the duration of the undertaking to ensure the standard thereof. Reliability scoring was done by, Team A and Team B, scoring the same booklet. Additional quality assurance was achieved by means of one in five booklets being scored by seven independent quality assurers.

2.8. Quality assurance

The IEA took the following steps to ensure quality data and data cleaning processes within the South African context of the prePIRLS 2011 study. Rigorous procedures were followed during the instrument unpacking and dispatching processes by the professional data capturers. To comply with the IEA/PIRLS 2011 data gathering specifications and requirements, a tracking strategy was implemented to ensure that fieldwork within and among countries, were consistent (Howie et al., 2012). Members of the CEA visited schools without prior notification on days that data was collected to record whether compliance of the collection guidelines and fieldwork administration procedures provided by the CEA were indeed met. External quality control measures were also put

into place. The IEA trained a South African to serve as an International Quality Control Monitor that reported directly to the IEA secretariat on the data gathering undertakings (Howie et al., 2012).

The prePIRLS 2011 study used probability sampling as a selection method. Tremendous care was taken in the selection and documentation of the learners who were to take the reading assessments as the quality and comparability of the learners' results were of the utmost importance. Experts from Statistics Canada and Keit Rust (Westat, Inc.) and the PIRLS 2011 referee assessed the quality of the samples (Mullis et al., 2012). Their findings were that sampling and participation requirements where met in accordance with the guidelines provided by Statistics Canada together with the IEA (Mullis et al., 2012).

The IEA established thorough technical standards for undertaking worldwide research. All the participating countries had to adhere to these standards. These standards related to all aspects of the research including the assessment framework, research questions, sampling, data collection, quality assurance of the data that were gathered as well as the final reporting. The South African context presented its own challenges to reach the data collection standards provided the magnitude of the country and the isolated location of several of the rural schools.

2.9. Ethical considerations

PrePIRLS 2011 ensured voluntary participation of learners by providing their parents or caregivers with a consent letter with a return slip. If the parent or caregiver did not want the learner to participate, they had to complete the slip and send it back to the school. If no slip was received objecting to the participation, voluntary consent was implied. Confidentially and anonymity were established through the large sample size of prePIRLS 2011 study. Furthermore, prePIRLS 2011 did not report any results for individuals (learners, parents, teachers, or principals). The results of the data were only reported collectively. The CEA also obtained permission from the Department of Basic Education to conduct the prePIRLS 2011 in South Africa.

2.10. International benchmarks and centrepoint

The international benchmarks were qualitative explanations of learner achievement at various intervals. These benchmarks attempted to explain learner proficiencies at each of the determined ranks. The objective of the benchmarks was to render relatively comprehensive qualitative explanations of learner achievement on a scale in comparison to each of the questions posed. The spectrum of achievement demonstrated by the learners was illustrated by the four benchmarks as indicated in Table 1 on the next page. These benchmarks were collective, therefore signifying that

learners who were competent to achieve the higher benchmark could display knowledge and skills corresponding with the benchmarks on the next page.

Table 1: prePIRLS 2011 International Benchmarks of Reading Achievement.

Scale Score	International Benchmark
X >= 625	Advanced International Benchmark
X >= 550	High International Benchmark
X >= 475	Intermediate International Benchmark
X >= 400	Low International Benchmark
X < 400	

The following expectations were expected per benchmark performance:

- *Advanced International benchmark*, learners were expected to incorporate suggestions and information over pieces of content by supplying reasons and explanations. At this benchmark, learners were expected to be able to make inferences and interpretations using content-based assistance.
- The *Intermediate International benchmark* assumed that learners only made straightforward inferences.
- The *Low International benchmark* required the learners to locate and retrieve information from different parts of the text.

A third of South African Grade 4 boy and girl learners (29%) failed to achieve scores in the range of the Low International benchmark. However, a total of 71% of the Grade 4 learners could achieve scores in the Low International benchmark. Only 6% reached the Advanced International benchmark. Most Grade 4 boy learners were unable to read at a basic level as only 16% of Grade 4 boy learners reached the High or Advanced International benchmark (Howie et al., 2012). The failure to achieve the Low International benchmark showed a lack of ability by Grade 4 learners to locate and retrieve explicitly stated detail when reading literary texts. When reading informational texts, not reaching the Low International benchmark furthermore indicated a failure to find and replicate two or three items of information from inside the content (Howie et al., 2012).

Learners' reading assessment results were calculated using item response theory (IRT) and placed on the reading achievement scale (0-1000). Given the widespread familiarity of the achievement scale measurement employed by previous PIRLS studies, the same measurement was also implemented for the prePIRLS 2011 study. The prePIRLS 2011 scale centrepoint of 500 was fixed around the average achievement of the three participating nations. A 100 points on the scale were specified to be the standard deviation of the overall achievement dispersal.

2.11. prePIRLS 2011 findings

With regards to reading literacy achievement South Africa was one of first three nations that participated in the prePIRLS 2011 assessment, and therefore, it provided a new-found standard for learners in Grade 4. South African Grade 4 learners achieved a mean score of 461 (SE=3.7), which was considerably lower than the prePIRLS 2011 centre point score of 500. South Africa's results were corresponding with Botswana's results (463, SE=3.5) as both nations scored considerably lower than the average Grade 4 learners from Colombia. The Columbian learners achieved the highest score of 576 (SE=3.4), which was substantially higher than the prePIRLS 2011 centre point of 500.

prePIRLS 2011 included measures of bullying at schools to identify the regularity of bullying as occurring never, on a weekly or a monthly basis. According to Mullis et al. (2012), bullying entails hostility or damaging conduct desired to hurt or hassle physically weaker or mentally strong learners. prePIRLS 2011 tested for bullying by using a scale that measured how often learners experienced six different bullying behaviours from their peers. The six behaviours that were assessed were, how often bullying was experienced, during the school year in which the assessments occurred;

- I was made fun of or called names;
- I was left out of games or activities by other learners;
- Someone spread lies about me;
- Having something stolen;
- I was hit or hurt by, other learner(s); and
- I was made to do things I didn't want to do by other learners.

PrePIRLS 2011 findings pointed to the fact that in South Africa 17% of learners almost never experienced bullying at school. However, 55% of South African Grade 4 boy and girl learners experienced bullying at least on a weekly basis. Although prePIRLS 2011 offered insight into the regularity of suffering from bullying it did not supply any other information towards the understanding of the complicated character of bullying behaviours as frequently documented by the media or the role that cyberbullying (to be introduced and discussed in Chapter 3) had in primary schools (Howie et al., 2012).

In the South African prePIRLS 2011 sample the girl learners scored on average 475 (SE=3.9) thus outperforming the Grade 4 boy learners who only managed to reach an average score of 446 (SE=4.2). The gap between the genders totalling 29 points (SE=3.2) difference. That fact that

gender disparities favouring girl learners continued throughout different grade levels were undoubtedly a topic of concern, provided the significant relevance of reading regarding achievements in school.

Reflecting the outcomes for literary and informational purposes, girl learners achieved higher scores than Grade 4 boy learners. Throughout the nations, on average, Grade 4 girl learners enjoyed a 16-points lead in the retrieval-inferencing processes (521 vs. 505), and a 17-points lead in the interpreting-integrating evaluating process (519 vs. 502).

2.12. Criticism of PIRLS

Hilton (2006) criticises the PIRLS tests and the survey conduct, raising questions about the validity of international surveys of reading. Hilton's (2006) criticisms focus on cultural validity, methodological issues, construct validity and the survey in England. However, Whetton, Twist, and Sainsbury (2007) have investigated Hilton's (2006) claims and have refuted them. According to Whetton et al. (2007), Hilton's claim of forced unidimensionality in the tests is not supported by statistical analyses. Furthermore, Hilton's (2006) claims of cultural strangeness are contradicted by the involvement of all the countries involved. Additionally, Hilton (2006) is concerned about linguistic diversity, but this is reflected in the ways countries organise their surveys (Whetton et al., 2007). Finally, Hilton (2006) suggests that the English sample was biased, but fails to recognise the stringent sampling requirements or the monitoring roles of external assessors and the sampling referee. A careful study of the evidence concerning PIRLS shows that it is a fair and robust measure of reading attainment in different countries (Whetton et al., 2007).

Further criticism of PIRLS relates to the multiple-choice test items. Multiple-choice reading comprehension test items comprise of three components: text passage, questions about the text, and multiple-choice answers. The construct validity of this format has repeatedly been criticised (Sparfeldt, Kimmel, Löwenkamp, Steingräber, & Rost, 2012). Multiple-choice items from established reading comprehension tests revealed that learners are often able to solve many of these items without having read the accompanying text passages. More competent readers might be able to solve more multiple-choice reading comprehension test items without having read the text (Sparfeldt et al., 2012). The quality of any multiple-choice test item depends notably on the quality of the distractors. As in most tests, the authors of PIRLS 2001 were only interested in the dichotomous differentiation of "finding the correct answer" or "not finding the correct answer"; they did not use the potential information of the distractors or the answering patterns of specific student groups (Sparfeldt et al., 2012). According to Sparfeldt et al. (2012). Reading comprehension is a

prominent variable in large-scale studies (like PIRLS) over the past few years, and the consequences for the educational systems following the outcomes are considerable.

2.13. Conclusion

In short, Chapter 2 summarised the prePIRLS 2011 study. The focus areas of the prePIRLS 2011 study were discussed including the purposes of reading, processes of comprehension and reading behaviours and attitudes. An overview of the theoretical framework that was adopted was given. The quantitative research design and methodology of prePIRLS 2011 study were recapped, and attention was given to the data capturing, processing, scoring and quality assurance processes. Ethical considerations were highlighted, and the International benchmarks and centrepoint were explained. Before ending with a summary of the main prePIRLS 2011 findings, some critique was mentioned.

Chapter 3 presents the literature review and discusses the importance of reading and reading in the South African context. A better understanding of reading culture is provided, and the concept of bullying is explored. The characteristics of boy learners are reviewed. The chapter ends with the theoretical framework that guided the current research.

Chapter 3: Literature review

3.1. Introduction

Chapter 3 focusses on the findings of previous research. The chapter starts with a discussion on the importance of reading which includes looking at the process of teaching reading and factors influencing the acquisition of reading skills. After that reading within the South African context is explored. The concept of a reading culture is introduced, and the benefits associated with having a reading culture is mentioned. Attention is also given to how it is possible to develop a reading culture and the role that motivation plays in developing a reading culture.

The discussion moves to bullying next where the consequences of being a victim of bullying are explored as well as the gender differences encountered in bullying and the discussion ends with bullying in the South African context. A brief overview of the characteristics of boy learners is given, and the chapter ends with the theoretical framework that guides the current study, which is *Bronfenbrenner's Ecological Model of Human Development*.

3.1.1. Conceptual framework

Figure 5 is a schematic representation of the theoretical underpinning and conceptual relationships that guide the current study. *Bronfenbrenner's Ecological Model of Human Development* provides the theoretical framework. Layered on top of this framework is the following concepts: Grade 4 boy learners, reading literacy and bullying. Grade 4 boy learners are located in the **individual system**. It is within this system that reading literacy is developed by the individual. However, reading literacy is also taught at school, the school is located in the **microsystem**, it is also at school where bullying is taking place. The theoretical framework is discussed in detail in section 3.7.

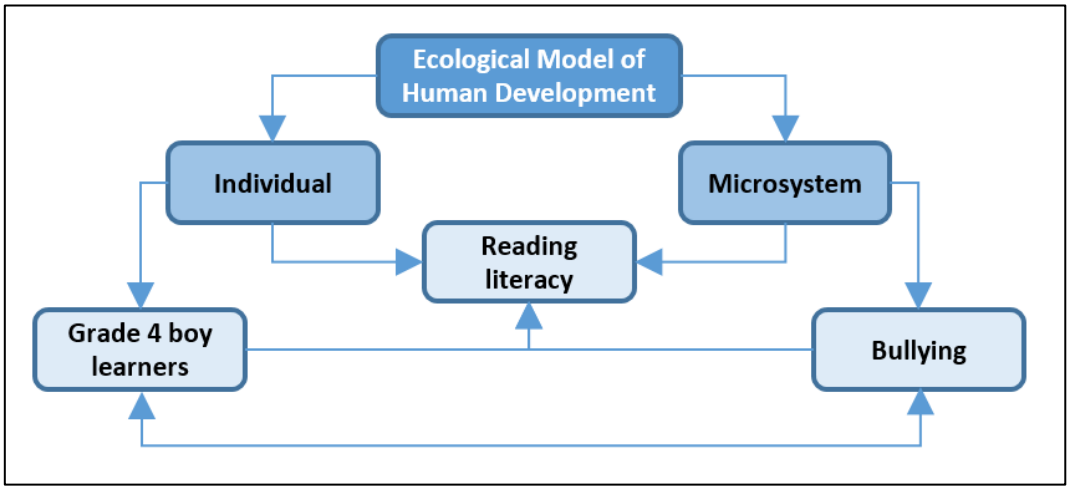


Figure 5: Schematic representation of the theoretical underpinning and conceptual relationships.

3.2. Importance of reading literacy

According to Klapwijk (2015), it can be argued that the capability to read is the foundation of twenty-first-century living and that the purpose of reading is to understand what is read. As reported by Van Staden and Bosker (2014) literacy is the groundwork for learning in all subjects as reading is possibly the most crucial linguistic skills that must be created in learners (Klapwijk, 2015). Unlike speaking, reading does not just happen; it needs to be explicitly taught and nurtured (Pretorius, 2014). Literacy is a powerful form of recreation and personal growth. Previous research has indicated that the lower reading literacy levels of learners negatively affect the uptake of other subjects as well as obtaining an education (Geske & Ozola, 2009). Tötemeyer (2013) and Pabian and Vandebosch (2015) found that a lack of reading skills and literacy development inhibits academic performance as learners cannot read for meaning and, therefore, learners tend to rely on repetitive learning. Poor reading skills may also inhibit the development of the enjoyment of reading, as the learner cannot understand what they are expected to read. Literacy provides young learners with the capability to partake more thoroughly in their neighbourhoods and towns as reading leads to learning that is sustained, permanent and internalised (Van Staden & Bosker, 2014).

Oyetunji (2013) believes that it is better to focus on young learners when teaching reading because they are enthusiastic about learning at a younger age. It will benefit young learners if they get the right instruction right from the Foundation Phase of primary school and onwards as strategic reading takes time to develop and become a habit. According to Ruterana (2014), literacy stimulates different and logical reasoning, consequently elevating important individual awareness in the everyday lives of people who use it to enhance their everyday lives. A literate community is inclined to seize control of their future, and they are more active in taking part in community life and engagements. Furthermore, a literate society is predisposed to accomplish linguistic and cultural goals. Literate individuals tend to be financially stable leading to better quality lifestyles. Additionally, the advantages of being a literate individual beneficially influence the spiritual and intellectual well-being of the person. Therefore, literacy aids all community members in growing into positive contributors to the improvement of their nations.

There are several benefits for learners who learn how to use a language effectively. Properly making use of a language allows learners to gather knowledge, to highlight their personality, emotions, and suggestions. Furthermore, it enables them to socialise with their peers as well as with others and to regulate the area surrounding them. Language is the means through which cultural uniqueness and social relationships are conveyed and developed, and permits for these developments to be modified, widened and enhanced (DBE, 2011).

3.2.1. Teaching reading

With regards to teaching reading in the classroom, Van Staden and Bosker (2014) detected the teaching of reading comprehension skills and reading strategies as an important forecaster of reading literacy success. As outlined by Klapwijk (2015) comprehension is a tactical undertaking. Readers make use of signs and hints originating from the wording in combination with their established understanding to generate forecasts, observe the forecasts and formulate interpretation from the content. As documented by Pretorius (2014) Grade 1-3 learners learn-to-read where the main focus is on letter-sound relations and developing decoding skills. Thereafter, learners move onto the reading-to-learn phase where learners need to become competent in accessing and making meaning from written language with its vast range of vocabulary. Learners use their decoding skills to make sense of the information that they read from Grade 4 onwards (Pretorius, 2014). As Nathanson (2011), reports there is ample evidence indicating that learners who do not learn-to-read by the end of Grade 3, tend to fall behind their peers as they progress through school.

Furthermore, Nathanson's (2011) study confirms that without intensive teacher assistance on appropriately levelled texts, many readers fail to comprehend. Although comprehension is identified as an essential component of reading, teachers overlook the teaching thereof, and consequently, learners are left battling with reading comprehension. Teachers report different reasons for not teaching comprehension as reported by Klapwijk (2015). These include but are not limited to, teachers not considering comprehension as a component of the reading process, and the teachers are not taught to teach reading comprehension. Thus, they possess an underdeveloped understanding of teaching literacy and therefore they are not able to teach it as they have no idea of the right way to teach reading. Finally, it is viewed by most other subject teachers as the exclusive obligation of the language teacher. Thus they do not bother aiding learners in this regard. Nel (2011) and Oyetunji (2013) also found that good reading habits are not instilled in learners because many of their teachers are not proficient in reading themselves, consequently, the teachers are unable to transfer knowledge to the learners they do not have. Additionally, teachers are under-prepared to teach reading. Therefore, some teachers primarily grasp and utilise only one approach to teaching reading which may perhaps not accommodate all the different learning styles of the learners in their classes. Hence, it is crucial that these teachers be taught the comprehension process by experts before they can teach their learners.

Idealistically learners should be taught in their home language during the Foundation Phase before converting to English. English becomes the LoLT from Grade 4 which poses significant challenges to young learners trying to master reading skills. Not only do learners need to develop adequate

oral communication skills in English, but they also need to develop the more academic literacy skills in the LoLT to cope with the increasing literacy challenges of the Intermediate Phase (Pretorius, 2014). When learners start learning-to-read, they ought to have acquired certain basic language skills in their LoLT language. These skills include phonemic, print, graphic, morphological and syntactic awareness (Hugo, 2011). One possible highlight noted by Pretorius (2014) is that bilingual reading research has found that decoding skills can be transferred across languages that share the same alphabetic written code. Reading comprehension skills can also be transferred across languages. These skills include the ability to identify the setting and main characters, the capacity to identify the problems and resolutions in the narratives, the skill to identify main ideas, the ability to make inferences and predictions, and the skill to use linguistic or text clues to construct meaning when reading expository texts. The transferability of reading comprehension skills implies that the learner does not have to start from the beginning when learning to read a new language. Nel (2011) found that learners who fail to master the skill of reading in the first couple of years in primary school have limited alternative chances to acquire these skills and get on par with their peer. They essentially have no hope to outperform their classmates who are reading at grade appropriate levels by the beginning of Grade 4.

3.2.2. Factors influencing acquisition of reading

Several factors influence learners' acquisition of reading in primary schools. Various authors (Geske & Ozola, 2009; Hugo, 2011; Pretorius, 2014; Sénéchal & Young, 2008) have found the following overarching systems to be associated with the reading literacy levels of learners: home conditions (like the socio-economic status) of parents can have an impact on the financial strength of the home and can determine the amount of money spent on reading and education versus putting food on the table. Another factor that has an influence is parent involvement is parental literacy. Uneducated parents find it difficult to help their children with schoolwork and is uninvolved if they do not possess the skill required. The degree of importance parents attaches to teaching their children to read and how actively the parents participate in the reading process is another factor. This participation influences the successful acquisition of reading skills for young learners. The number and type of literacy practises in the home environment not only from the parents but also from the other members in the home environment, the amount and kind of dialogue between the parent and child, the support given after school for homework and the value parents assign to literacy practices all also influence a learner's acquisition of reading skills.

Several additional classroom and school factors also influence the acquisition of reading skills. Some of these factors include the basic organisation and governance of the school, general school discipline, school safety and security, the availability of resources (usually a lack of reading

materials), and the school's focus on teaching and learning. Additional school factors that further influence academic achievement include the school's focus on learners' needs, teacher professionalism and commitment, teacher accountability and expectations, large variations in class sizes (classrooms are often overcrowded), and the implementation of the curriculum. Supplementary factors include teachers' inadequate training and the level of their knowledge of reading methods, the language of learning and teaching, and high learner–teacher ratios all make it difficult to deliver quality education (Geske & Ozola, 2009; Hugo, 2011; Konishi et al., 2010; Pretorius, 2014).

3.3. Reading in the South African context

National reading levels of South African learners have been a longstanding concern for the Department of Basic Education (DBE). To address the problem of literacy, the Department of Education launched the Foundations for Learning campaign in March 2008. This was a national reading, writing and numeracy literacy campaign which ran for four years from 2008 to 2011 and aimed to improve the overall literacy abilities of all South African learners. It sought to guarantee that by 2011 all South African learners were in a position to exhibit literacy and numeracy levels that were age appropriate. (DoE, 2008a). The Foundation and Intermediate Phases were the primary targets, and primary schools were required to improve their standard learner accomplishment in literacy and numeracy with at least 51%. This would have indicated an enhancement in the range of 15%-20% in the four-year campaign. The minimum expectations with regard to teaching Literacy and Numeracy were that teachers in both phases would devote a minimum of 30 minutes daily on reading that was for pleasure and one hour on extensive writing skills per week (DoE, 2008a).

Another important publication in 2008 by the South African government was the National Reading Strategy (NRS) (DoE, 2008b). As outlined by the NRS, reading functions as the foundation necessary for all other learning to occur. For this reason, the NRS views reading as the most significant language competency that learners must acquire. The DoE sees life-long learning as one of the greatest gifts in life for a learner and is obtained by developing adequate reading skills (DoE, 2008b).

As stated by the NRS reading encourages the self-esteem of people in local, national, and international communities, therefore reading acts as a significant component in successful nation development. Being able to read equips an individual to work creatively and critically in a highly competitive and constantly shifting world by offering rapid and immediate access to cutting edge insights (DoE, 2008b). Reading leads to the understanding of information that will assist with life-

long learning. With the introduction of the National Curriculum Statements (NCS), it became known that for many years the role of the teacher in teaching reading was misconstrued. Teachers assumed incorrectly that learners could teach themselves to read. As a result, many teachers simply thought that they only had to facilitate the process and that they did not have to teach reading explicitly. Some of the fundamental principles stipulated by the DBE, in the NRS, state that quality education is a right for all learners, all learners can be taught how to read and that learners have the right to learn-to-read in their mother tongue (DoE, 2008b).

Through the NRS the DBE attempts to improve the involvement and commitment of all the respective entities which include learners, teachers, principals, school management committees, parents, and communities. The DBE stipulates that each entity has a role to play, and learners should strive to improve their reading so as to read fluently and with comprehension (DoE, 2008b). Teachers must actively teach reading while the principals and school management committees must create and promote an atmosphere that encourages both reading and the teaching thereof (DoE, 2008b). Furthermore, parents and the surrounding communities must also become involved in the process by creating a sense of the value of books and reading, and by encouraging learners to practise reading (DoE, 2008b).

One of the most important objectives of both Government and the DBE is the enhancement of the standards of educational results of schools' country wide. By administrating the Annual National Assessments (ANA), the DBE can supervise the degree to which these results are accomplished. The ANA of February 2011, was handled by the schools themselves and all learners who had been in Grades 1 to 6 in 2010 had to write the standardised Literacy and Numeracy tests. In South Africa, the average percentage scores of Grade 3 learners were 35% for Literacy and 28 % for Numeracy (DBE, 2012a).

Within the English Home Language, Curriculum and Assessment Policy Statement for Grades 4-6 document a Home Language is the language first mastered by any learner. Inside this document, Home Language and First Additional Language relate to the degree of competence at which the language is provided and not the indigenous (the language is spoken at home) language (DBE, 2011). The Home Language standard reflects language competence that demonstrates the fundamental personal communication skills necessary in public conditions and the intellectual scholastic abilities crucial for learning (DBE, 2011). The First Additional Language pertains to a language that is not necessarily the mother tongue of a learner however it may be utilised for specific communicative applications in a community. In most cases in South Africa, this is also the language of learning and teaching in education.

In South Africa, most learners (excluding urban learners who start with English) begin to use English, which is their additional language, as the LoLT in Grade 4. The fact that English is from then on used as the LoLT means that the learners should achieve an advanced degree of proficiency in English by the beginning of Grade 4. This means that the learners must be able to read and write effectively in English. The First Additional Language presumes that learners do not automatically possess any understanding of the language once they start school, therefore at the beginning the emphasis in the first years is on building learners' potential to comprehend and speak the language, in other words, it aims to establish the fundamental interpersonal communication skills. Reading provides learners with increased exposure to print in their additional language. The DBE (2011) have indicated that learners' vocabulary formation is profoundly reliant on the volume of reading the learners do. In the Intermediate Phase, they build on the foundation set in Grades R to 3. Therefore, the low average percentage scores of Grade 3 learners' Literacy and Numeracy is a concern as it is carried over to Grade 4.

The instructional time spent on Literacy and Numeracy for the Foundation Phase is presented in Table 2 and came into effect in 2012. The Languages programme is incorporated within all the additional curriculum subjects. Therefore, the DBE does not dictate how the minimum time must be divided into the various elements although the DBE makes the following recommendations for each Grade weekly.

Table 2: Instructional time spent on Literacy and Numeracy in the Foundation Phase.

	Grade R	Grades 1-2	Grade 3	Grade 4
Home Language	10 hours	7 to 8 hours	7 to 8 hours	6 hours
First Additional Language		2 to 3 hours	3 to 4 hours	5 hours
Mathematics	7 hours	7 hours	7 hours	6 hours

The DBE highlights five important aspects of teaching reading. The five components are phonemic awareness, word recognition, comprehension, vocabulary, and fluency (DBE, 2011b). These elements ought to be taught explicitly and practised on a day to day basis. Table 3 provided a suggestion of how the reading section should be divided.

Table 3: Division of reading activities for Grade 1-3.

	Grade 1	Grade 2	Grade 3
	Reading & Phonics		
Phonics	15 minutes per day for 5 days	15 minutes per day for 5 days	15 minutes per day for 4 days
Shared reading	15 minutes per day for	20 minutes per day for	20 minutes per day for

	3 days	3 days	3 days
Group Reading	30 minutes per day for 5 days	30 minutes per day for 5 days	30 minutes per day for 5 days

The reading process as stipulated by the DBE (2011) consists of pre-reading, reading and post-reading stages. The activities the learner engage with are summarised in Table 4.

Table 4: Stages of reading.

Pre-reading:	Reading:	Post-reading:
Activating prior knowledge.	Pause occasionally to check comprehension and to let the ideas sink in.	Recall specific information, make a graphic organiser or outline key ideas or supporting details.
Looking at the source, author, and publication date.	Compare the content to the predictions.	Draw conclusions.
Reading the first and last paragraphs of a section.	Use the context to work out the meaning of unknown words as much as is possible; where this is not possible, use a dictionary.	Write a summary to help clarify and recall main ideas.
Making predictions.	Visualise what is being read.	Think about and write new questions on the topic.
	Keep going even if you don't understand a part here and there.	Ask yourself if you accomplished your purpose.
	Reread a section if you do not understand at all. Read confusing sections aloud, at a slower pace, or both.	Confirm understanding of the text.
	Ask someone to help you understand a difficult section.	Evaluate bias, accuracy, and the quality of the text.
	Add reading marks and annotate key points.	Extended thinking by using ideas seen in the text.
	Reflect on what was read.	

Numerous policy and curricula documents have set forth objectives for the transformation of the education system of South Africa. However, there are no assurances that any of the changes that

must be made have been successfully implemented to reach transformational goals by either the teachers, parents or learners themselves (Van Staden & Bosker, 2014).

3.4. Reading culture

The endeavour of developing constructive reading perceptions spanning a duration of time involving both grownups and young learners is known as creating a reading culture (Akindele, 2012). In the broader African context, Ruterana (2014) found that in most African societies including Rwanda the principal means of correspondence between individuals on a day to day basis is verbal communication which they use to relay community wisdom, norms, and values. Therefore, these communities are heavily dependent on verbal communication for the sharing and attainment of information. It is for this reason that people often say that Africa has a weak or non-existing reading culture. Commeyras and Mazile (2011) state that reading has a particularly discouraging connection for many Africans as it was launched and driven primarily by Christian missionaries. The forced drive towards reading resulted in African societies only seeing reading as a functional activity and used for achievement purposes and therefore they did not view it as a pleasurable experience.

Furthermore, Le Roux (2012) is of the opinion that most South Africans see reading and books as synonymous with an academic exercise or obligation. However, Le Roux's opinion cannot be generalised to the whole population as it is not based on research evidence but rather personal belief. Nassimbeni and Desmond (2011) found that in South African schools, teachers often prohibit learners from interacting with books by either looking at or borrowing the books. The books donated by organisations or provided by the government are often instead stacked away or preserved in a storeroom or the school principal's office (Nassimbeni & Desmond, 2011). In countries like Nigeria, the shortage of libraries and books relevant for young learners are exceptionally detrimental to the attempts to create a culture of reading (Akindele, 2012). The development of a reading culture may furthermore be jeopardised when there are very few books in the mother tongue for the learners to read (Tötemeyer, 2013).

3.4.1. Benefits of a reading culture

The successful creation of a reading culture will result in adult and young learners routinely and frequently reading books, magazines, journals, etc. not fundamentally necessary for them to progress in their work or school academic situations (Igwe, 2011). According to Akindele (2012) developing a culture of reading necessitates that young children should be exposed to and taught how to read right from their birth and that the parents should consider books as a third parent of the child. This early exposure will promote the love of reading in the household. Le Roux and

Costandius (2013) reconfirmed that South African homes lack a reading culture. Only 14% of the population are viewed as active readers, of whom only 5% read books to, or with their children (DAC, 2011). As reported by Le Roux (2012) currently only 7.7% of ordinary public schools have fully functional libraries. To start encouraging reading and the creation of a reading culture one requires access to appropriate reading content. Additionally, the emphasis appears to be on developing the reading behaviour in younger learners as a household abundant in literacy experiences exercise an enduring impact on establishing a favourable mind-set associated with reading materials. This favourable mind-set towards reading and the successful establishment of a reading culture has a beneficial influence on achievements at school (Janse Van Vuren, 2011). Makatche and Oberlin (2011) states that to successfully develop a culture of reading it demands the engagement of the whole community including the learners, parents, teachers, administrators, and staff. The aforementioned statement by Makatche and Oberlin (2011) links to the conceptual framework of both the prePIRLS 2011 study and the current study (discussed in detail in section 3.7) in that the different environments including national, community, household and school surroundings affects the learning-to-read and reading-to-learn behaviours of learners. For this reason, the current study focuses on the learner and his immediate environment.

3.4.2. Developing a reading culture

The development of a reading culture in any country is largely determined by demographic and sociolinguistic factors (Tötemeyer, 2013). Socio-economic and political factors also play a major role. The official language policy adopted for a country at large, and more specifically for the schools, decisively influences the reading proficiency and reading behaviour of the society. Parents who do not have a reading culture of their own often see reading only in relation to its educational purposes. The implication of the parents' view can lead to the fact that many children do not experience parent-child joint reading before starting school. Many South African parents are unable to support their children in growing their reading skills because work and additional obligations are too time-consuming. Many South African families cannot afford to purchase school books for their children**,** let alone books meant for enjoyment. Other parents do not value literacy and may have been uninformed with regards to supporting their children's literacy development (Le Roux, 2012). Furthermore, parental involvement in reading activities has been found to sometimes be a more influential force in developing a culture of reading compared to alternative household factors like SES or the educational level of the parents. Some studies attribute the shortfall in establishing a reading culture to an absence of reading material in households and illiterate parents and or caregivers as they cannot transfer a culture or skills they do not possess (Combrinck, Van Staden, & Roux, 2014).

According to Ruterana (2014), one of the underlying structures necessary for learning is developing a reading culture. Transforming into a competent and versatile reader increases the probability of achievements at school and thereafter. The benefits of reading are not well known. Therefore, many people do not have an interest in reading. It is important to highlight the benefits of reading. Subsequently, the responsibility lies with the individuals who are already educated to transfer their skills to the future generation by offering them an opportunity to improve their lives (Ruterana, 2014).

3.4.3. The role of motivation in developing a reading culture

Additional understanding is required regarding exactly what teachers, parents and learners believe with regards to reading patterns and behaviours to intentionally develop and preserve a reading culture. (Commeyras & Mazile, 2011; Le Roux, 2012). Motivation to read may hold the key to addressing the lack of a reading culture in South Africa as Daniels and Steres (2011) found that learners need to feel inspired and determined with regards to their learning to become academically successful. Barnes and Monroe (2011) unveiled the fact that learners who frequently read for their curiosity are in many cases highly skilled and therefore generally tend to be well-established readers. These findings add to the notion that motivation commonly makes the distinction between learning that is short-term and learning that is long-term.

Several authors (Barnes & Monroe, 2011; Daniels & Steres, 2011; Ruterana, 2014; Van Staden & Bosker, 2014) have noticed that the following factors influence reading motivation: putting reading first by making it a high priority, teachers and other individuals at the school modelling reading and offering reading assistance to learners, establishing learning atmospheres that are motivating, and offering learners the opportunity to select the book or material that they want to read. Learners tend to be significantly more motivated and involved in reading when the reading material reflect their culture, language and cultural values.

One of the findings by Daniels and Steres (2011) is that the '*majority of the learners and teachers felt that time devoted to silent reading through a structured, systematic approach and the emphasis on school-wide reading contributed significantly towards creating a family of readers within the school*'. The dedication to cultivating an environment where every person affiliated with the school was required and encouraged to read materialised in several guidelines. First, the entire school committed to allocate time to read throughout the day. Secondly, the learners were given the opportunity to choose what they wanted to read and finally the teachers and administrators were encouraged to likewise read throughout the school day and to share their experience with their learners. With regards to the current study, structured reading programs like the aforementioned could potentially help Grade 4 boy learners to feel more supported in their reading literacy

practises. If Grade 4 boy learners see positive reading behaviour modelled and shared by teachers the boy learners could be inspired to mimic the behaviour and become more active in their own reading practises.

3.5. Bullying

Bullying is not a new concept in research, therefore in an attempt to define and conceptualise bullying for the current study Dan Olweus, Bullying at School (1993) was consulted. Within this text, Olweus (1993) claims a learner is bullied or victimised whenever they are subjected, continuously and as time passes to adverse actions by one or more other learners. These repeated and negative actions are known as direct bullying and are commonly accepted as relatively open attacks on a victim and usually involve actions like pushing, shoving, hitting, kicking or restraining another with the intention to cause bodily harm or pain (Olweus, 1993). Indirect bullying is less visible than direct bullying and involves social solitude and deliberate exemption from a group of peers. Indirect bullying entails verbal and nonverbal gestures and actions like teasing, taunting, intimidating, name calling, and/or spreading a rumour or lies that aim to cause or trigger anxiety, panic, distress, or physically harm to another person whilst having the idea of having power over another learner (Olweus, 1993; Swart & Bredekamp, 2009). Indirect bullying has evolved throughout the last 10 years due to the rapidly changing technologies available to learners, so much so that a new form of bullying now known as cyberbullying has come to the attention of researchers. Cyberbullying will be discussed in detail at the end of the section as it is not tested for in the prePIRLS 2011 study and thus cannot be reviewed in this study. However, it is recommended that cyberbullying be added to the prePIRLS questionnaire in future studies.

For the current study, both direct and indirect forms of bullying were applicable as the six independent variables tested for a variety of bullying behaviours experienced by Grade 4 boy learners. These individual tendencies of bullying influence peer interaction between learners, which in turn influence the overall school climate (Lee, 2010). A direct bully is usually aggressive, less socially isolated (they have friends or followers), is highly disliked by peers, but not marginalised by them. Bullies show signs of fun-seeking behaviour and are more likely to be boy learners (Lee, 2010; Veenstra et al., 2005). Direct bullying is the most common bullying behaviour amongst primary school learners as they do not yet have the verbal or complex social skills necessary for indirect bullying. They predominantly revert to aggression that is physical in nature (Björkqvist, 1994; Woods & Wolke, 2004). As learners' progress through secondary school, bullies demonstrate more sophisticated means of bullying such as indirect bullying.

3.5.1. Consequences of being a victim of bullying

Several researchers (Bender & Lösel, 2011; Connell, Morris, & Piquero, 2015; Esbensen & Carson, 2009; Henry et al., 2014; Ledwell & King, 2015; Li, Chen, Chen, & Wu, 2015; Nansel et al., 2001; Rigby, 2003; Wu, Zhang, Su, & Hu, 2015; Yahner, Dank, Zweig, & Lachman, 2015) have studied the long-term consequence of being a victim of bullying and found the following regarding mental and physical well-being and social interaction.

Some of the negative physical impacts included victims being likely to physical abuse life partners, harassment, assault, child abuse and hate crimes during later stages of their lives. Victims are also prone to violent and other delinquent behaviours such as drinking and substance use. Greif and Furlong (2006) and Lim and Hoot (2015) have found that being a victim of bullying is related to school shootings. Being a victim of bullying also has long term mental effects, as it is noted that these learners show signs of emotional maladjustment including loneliness, anxiety, depression, and low self-esteem which lead to learners internalising their problems.

Being a victim of bullying may lead to illness, school avoidance, increased fear and psychological distress like depression, anger, worry, anxiety, humiliation, low self-esteem, psychosomatic symptoms, loneliness, self-consciousness, feelings of betrayal, sadness, and suicidal ideation (Konishi et al., 2010; Swart & Bredekamp, 2009; Swearer et al., 2010). More recently researchers (Rose, Espelage, Monda-Amaya, Shogren, & Aragon, 2015) have found the inverse to be true that academic achievement is regarded as a forecaster of bullying participation, where learners with better scores claimed lower levels of bullying and fighting. These particular relationships may be rationalised by the reverse associations between academic achievement and deviant behaviours, where high achievers display less deviant habits (Rose et al., 2015).

Supporting research has found that bullying, is negatively related to school and academic achievement (Lillis, 2011). The research points out that learners who happen to be bullied have a tendency to skip school which consequently contributes to these learners becoming disconnected and losing out on learning possibilities (Lillis, 2011). Bullying also has a school-wide impact; it reduces the level of academic engagement and involvement in learning activities among learners as a whole which ties in with research that indicates that schools with high levels of bullying have lower pass rates and vice versa (George, 2011).

Woods and Wolke (2004) however, did not offer any evidence that underachievement and frustration lead to direct bullying in 6-9-year-old learners. They noted that Sharp (1995) offers an alternative theory on bullying. Sharp (1995) proposes that schoolwork offers the victim of bullying an escape from the bullying behaviour, which in turn will lead to an increase in their academic

performance. The alternative theory has not been proven by research, but is of direct interest to the research study, in that it could have two possible pathways, (1) learners experience more bullying because they read or (2) learners read more because they are victims of bullying. On the other hand, opposing research results have found that being a victim of bullying exhibit a vigorous, direct association with academic difficulties and performance (Juvonen et al., 2011; Nakamoto & Schwartz, 2010).

3.5.2. Gender differences in bullying

Studies done (Lim & Hoot, 2015; Swart & Bredekamp, 2009; Veenstra et al., 2005) on bullying looking at gender differences offer varying findings. Several investigations indicate gender differences in the encounters of various types of victimisation; these studies indicate that boy learners bully more than girl learners and that boy learners are also bullied more. Boy learners are more inclined to become a victim to direct bullying as they engage in more physical violence. Girl learners are more inclined to engage in more social aggression and fall victim to indirect bullying which includes name calling, revealing secrets, and hurting each other unintentionally by excluding them from activities (Lim & Hoot, 2015; Swart & Bredekamp, 2009; Veenstra et al., 2005). Research findings show that indirect bullying involves harming relationships by means of excessive meanness, passing of notes, spreading rumours, gossiping, putting peer pressure on a learner to influence choices and decisions (Kim, Yun, & Kim, 2015; Swart & Bredekamp, 2009). Although studies have provided insight on the variety of encounters of bullying for the teenage boy and girl learners, hardly any research has examined whether there are gender differences in the of bullying on teenage health and wellness. (Ledwell & King, 2015).

Intervention plans seem to have limited results in eradicating bullying (Swearer et al., 2010). Thus, the vicious cycle continues with little hope of improvement for learners. The current study investigated whether there was a relationship between being a victim of bullying and the *overall reading literacy achievement* scores of Grade 4 boy learners.

3.5.3. Bullying in South African schools

Regarding the South African setting, the DBE has added a page[1] to their website that provides more information to the public (parents and teachers) on how to address bullying in schools. The DBE provides the following School Safety Framework training module documents that deal with addressing bullying and positive discipline, free for download to the public:

[1] http://www.education.gov.za/Programmes/SafetyinEducation/tabid/1048/Default.aspx

- A course reader that can be utilised as a reference for individuals partaking in the programme, teachers searching for important information to integrate into their teaching, or individuals who merely desire to find out more information about bullying (DBE, 2012b).
- A facilitators' guide that prepares facilitators to apply the classes. The guide contains recommendations for discussing bullying, along with audio-visual materials to enhance facilitation (DBE, 2012c).
- A course workbook which offers individuals an application manual that addresses the crucial insights included in the program (DBE, 2012d).

Furthermore, the DBE provides several pamphlets on bullying and school safety. These include a pamphlet on cyberbullying which explains what cyberbullying is, what information learners need to know about cyberbullying and possible intervention steps that can be taken to prevent cyberbullying. A pamphlet with tips for parents and schools on bullying at school provides information on what school bullying is, what schools and parents should do to prevent bullying as well as the warning signs of being bullied. The third pamphlet deals with stopping school violence. The pamphlet provides learners, parents, and teacher with tips that they can use to assist with putting a stop to violence at school.

Moreover, the DBE compiled an example of a Code of Conduct to assist schools with establishing school rules and implementing a disciplinary system. In addition to all the above mentioned the DBE set up a partnership with the South African Police Service (SAPS) to assist with ensuring safety. The Safety in Education – Partnership Protocol between the DBE and SAPS, outlines the platform for comprehensive inter-departmental cooperation to develop protected, nurturing and learner friendly schools, where learning and teaching of great quality can come about.

3.6. Characteristics of boy learners

Developmental milestones of 9-11-year-old boys, according to the Centre for Disease Control and Prevention (2015), include pre-teens growing independent of their families and becoming more concerned about their friends by forming stronger, more complex friendships and peer relationships, especially of the same sex. The shift from being family orientated to being friends orientated increases peer pressure. Learners with a better self-esteem can resist negative peer pressure. During these years (9-11) children gain a sense of responsibility and growing independence. Physical signs of puberty might also be showing. Body image and eating problems sometimes start around the age of 9-11. Learners also face more academic challenges at school as they are expected to have an increased attention span. Boy learners of this age can be

extremely competitive; and accomplishments in sports activity, along with social rank in the playground are of great importance (Health, 2014).

3.7. Theoretical framework: Bronfenbrenner's *Ecological Model of Human Development*

3.7.1. Overview

The current study made use of Bronfenbrenner's *Ecological Model of Human Development*. Within this model, Bronfenbrenner (1994) (p. 37) argues that '*to understand human development, one must consider the entire ecological system in which growth occurs'*. To understand the model, the original source was consulted. Bronfenbrenner introduced the *Ecological Model of Human Development* in the 1970's with the most prominent of his publications being *The Ecology of Human Development: Experiments by Nature and Design* published in 1979. In this text Bronfenbrenner (1979) (p. 288) defines human development as, *'the process through which the growing person acquires a more extended differentiated, and valid conception of the ecological environment, and becomes motivated and able to engage in activities that reveal the properties of, sustain, or restructure that environment at levels of similar or greater complexity in form and content'.* For the current study, human development was the learner that obtained a more comprehensive and functional idea of the natural setting around him/her. This allowed the learners to grow into inspired and capable individuals (capable readers) that could participate in experiences by enduring or reorganising the situations they encountered (bullying).

According to Bronfenbrenner (1979), the *Ecological Model of Human Development* can be viewed as a set of inserted components, each one situated within the next one as represented by Figure 6 on the next page. Of particular significance to the current study was Bronfenbrenner's statement that *'a learners' capability to learn how to read in the primary grades may depend no less on how the learners are taught than on the presence and nature of connections between the school and the home environments'* (Bronfenbrenner, 1979). Therefore, this study acknowledged that the learner was not a stand-alone entity, but rather saw the learner as the centre point around which the different environments surrounding the learner interacted upon.

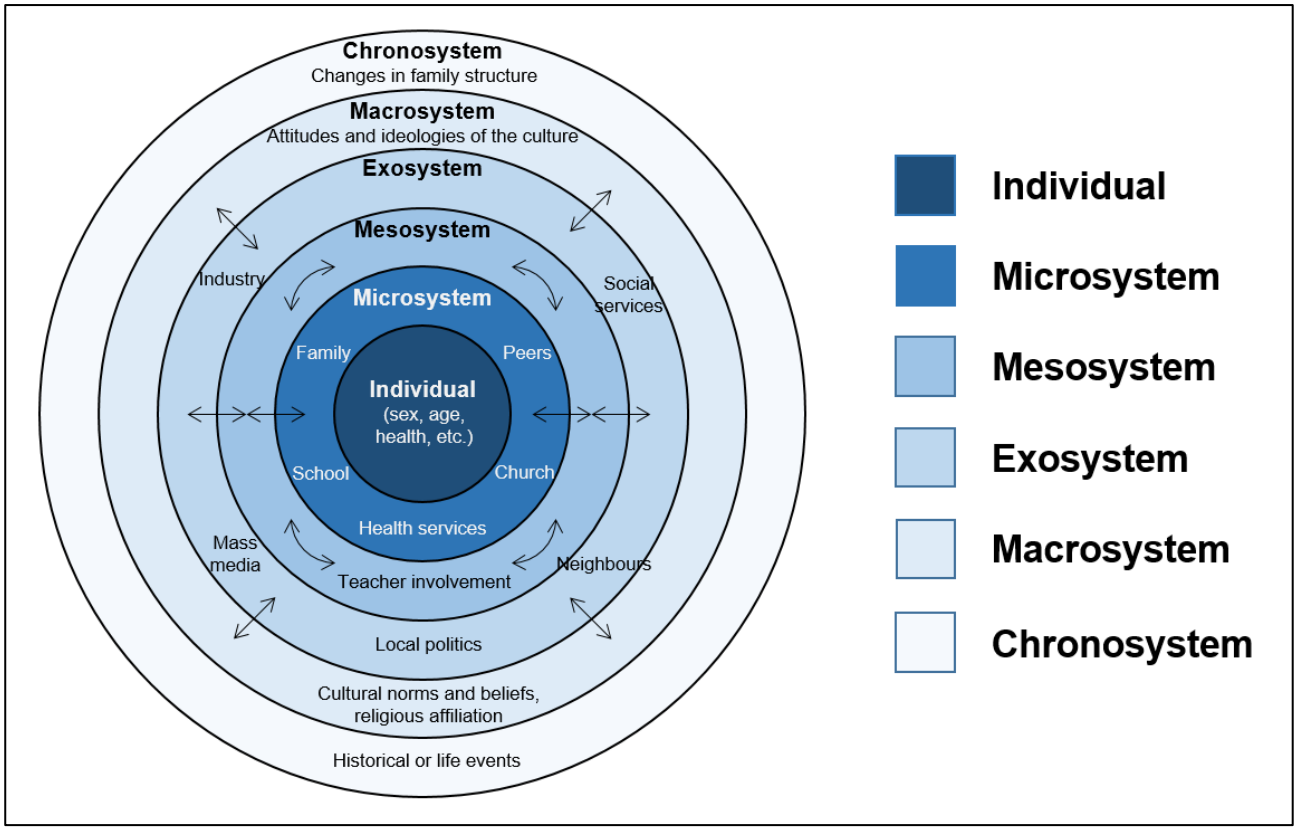


Figure 6: Graphical representation of Urie Bronfenbrenner's Ecological Model of Human Development according to Hong and Espelage (2012).

Swearer et al. (2010), elaborates by stating that the Ecological Model of Human Development offers a theoretical platform to examine the collective effect of societal settings and the effects on behavioural growth. Complex relationships among learners and their environments function to advance or constrain prosocial or antisocial behaviours. Therefore, complications do not exist within the learner or the context but instead are the consequences of constant, transactions amongst them (Swearer & Doll, 2001). The complexity of these interactions is visible in the diversity in many classrooms in South Africa, as most are multilingual and multicultural. Multilingual and multicultural classrooms are just two of the different social environments learners face daily in South Africa. The social environment in which a learner is actively situated poses several problems, from socio-economic standing (SES), religious beliefs, cultural views and bullying experiences. Bronfenbrenner (1979), cautions that in ecological research, the characteristics of every person and their environmental surroundings must be considered as interdependent and evaluated as such.

The mutual dependency and interaction are noticeably visible in bullying behaviour at school, which is seen as a multifaceted societal occurrence that is rooted in a range of structures, which can unintentionally strengthen and preserve bullying behaviour (Hong & Espelage, 2012; Pepler, Craig, Ziegler, & Charach, 1993). Lim and Hoot (2015) in agreement states that the social-

ecological framework is frequently applied to examine school violence and bullying as these concepts are influenced by numerous elements. When the ecological perspective is applied to bullying, it allows the study to incorporate the model of several facets at various levels. Bullying interaction occurs not only as a result of the personal traits of the victim or the bully but also as a result of problems experienced in interpersonal relationships in multiple environments (Lim & Hoot, 2015).

Furthermore, Rose et al. (2015) propose that bullying participation is rooted in relations between an individual, their family, fellow class mates, the school (including but not limited to the actual traits of the school grounds, behaviours of teachers and various other guardians), neighbourhood/community and societal factors. These relations affect the constancy or flexibility of partaking roles in bullying (Hong & Espelage, 2012; Lee, 2010; Rose et al., 2015; Swearer & Doll, 2001). A number of early and middle childhood experiences within the family, and school settings may predict whether a learner becomes a bully (Connell et al., 2015). Previous research by Connell et al. (2015) has linked bullying behaviours as ensuing from certain life events experienced by learners. These events range but are not limited to the birth of a sibling, failing a grade, or a perception of being unpopular with peers and being bullied by a sibling (Connell et al., 2015; Tanrikulu & Campbell, 2015). The research conducted by Connell et al. (2015) highlights the significance of understanding bullying behaviour as a part of a larger developmental process that may be illustrated by youth in general. Bullying participation can potentially indicate maladaptive behaviour to manage life stressors or changes highlighting the possible significance that reasonably insignificant experiences may have longer lasting outcomes.

In addition, internal facets in the person engage with the public surrounding, which serves to strengthen bullying and/or victimisation behaviour (Swearer & Doll, 2001). With the intention to formulate genuinely effective intervention programmes, it is imperative that the complicated ecological environment in which bullying and victimisation occur is understood. This understanding of the intricate, interconnected system levels that place the learner at the centre and progress out from the centre to the several networks that mould the learner is essential.

3.7.2. Levels of human development

These levels are known as the **individual, micro-, meso-, exo-, macro-, and chronosystems levels** (Bronfenbrenner, 1979, 1994; Hong & Espelage, 2012; Lee, 2010; Swearer & Doll, 2001). A short but concise description of each system is offered. According to Bronfenbrenner (1979), the **individual level** consists of the learner that is viewed as the centre of his/her world and is the developmental being which connects with his/her ecological surroundings. Subsequently, his/her behaviours are the consequences of interactions in addition to their personal characteristics (Lee,

2010). The **individual level** is of importance to the current study as this represents the Grade 4 boy learner. Therefore, it is at **the individual level** that reading literacy is acquired and bullying experienced by the learner.

The **microsystem** is the closest system to the individual and occurs in face-to-face settings where direct interaction takes place per example, at home, at day care centres, on playgrounds and at school (Krishnan, 2010). In other words, it is the relationships and interactions an individual has with their immediate surroundings. Most of the individual's behaviour is learned in the microsystem, and it consists of experiences, public roles, and personal relations by the individual in the surroundings mentioned in a pattern forming manner (Korb, 2015). These settings and activities have specific physical, communal, and figurative features. This allows or prevents engaging in continuous, gradually more multifaceted relations from the individual with the direct setting (Bronfenbrenner, 1979, 1994). The **microsystem** is the second system that the current study takes into consideration, as instances of bullying occur at school as the Grade 4 boy learners have direct contact with their peers.

According to Lee (2010) the **microsystem** consist of four different aspects of a learner's life: 1) experiences in the family setting, 2) experiences with teachers in the school settings, 3) experience with peers in the playground setting and 4) experiences within the school setting. Lee (2010) elaborates that it is inside the direct setting of the **microsystem** that proximal processes function to create and maintain development. It is within the **microsystem** that Tanrikulu and Campbell (2015) have found that bullying peers at school are significantly affiliated with sibling bullying perpetration. Peer bullies' probability of bullying a sibling is four times higher than learners who do not bully their peers. Sibling bullying appears to be an overlooked problem irrespective of its pervasiveness in households. Investigating the relationships of bullying perpetration between siblings may offer beneficial insight for bullying prevention, particularly for parents and guardians. Even though the majority of schools endeavour to prevent and interfere efficiently with learner-to-learner bullying, parents and guardians are not supplied with support in the prevention and intervention of sibling bullying (Tanrikulu & Campbell, 2015). Tanrikulu and Campbell (2015) found that positive sibling relationships have a valuable, preventative feature to protect against demanding life events such as accidents, family arguments, or illnesses but that negative sibling relationships, can be linked with inter as well as externalising problems for learners.

When an individual interacts with two or more of the microsystem settings at the same time the **mesosystem** forms (Krishnan, 2010). A **mesosystem** is created when the individual moves from or between new and existing microsystems. The most common **mesosystems** surrounding a learner include the following, the relations among home, school, and neighbourhood peer groups

(Bronfenbrenner, 1979, 1994). Simply put it is the connection between the individual's teachers and their parents, between their church and their neighbourhood (Korb, 2015). An example of the mesosystems influence, an individual may be withdrawn from their peers at school because they are not loved at home, or the quality of the individual's home environment might affect their school performance or confidence with peers.

Events that occur and that indirectly impact the operations inside the primary environment wherein the growing individual resides are known as the **exosystem** level. The **exosystem** level does not involve the developing person to be an active participant (Bronfenbrenner, 1979, 1994). The structures in this layer impact the individual's development by interacting with some structure in their microsystems (Krishnan, 2010). These events range from but are not limited to, the connection concerning the residence and the parent's place of work, the relation between a school classroom attended by an older sibling, the parents' community of peers, the events of the neighbourhood school committee and the community peer collective. This means that the individual is influenced either positively or negatively by actions or people that do not have an active role in the individual's life (Korb, 2015). For example, the mother's or father's work environment may affect their behaviour at home, and hence the quality of parental care. The child does not directly experience the parent's work environment, but he or she experiences the effects indirectly.

The **macrosystem** can be seen as the communal outline of any culture and incorporates the belief systems, ideological underlying, bodies of knowledge, material resources, customs, lifestyles, opportunity structures and life course options that are rooted in that culture *(Bronfenbrenner, 1979, 1994)*. Therefore, the individual is influenced by their cultural values, traditions, SES and laws. The effects of larger principles defined by the macrosystem have a cascading influence throughout the interactions of all other systems (Korb, 2015). For example, if it is the belief of the culture that parents should be solely responsible for raising their children, that culture is less likely to provide resources to help parents. This, in turn, affects the structures in which the parents function. The parents' ability or inability to carry out that responsibility toward their child within the context of the child's microsystem is likewise affected. Thus, the effects of parental stress at work, or unemployment, will be affected by such factors as working hours in that society, rates of pay, holiday and leave entitlement, occupational status, or the degree of social stigma attached to unemployment (Korb, 2015).

Bronfenbrenner (1994) describes the **chronosystem** level as the changes or consistencies an individual experience over a period. These changes or consistencies do not only occur in their characteristics but also in the environment in which they live. Examples of these include

unforeseen or planned changes in family structures, socio-economic status, employment status, place of residence and the pace of everyday living. In other words, an individual is influenced by growing older or shifts in their lifespan like the divorce of their parents or death of a close family member.

Lee (2010) argues that bullying is a component of the developmental endeavour of learners and as such a method requires comprehension of interpersonal settings. Ecological system theory allows for the inclusion of relevant factors, such as school landscapes (how governing policies shape the education system) and community traits. Furthermore, the theory observes school environments as complicated and multi-layered communal contexts in which learners interact and interconnect with one another.

The theoretical framework permitted parallel investigation of individuals as well as relevant situational effects. This theory offered the ideal stance for the current study, as the aim was to investigate if any statistical relationship existed between the low *overall reading literacy achievement scores* of the Grade 4 boy learners and whether they experienced being the victims of peer bullying. Bronfenbrenner's Ecological Model of Human Development was, therefore, the ideal framework to guide the study as bullying was already situated in the framework which in turn could be linked to the prePIRLS 2011 framework as Mullis et al. (2009) explained in the prePIRLS 2011 Assessment Framework. Mullis et al. (2009) sketch the contexts for learning to read as that *'beyond the direct home and school influences on children's reading are the broader environments in which children live and learn'.* For this reason, the prePIRLS 2011 study adopted a framework that considered the embedded structure of environments that acknowledged that the different environments including national, community, household and school surroundings had effects on the learning-to-read and reading-to-learn behaviours of learners. The current study focused on the individual and microsystem levels. The focus was narrowed to obtain a better understanding of the relationship between the microsystem (per example being bullied by peers) and the individual regarding reading literacy performance.

3.7.3. Critique including strengths and weaknesses

Literature does not provide much regarding critique of Bronfenbrenner's Ecological Model of Human Development. However, some strengths of the theory include but are not limited to the following: The theory integrates multiple influences that affect the child's development even when the child is not directly involved in the situation (Korb, 2015). This holds true for the current study as it investigates the relationship of bullying experiences on reading literacy development. The theory highlights the importance of individual differences in child development. These differences influence how a child who experiences barriers to learning is viewed and assisted (Taylor, 2016).

The theory provides a theoretical and research framework through which the influence of environment as a whole (holistic) can be factored into human development (Taylor, 2016). Therefore, the theory integrates multiple influences on child development and provides a holistic framework from which to understand child development. It is for this reason that it is ideally suited for the current study as being a victim of peer bullying is just one factor that influences child development as indicated earlier in this chapter.

According to Taylor (2016), a weakness associated with the theory is that an extensive scope of ecological and environmental detail is needed to build up a developmental account of an individual. This could potentially be a weakness for the current study as it relies solely on data gathered by the primary prePIRLS 2011 study. Another weakness is that it is difficult to achieve balance and hierarchy with collected information (Taylor, 2016). Furthermore, the model is difficult to implement since it postulates that all factors need to be considered regarding systems thinking, this means that even the smallest factor of influence needs to be understood as part of a multifaceted system of influence (Taylor, 2016). For the current study, the only factor that will be focused on is being a victim of bullying. A final weakness is that this theory can pinpoint the development stages of life and the different environments in which they are associated, but it does not provide reasons for behaviour or development (Korb, 2015). This links to the current study, in that it is investigating a possible relationship between being a victim of bullying and reading literacy achievement and not a causal effect.

3.8. Conclusion

The chapter reviewed previous research related to teaching reading and the factors influencing the acquisition of reading. The benefits of a having reading culture were mentioned and how to develop a reading culture and the role that motivation plays in developing a reading culture were discussed. The focus shifted from reading to bullying and the consequences of being a victim of bullying were note as well as the gender differences in bullying. An overview of the current state of affairs of bullying in South African schools ends the literature review before the theoretical framework is presented. Chapter 4 explores the research design and methodology of the current study. Attention is given to the epistemological paradigm, sample, data source and collection, data analysis including the descriptive and inferential statistical calculations and ethical considerations.

Chapter 4: Research design and methodology

4.1. Introduction

The chapter probes deeper into the research design and methodology of the current study and takes into consideration the epistemological paradigm. The research methodology is discussed in detail and looks at the sample (Grade 4 boy learners who participated in the prePIRLS 2011 study), as well as, the data source and collection processes with clarification between the different types of variables and scales used. The data analysis section includes an explanation of the percentages and means with and without plausible values, benchmarks calculations for achievement as well as correlations and regression calculations. Theoretical explanations were given to concepts of reliability, validity, inferential statistics, and the Pearson correlation to orientate readers that may not be familiar with these notions. The chapter ends with a discussion of the ethical consideration of the current study.

The purpose of the chapter was to elaborate on how the proposed problems stated in Chapter 1 were investigated. The key objective was to achieve consistency and thereby support the study's validity, replication and generalisation (Hofstee, 2006). The research paradigm, post-positivism was specified as it indicated the preconceived beliefs relating to the study (Babbie & Mounton, 2007). The research design gathered information from two streams. The first stream of information was the literature review based on previous literature that had been peer reviewed for increased validity. The literature described the current trends, mannerisms, and specifics of bullying and *overall reading literacy achievement scores*. The information obtained from the literature review was then used to support the second stream of information which was the empirical study in the form of a secondary data analysis of the prePIRLS 2011 Learner Questionnaire. The questionnaire was used as the primary source of information to identify the aspects that related to the current experiences of bullying in South African schools. The empirical section of the study included the use of descriptive statistical techniques with the intention of summarising the data in a meaningful way. The prePIRLS 2011 Learner Questionnaire itself was based on the Likert scale as it is relevant to the school environment (Babbie & Mounton, 2007).

4.2. Epistemological paradigm

The chosen epistemological paradigm of the study is post-positivism. This paradigm provided the lens through which the findings of the research were viewed and provided a frame of reference for acquiring and communicating the knowledge to others (Maree, 2012). Post-positivism was governed by the approach in which research investigated causes that most likely establish

relationships. Subsequently, problems examined by post-positivists mirror issues that needs to recognise and evaluate the possible relationships between variables as was the case in the current study (Creswell, 2013). The understanding that evolved from using a post-positivist view was grounded on mindful observation and measurement of the unbiased truth that was present in society. Therefore, creating numerical methods of observation and researching the behaviour of people become critical for post-positivist research (Creswell, 2013). Phillips and Burbules (2000) identified five key assumptions of the post-positivist paradigm.

The first assumption was that knowledge was speculative. Therefore, an absolute truth could never be found. Therefore, researchers and scientists expressed that they could not confirm a hypothesis, alternatively; they demonstrated an inability to contradict the hypothesis. Secondly, research was the undertaking of producing statements and subsequently refining or abandoning several of them for other statements more decisively justified. Thirdly, data, evidence, and logical factors shaped knowledge. The researcher gathered informative data on instruments according to measures fulfilled by the respondents or by observations documented by the researcher. A fourth assumption was that research intended to formulate appropriate, accurate declarations that could explain conditions of interest. The fifth and final assumption of post-positivism was that objectivity was a vital component of professional investigation; researchers were to inspect practices and findings for prejudice.

The technical disposition of the post-positivist method could be described in that the researchers formulated a hypothesis to be confirmed or rejected via utilisation of distinct research techniques. The selected techniques were employed mechanically to substantiate the hypothesis or theory. The utilisation of methodology entailed the selection of a sample, measurements, analysis and reaching conclusions about the hypotheses. To rephrase, research exclusively dealt with what could be observed or evaluated. From the viewpoint, research could be evaluated as an entity that was objective (Phillips & Burbules, 2000).

4.3. Research design

This research design set out to specify what research was to be done and in what way it was achieved. The correct collection and interpretation of data allowed for the correct conclusions to be drawn and thus answer the research objectives. To determine the possible relationship of bullying in South African schools on the Grade 4 boy learners *overall reading literacy achievement scores*, a secondary data analysis design was followed. This was done by collecting secondary data from the prePIRLS 2011 Learner Questionnaire, and the analysis of data through established, accurate and valuable statistical techniques.

According to Creswell (2013) and Field (2013), a quantitative study is a technique used for evaluating theories that are objective by investigating the association amongst variables through the measurement of variables that produce numeric outcomes. These variables can be evaluated, commonly on instruments, to ensure that numerical data can be examined utilising procedures that are statistical. Researchers have premises regarding evaluating concepts deductively, constructing defences against bias, controlling for substitute reasons and being able to generalise and reproduce the results.

This study took a quantitative, non-experimental design, in that the data used were originally gathered by the prePIRLS 2011 study in the form of a cross-sectional survey. Survey research produced a quantitative or numerical explanation of tendencies, mindsets, or viewpoints of a society by researching a sample of that population (Creswell, 2013).

Secondary data analysis (SDA) is the use of existing data by another researcher in a way that the primary researcher had not intended, simply put, it is the further analysis of information that has already been obtained (Singleton, 1988; D. W. Stewart & Kamins, 2011). SDA is useful in probing shifts in population characteristics, attitudes, and behaviour (Kiecolt & Nathan, 2011). Surveys are the most prominent of data gathering tool and have been employed to elicit information on a wide variety of topics from both general and specialised populations (Kiecolt & Nathan, 2011).

According to several researchers (Kiecolt & Nathan, 2011; Singleton, 1988; D. W. Stewart & Kamins, 2011), some of the most significant advantages to using SDA relates to time and cost. SDA tends to be far less costly and take far less time to organise (regarding putting the data together in working form for data analysis) relative to primary data sets (Vartanian, 2011). Furthermore, SDA requires fewer personnel and is therefore attractive in times of economic fluctuations, when the funds available for research are limited or uncertain (Kiecolt & Nathan, 2011). All three of these benefits aided the decision for the current study to take on the form of a SDA. Additionally, familiarity with existing databases also offers researchers the opportunity to build on what is available and conduct trend studies (Kiecolt & Nathan, 2011). SDA provides a useful starting point for additional research by suggesting problem formulations, research hypotheses, and research methods, thus, targeting real gaps and oversights in knowledge while circumventing data collection problems (D. W. Stewart & Kamins, 2011). Additionally, SDA covers a broad array of topics, and the quality of these data sets, from reputable organisations, is often high (Vartanian, 2011).

SDA also serve as a useful comparative tool in that it is a representative of some broader population and cover a broad range of topics. Many available data sets provide the benefits of nationally representative samples, standard items, and standard indices. New data may be

compared to existing data for purposes of examining differences or trends. The most important advantage of using SDA in the current study is that using existing data may allow for the prompt examination of current policy issues, as in this case policies relating to bullying and reading at South African schools. According to Vartanian (2011), existing data sets have been designed to capture policy-relevant outcomes (such as income, food security, or well-being), they have the potential to begin capturing policy effects as soon as policy shifts.

Some disadvantages or limitations to using SDA according to (Kiecolt & Nathan, 2011) are that some topics lend themselves more readily to SDA than others. Furthermore, Kiecolt and Nathan (2011) cautions that data quality must be taken into consideration as inadequate documentation sometimes occurs with data collection process (with specific reference to properly designed questionnaires, rigorous procedures for interviewing and coding that does not always exist). The beforementioned limitation did not play a role in the current study as the prePIRLS 2011 study took strenuous steps in ensuring the quality of the data gathered. Additionally, D. W. Stewart and Kamins (2011) and Vartanian (2011) cautions that data collected with a specific purpose in mind may produce other problems linked to category definitions, particular measures, treatment effects and the lack of control over the selection, framing and wording of survey items. This lack of control over items can influence item reusability within the secondary study and may mean that questions important to the secondary study are not included in the primary data set. As is the case with the current study, the prePIRLS 2011 survey focussed on broader conceptualisations, whereas, the current study was looking at more specific aspects relating to the concepts of bullying and reading literacy performance. A final limitation of SDA is that it is impossible to get additional or follow-up information from the participants of the primary study to test for understanding of concepts tested (Vartanian, 2011). It was not possible for the current study to test the respondents (Grade 4 boy learners) understanding of the questions relating to bullying.

The current study used data freely obtained from the IEA's Study Data Repository[2] website, all use of the data and references to the data were cited accordingly. The current study also made use of software freely available by the IEA. The software, IEA IDB Analyzer [sic] Version 3.1, had an end user license agreement[3] that was agreed upon to download and use the software. Table 5 on the next page represents the descriptive and inferential statistical analysis done on the data to answer the research questions.

[2] http://rms.iea-dpc.org/#

[3] http://www.iea.nl/eula.html

Table 5: Tabulated data analysis.

Research question	Method and software	Why chosen method	Expected results
What is the relationship of bullying with Grade 4 boy learners' *overall reading literacy achievement scores* when categorised for each of the individual prePIRLS 2011 benchmarks?	Multiple regression Using SPSS and the IEA IDB Analyzer [sic] plug-in	Compute regression coefficients for selected independent variables to predict a dependent variable by subgroups defined by grouping variable(s). Plausible values can be included as dependent or independent variables.	Compute percentages of learners meeting a set of user-specified achievement benchmarks, the prePIRLS 2011 International Benchmarks, by subgroups defined by grouping variable(s).
What is the correlation between *overall reading literacy achievement scores* and being a victim of bullying as measured by the *Learners Bullied at School Index*?	Pearson correlation Using SPSS	Compute means, standard deviations, and correlation coefficients for selected variables by subgroups defined by grouping variable(s).	To identify recurring patterns between independent and dependent variables.
What is the potential statistical relationship between the *overall reading literacy achievement scores* of Grade 4 boy learners and the degree to which they have experienced bullying as measured by prePIRLS 2011 looking at the *Learners Bullied at School Index* as well as the six independent bullying variables individually?	Multiple regression Using SPSS and the IEA IDB Analyzer [sic] plug-in.	Attempt to determine if any statistical relationship occurs between the independent and dependent variables by testing their categorical variables against each other.	That a statistical relationship exists between the independent and dependent variables.

4.4. Research methodology

4.4.1. Sample

The population of the current study refers to the collection of units to which this study wants to generalise several findings. The sample of the research was a smaller assortment of items from the population utilised to ascertain realities regarding that population (Field, 2013). For this study, the sample consisted of 8 196 Grade 4 boy learners who participated in the prePIRLS 2011 study. The focus of this study was an attempt to identify any possible statistical relationship between being a victim of bullying and *overall reading literacy achievement scores* for Grade 4 boy learners.

4.4.2. Data source and collection

The main reason for the empirical research design was that it could be used where sources of error could be controlled through statistical techniques. The data were easily controlled and were precise in nature. Control was achieved through the design techniques and a method used while precision was maintained due to the quantitative nature of data collected (Field, 2009). The approach facilitated a more rigorous outcome and firm basis to interpret the data of a quantitative nature which gathered information founded on intuition or opinion as with a questionnaire.

The study used data collected with the following six questions from the prePIRLS 2011 Learner Questionnaire.

- During this year, how often were you made fun of or called names at school?
- During this year, how often were you left out of games or activities by other learners at school?
- During this year, how often did someone spread lies about you at school?
- During this year, how often was something stolen from you at school?
- During this year, how often were you hit or hurt by other learner(s) at school?
- During this year, how often were you made to do things you didn't want to do by other learners at school?

These questions dealt with bullying behaviours experienced at school as measured by the prePIRLS 2011 Learner Questionnaire. The study used the *overall reading literacy achievement scores* of all Grade 4 boy learners that participated in South Africa. PrePIRLS 2011 also provided the current study with a User Guide for the International Database[4]. Throughout the duration of the

[4] http://timssandpirls.bc.edu/pirls2011/downloads/P11_UserGuide.pdf

study, the User Guide was used as a guideline on how the current study had to interact with the data to validate results.

Table 6 on the next page indicates the variable type of each of the questions. These questions focused on whether learners were experiencing bullying by their peers. *Overall reading literacy achievement scores* from the reading assessments were positioned on a typical reading achievement scale using item response theory. This theory offered a complete image of the assessment outcomes (Mullis et al., 2009). The benchmarks and *overall reading literacy achievement scores* were used in the descriptive statistics to test if *overall reading literacy achievement scores* by benchmark and the percentage bullying experienced per benchmark had any correlation.

The variable *Learners Bullied at School Index* is a contextual scale based on Rasch modelling. Each contextual scale variable is a Rasch score with an international mean of 10 and an international standard deviation of 2. The index was derived from each scale that divides the range of scores into usually three categories: the most desirable scores (high values), the least desirable scores (low values), and the remaining scores in between (Foy & Drucker, 2013b). Results on the Rasch scale are reported as an *"Average Scale Score",* and its corresponding index is reported as the percentages of learners in each category—**Often**, **Sometimes**, and **Never or Almost Never**—along with the average achievement in each category. Responses to the individual bullying items were combined to create a score, using Rasch scaling, which provided a more comprehensive picture of the contextual construct of bullying than the individual variables (*ASBG09A-F*) could be on their own (Foy & Drucker, 2013b). The questionnaire posed the question *"during this year, how often have variables individually happened to you at school?"* The time interval options learners could choose from included at least once a week, once or twice a month, a few times a year or never.

Table 6: Variable names, descriptions, and types.

Variable Name	Description	Variable type
ASBG01	*Are you a girl or a boy?*	Categorical variable
ASDGSBS	*Learners Bullied at School Index*	Independent variable
ASBG09A	During this year, how often were you made fun of or called names at school?	Independent variable
ASBG09B	During this year, how often were you left out of games or activities by other learners at school?	Independent variable
ASBG09C	During this year, how often did someone spread lies about you at school?	Independent variable
ASBG09D	During this year, how often was something stolen from you at school?	Independent variable
ASBG09E	During this year, how often were you hit or hurt by other learner(s) at school?	Independent variable
ASBG09F	During this year, how often were you made to do things you didn't want to do by other learners at school?	Independent variable
ASRREA01-05	1st to 5th Plausible value: Overall reading PV1	Dependent variable

The prePIRLS 2011 database supplied five individual estimates of every single learner's scores on an achievement scale. The five estimated scores were referred to as "plausible values," and the variance among the plausible values enveloped the doubt built-in in the scale appraisal process. The plausible values for any provided scale were the preferred obtainable measures of learner achievement on that scale in the prePIRLS 2011 study, and ought to be utilised as the end result measure in any research of learner literacy achievement (Foy & Drucker, 2013a). The learner literacy achievement scores in prePIRLS 2011 were presented by a set of five plausible values for overall reading (Foy & Drucker, 2013b). Whenever one or more set(s) of plausible values were stipulated within the analysis, the analysis was conducted utilising the first of the plausible values, thereafter, the second and so forth. The result was summarised over the plausible values.

The prePIRLS 2011 data made provision for incomplete source variables. Only learners who had valid responses for 2/3 of the source variables were included, if they did not meet the criteria, they were considered as missing from the derived variable (Foy & Drucker, 2013a). It is important to mention that for the current study no missing data were manually removed from the data analysis. The total sample size of Grade 4 boy learners that participated in the prePIRLS 2011 in the South African study was 8 170.

The current study did not control for any additional background variables. Additional background variables could have aided in making a more accurate prediction of the effect of bullying on reading

literacy scores. This presents a limitation of the current study to some extent, but the exclusion of background variables was not substantive to the hypotheses under investigation.

4.4.3. Data analysis

As previously mentioned descriptive and inferential statistical analysis were conducted on the data to answer the three research questions that guided the study. The main software package used for the analysis was IBM's (International Business Machines Corporation) Statistical Package for the Social Sciences (SPSS). The IEA Data Processing and Research Center [sic] (IEA DPC) developed a plug-in for SPSS, called the IEA IDB Analyzer [sic], to enable users to perform analyses utilising SPSS while not coding (Foy & Drucker, 2013b). The IEA IDB Analyzer [sic] software was freely available on the IEA's website and was used exclusively in compliance with the terms associated with the licensing arrangement. The IDB Analyzer was specifically created to integrate and analyse data from the sizeable scale data sets like those created for PIRLS and prePIRLS (IEA, 2013). The IDB Analyzer was the preferred plug-in to use when analysing the prePIRLS 2011 data as it created SPSS syntax which considered information coming from the sampling design in the calculation of the sampling variation and to manage the utilisation of plausible values. The subsequent code could be employed to calculate forecasts of achievement and their related standard errors, integrating sampling and imputation variance. The code formulated by the IDB Analyzer permits the current study to calculate descriptive statistics and carry out hypothesis testing that was statistical between groups in the population without the need to write any code.

The Analysis Module of the IDB Analyzer was used to conduct the following calculations on the South African prePIRLS 2011 data set as explained by Foy and Drucker (2013b) and the IEA (2013):

- Percentages and means with and without plausible values. The calculation computed the percentages, means, and standard deviations for selected variables.

- Benchmarks: The benchmark calculation computed the percentage of the learners meeting a set of user-specified achievement benchmarks. This was done to answer the first research question of, *what is the relationship of bullying with Grade 4 boy learners' overall reading literacy achievement scores when categorised for each of the individual prePIRLS 2011 benchmarks?*

- The correlations with plausible values calculation computed means, standard deviations, and correlation coefficients for the selected variables. The correlation analysis was done to answer

the research question, *what is the correlation between overall reading literacy achievement scores and being a victim of bullying as measured by the Learners Bullied at School Index?*

- The regression with plausible values calculation calculated the regression coefficients for the selected independent variables to predict the dependent variable. The third research question made use of the regression calculation to answer, *what is the potential statistical relationship between the overall reading literacy achievement scores of Grade 4 boy learners and the degree to which they have experienced bullying as measured by prePIRLS 2011 looking at the Learners Bullied at School Index as well as the six independent bullying variables individually?*

4.4.4. Reliability

According to Creswell (2013) and Field (2013) reliability is the capability of the measure to generate identical results in unchanging circumstances. Thus, it is the extent to which an instrument consistently, over time reflects the construct that it is measuring. For validity, the instruments must first be reliable. In the study, internal reliability of the instrument items was established using Cronbach's alpha coefficient to test for inter-item correlation (Maree, 2007). Cronbach's alpha (α) coefficient was used to test for inter-item correlation using SPSS as the selected items were on a Likert scale questions from a questionnaire. Cronbach's alpha was calculated by dividing the data in two, in every single available manner and processing the correlation coefficient for every divide. The mean score of all the values was equal to Cronbach's alpha, which was the preferred measure of scale reliability (Field, 2005). Maree (2007) stated that an alpha coefficient close to 1 indicated that the items had a strong correlation with one another, in other words, their internal consistency was high. Alternatively, an alpha coefficient close to 0 indicated that there was no strong correlation present between the items. A value of 0.7-0.8 was a satisfactory value for Cronbach's alpha, values considerably less, signified an unreliable scale.

4.4.5. Validity

Validity and reliability were used to confirm that the measurement error was minimal. Validity pertained to whether or not an instrument measured what it was developed to measure (Creswell, 2013; Field, 2013). A self-report measure/questionnaires examined the level to which separate items embody the construct that was measured. Content validity is the evidence that the content of a test matched the content of the construct it was developed to cover (Field, 2013).

4.4.6. Inferential statistics

To answer the research question, *what is the potential statistical relationship between the overall reading literacy achievement scores of Grade 4 boy learners and the degree to which they have experienced bullying as measured by prePIRLS 2011 looking at the Learners Bullied at School Index as well as the six independent bullying variables individually.* The data were analysed using multiple regression. The multiple regression analysis allowed the study to relatively predict categorical outcomes (*overall reading literacy achievement scores*) based on the predictor variables (bullying variables) in an attempt to learn more about the possible relationship between the variables (Creswell, 2013; Field, 2009). Each of the independent variables was the original questions from the Learner Questionnaire:

- During this year, how often were you made fun of or called names at school?
- During this year, how often were you left out of games or activities by other learners at school?
- During this year, how often did someone spread lies about you at school?
- During this year, how often was something stolen from you at school?
- During this year, how often were you hit or hurt by other learner(s) at school?
- During this year, how often were you made to do things you didn't want to do by other learners at school?

The *Learners Bullied at School Index* was analysed individually against the *overall reading literacy achievement scores* of Grade 4 boy learners to test for any statistical relationship between the variables. It was important to mention that the study did not attempt to prove any causality between the *overall reading literacy achievement scores* and *Learners Bullied at School Index* variables but only that a statistical relationship was present.

4.4.7. Pearson correlation

The second research question in the current study investigated the correlation coefficient, which was a calculation of the strength of the association amongst two variables (Field, 2013). The Pearson correlation coefficient was used to measure the magnitude and direction of the relationship/association between being a victim of bullying behaviour from peers and *overall reading literacy achievement scores* as measured on an interval scale (Creswell, 2013). The Pearson's coefficient necessitated parametric data since it was formulated on the standard deviation from the average. As such a one-tailed test was used to test the specific direction of the hypothesis (in that at higher levels of bullying, *overall reading literacy achievement scores* would be poor. Thus only predicting that the relationship in a direction) being tested to answer the secondary research question namely, '*What is the correlation between overall reading literacy*

achievement scores and being a victim of bullying as measured by the Learners Bullied at School Index?' Figure 7 on the next page visually represents the expected direction of the relationship of the correlation that the bullying variables had with the *overall reading literacy achievement scores*.

Within the social sciences, a probability value below 0.05 was considered as statistically significant, and so any probability value below 0.05 was considered as indicative of a relationship between variables. It was of the utmost importance, that when interpreting correlation coefficients, no causality was indicated, as correlation coefficients express no information regarding which variable caused a change in the other, but only indicated the relationship that one variable had on another (Field, 2000). For this study, it could be concluded that *overall reading literacy achievement scores* performance was associated with increased incidences of bullying as bullying increases, but that it could not be assumed that high levels of bullying caused lower *overall reading literacy achievement scores*.

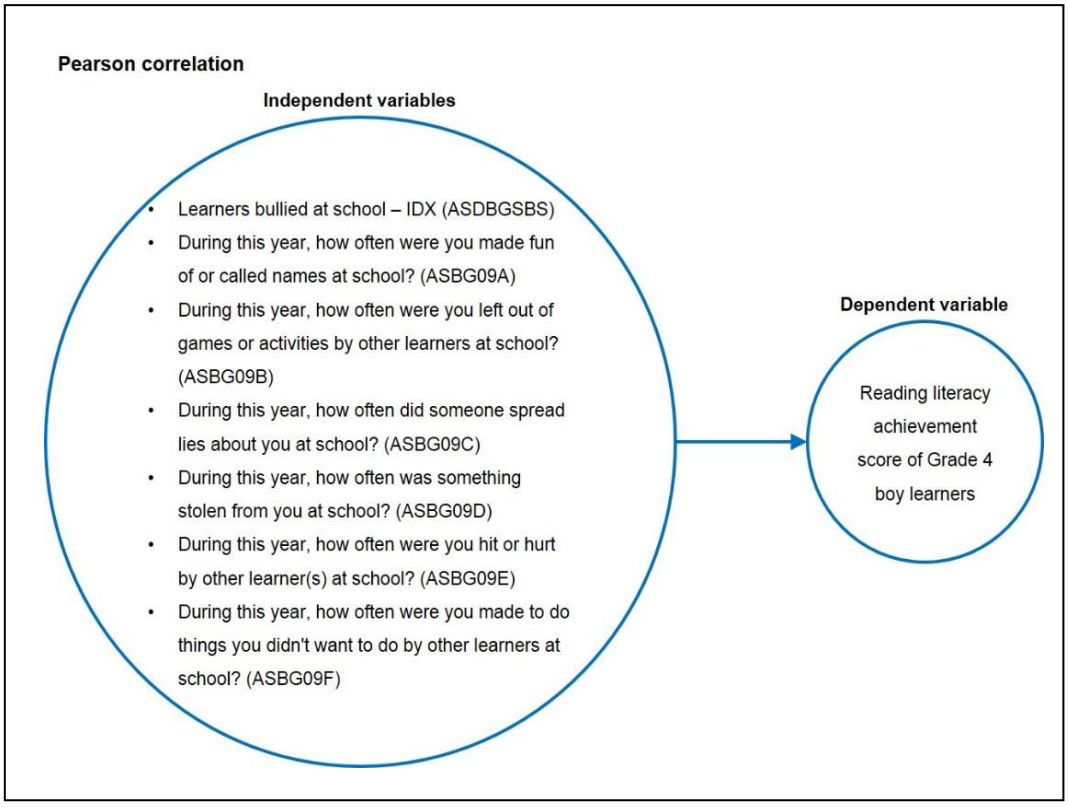


Figure 7: Pearson Correlation

According to Creswell (2013), an effect size specified the strength of the relationships amongst variables in quantitative studies. Field (2013) added that the effect size of 'r' is limited to exist between -1 and 1. The symbol of 'r' provided information concerning the direction between the relationship of the two variables. Furthermore, an effect size close to -1 indicated a perfect negative effect, an effect size close to 0 indicated no effect and an effect size close to 1 indicated a

perfect positive effect. The size of the effect of r was as follow: r = +/- 0.30 weak effect, r = +/- 0.50 moderate effect or r = +/- 0.70 strong effect. Consequently, two variables that were completely positively correlated specified that as one variable rose, the other rose by a proportional amount. On the other hand, a coefficient of -1 implied a complete negative relationship or association that implied that as one variable elevates. The alternative variable reduced by a corresponding portion and ultimately a coefficient of zero suggested no linear relationship, subsequently, if one variable adjusted, the other remained unchanged (Field, 2013).

4.4.8. Multiple regression

A standard regression method was used in the formulation of the regression model. In other words, the current study did not choose the order in which the independent variables were entered into the model (Field, 2009). Regression coefficients could have two possible outcomes, a minus (-) sign in front of the regression coefficient signified a negative relationship, while the lack of a sign indicated a positive relationship. With multiple regression, more than one independent variable can be incorporated into the equation (Lewis-Beck, 2011), as is the case with the current study that enters six independent bullying variables. Entering multiple independent variables offers a fuller explanation of the dependent variable since few phenomena are products of a single cause (in this case a single instance of bullying experienced). Another reason for choosing multiple regression according to Stolzenberg (2011) is that convenient, low-cost computer programs (like SPSS) are widely available for calculating regression analyses. These programs and inexpensive computers (like laptops) allow university students and researchers to calculate complicated regression analyses easily, quickly, accurately, and inexpensively. The accessibility to SPSS enhanced the motivation for the current study to do a multiple regression Furthermore, multiple regression analysis is often used to test hypotheses about the existence and estimate strength of relationships between variables (Stolzenberg, 2011), as was the case in the current study.

4.4.9. Inferential assumptions

According to Field (2013), some key assumptions include: 1) A linear relationship between the dependent variable and the independent variables. In other words, related pairs refer to the pairs of variables. Each participant or observation should have a pair of values. So, if the correlation was between bullying and reading literacy, then each observation used should have both a bullying and a reading literacy value. 2) Multivariate normality assumes that the variables are normally distributed. 3) No multicollinearity assumes that the independent variables are not highly correlated with each other. 4) Homoscedasticity assumes that the variance of the residuals should be the same at each level of the independent variables.

4.4.10. Ethical considerations

Research ethics aided in the decision to do what was morally right in the research situation (Field, 2009). When making reference to research ethics, a moral stance was required to take care of the consenting participants and protect them from any potential harm caused by the study (Meyers, 2009).

With regards to the participants in this study, ethical clearance was obtained institutionally following five ethical considerations that were addressed as stipulated by the Faculty of Education's Ethics Committee: (1) voluntary participation, (2) informed consent, (3) safety in participation, (4) privacy and (5) trust.

Since the data were collected from the participants by the prePIRLS 2011 study, no direct interaction between the current study and the participants was required for the study. Voluntary participation and informed consent were adhered to by the prePIRLS 2011 study when data collection originally took place in 2011. Additionally, this study ensured complete safety in participation, privacy, trust and anonymity of the participants as no direct contact between the current study and the participants took place, and the large sample size (8 196 Grade 4 boy learners) also added to the anonymity.

4.5. Conclusion

In the chapter, more details were given regarding the research design and methodology of the current study. The different components of the research design were discussed and elaborated on, including sampling, data sourcing and data analysis (descriptive and inferential statistics). The justification was provided for the Pearson correlation and multiple regression analyses. The ethical considerations and limitations of the study were also addressed as well as the reliability and validity of the possible findings. In Chapter 5 the results of the current analysis are presented. Both descriptive and inferential data analysis results are presented as well as the model statistics.

Chapter 5: Results and discussion

5.1. Introduction

The current study aims to determine the possible relationship of bullying with Grade 4 boy learners *overall reading literacy achievement scores* in South Africa. This study uses bullying (as an embedded structure within Bronfenbrenner's Ecological Model of Human Development) as a predictor of learner *overall reading literacy achievement scores*. For this study, bullying variables are drawn from items in the prePIRLS 2011 South African data, with selected items from the Learner Questionnaires as predictors of Grade 4 boy learners *overall reading literacy achievement scores*. According to Field (2009), Multiple Regression Analysis is used to predict an outcome variable (Grade 4 boy learners *overall reading literacy achievement scores*) from either one or more predictor variables (being a victim of bullying behaviour by peers as identified for the study). Multiple regression analysis is conducted to answer the study's main research question: What is the potential statistical relationship between the *overall reading literacy achievement scores* of Grade 4 boy learners and the degree to which they have experienced bullying as measured by prePIRLS 2011?

The following section presented the results of the study's research questions. Section 5.3 presented the results of the percentages and means calculated using plausible values. Section 5.4 presented the results of the second research question with regards to the possible relationship of bullying on Grade 4 boy learners *overall reading literacy achievement scores* when categorised per the prePIRLS 2011 benchmarks. The third research question reported the correlation between *overall reading literacy achievement scores* and being a victim of bullying was discussed in Section 5.5. The main research question was addressed in Section 5.6 taking a closer look at the potential statistical relationship between the *overall reading literacy achievement scores* of Grade 4 boy learners and the degree to which they had experienced bullying as measured by prePIRLS 2011. Section 5.7 and 5.8 were discussions and interpretations of the results ending with a short conclusion to summarise the main findings. A recap of the main research questions that guide this study.

- What is the relationship of bullying with Grade 4 boy learners' *overall reading literacy achievement scores* when categorised for each of the individual prePIRLS 2011 benchmarks?
- What is the correlation between *overall reading literacy achievement scores* and being a victim of bullying as measured by the *Learners Bullied at School Index*?
- What is the potential statistical relationship between the *overall reading literacy achievement scores* of Grade 4 boy learners and the degree to which they have experienced bullying as

measured by prePIRLS 2011 looking at the *Learners Bullied at School Index* as well as the six independent bullying variables individually?

5.2. Reliability results

Reliability analysis was applied to each variable in the current model. Table 7 indicates the overall reliability coefficient for the combined bullying variables (ASBG09A-F) which was .733 (SE = .732). This score is well within the acceptable range of .7 to .8 and showed a strong confidence level of reliability.

Table 7: Reliability Statistics.

Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	Number of Items
.733	.732	6

5.3. Descriptive statistics

5.3.1. Percentages and means calculated using plausible values

Figure 8 visually represents the percentage of Grade 4 boy learners who experienced being the victims of bully behaviour from other learners once a week (57%) (SE = 1.4), once or twice a month (27%) (SE = 0.8) or a few times a year (16%) (SE = 1). More than half of the Grade 4 boy learners reported experiencing being bullied at school about weekly. Less than one-fifth of Grade 4 boy learners reported being bullied almost never, and about a third of Grade 4 boy learners reported being bullied once or twice a month. From these statistics, it was evident that bullying behaviour was a serious predicament being faced by almost 84% of all Grade 4 boy learners with the average being only 16% of Grade 4 boy learners that reported experiencing no bullying behaviour ever.

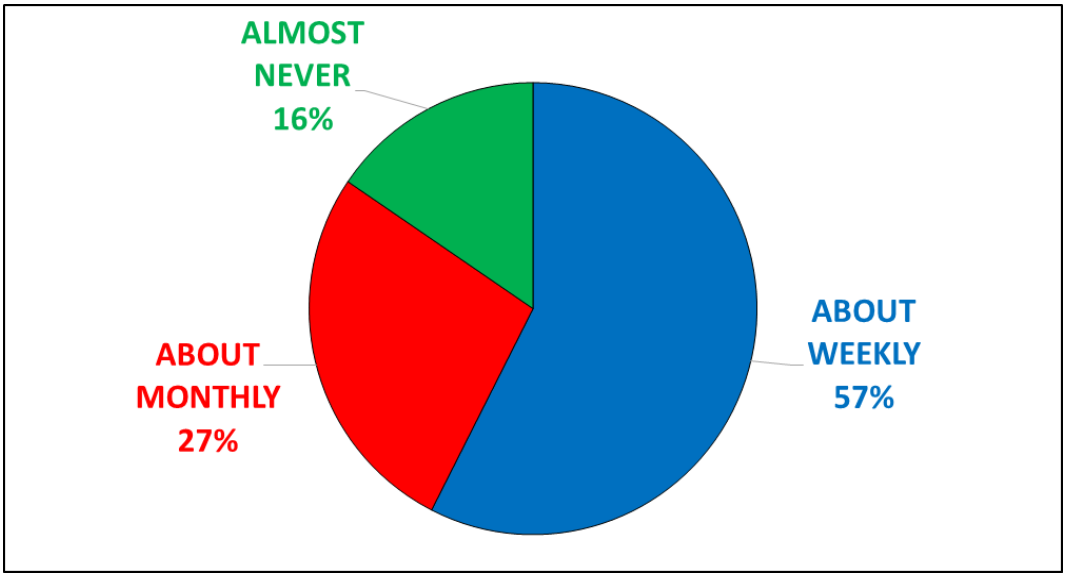


Figure 8: Overall percentage of Grade 4 boy learners bullied at school per time interval.

Differences in the mean scores were visible between the three different time intervals. The jump between weekly and monthly was a 33.81 points increase. The jump between about monthly and almost never was a 28.75 points increase. Thus, a difference of 62.56 points was visible between weekly and almost never. From the difference between weekly and almost never it was clear that the Grade 4 boy learners who experienced instances of bullying on a weekly basis achieved lower *overall reading literacy achievement scores* in comparison to Grade 4 boy learners who almost never experienced bullying and who achieved the highest *overall reading literacy achievement scores*. Figure 9 visually represents the mean scores of Grade 4 boy learners who experienced being the victims of bully behaviour from other learners once a week (435.30) (SE = 3.7), once or twice a month (469.11) (SE = 6) or a few times a year (497.86) (SE = 9.2). The vertical axis represents the mean scores of the Grade 4 boy learners and the horizontal axis represents the time interval of occurrences experienced.

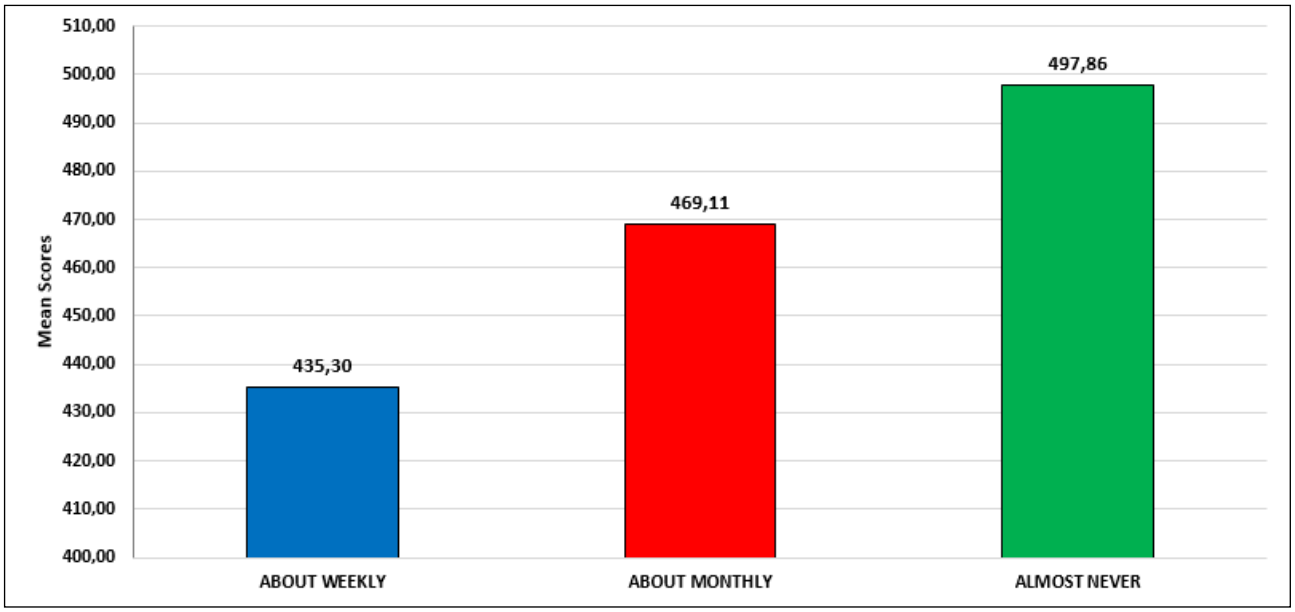
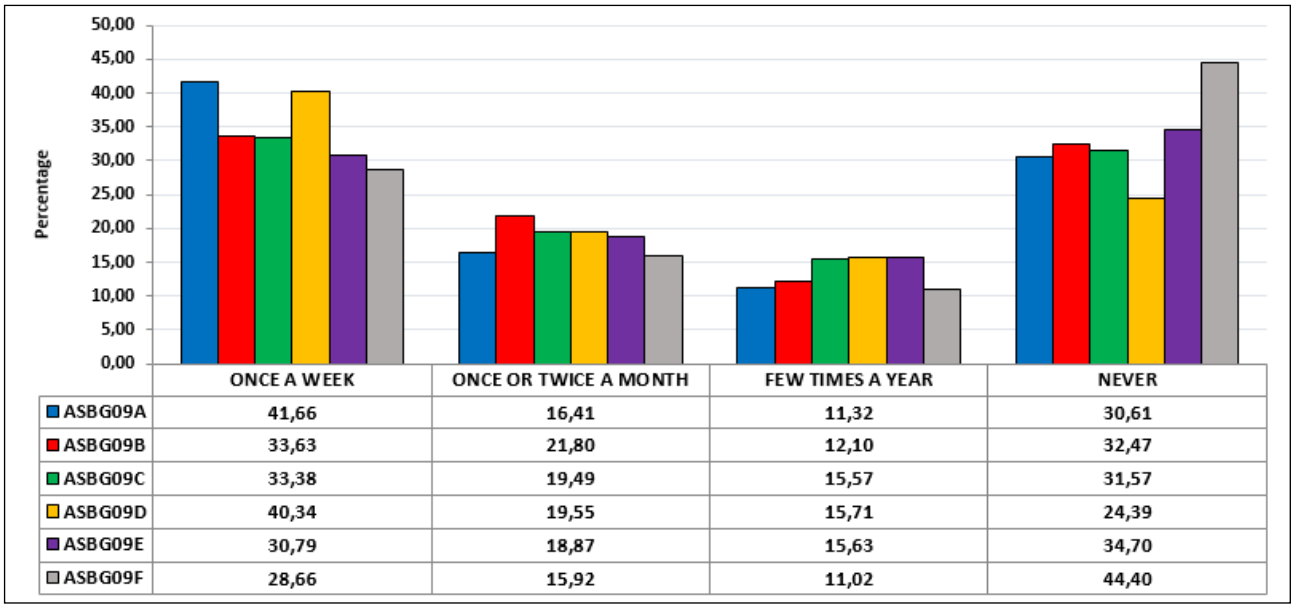


Figure 9: Overall mean scores of Grade 4 boy learners bullied at school per time interval.

The percentage of Grade 4 boy learners per predictor variable who experienced being the victims of bully behaviour from other learners once a week, once or twice a month, a few times a year or never are presented in Figure 10. When interpreting Figure 10 on the next page, the percentages reflected the number of learners that had a negative encounter with bullying behaviour. For the time interval, never, positive responses to the questions were given, meaning they had not encountered bullying behaviour. The number of cases was converted to percentages for ease of comparison. Figure 10 on the next page indicated that Grade 4 boy learners either experienced bullying behaviour, which included all six of the bullying variables either once a week or never. Furthermore, the two most common acts of bullying experienced by learners at least once a week were: 'I was made fun of or called names' at 41.66% (SE = 2.73) and 'something was stolen from me' at 40.34% (SE = 2.65). Once or twice a month 21.80% (SE = 4.58) of Grade 4 boy learners experienced that they were left out of games or activities by other learners. Learners who almost never experience bullying reported something was stolen from them as the most common bullying behaviour experienced by them at 24.39% (SE = 5.49). The same group account that they almost never had negative experiences with being made to do things they did not want to do by other learners at 44.40% (SE = 3.68).

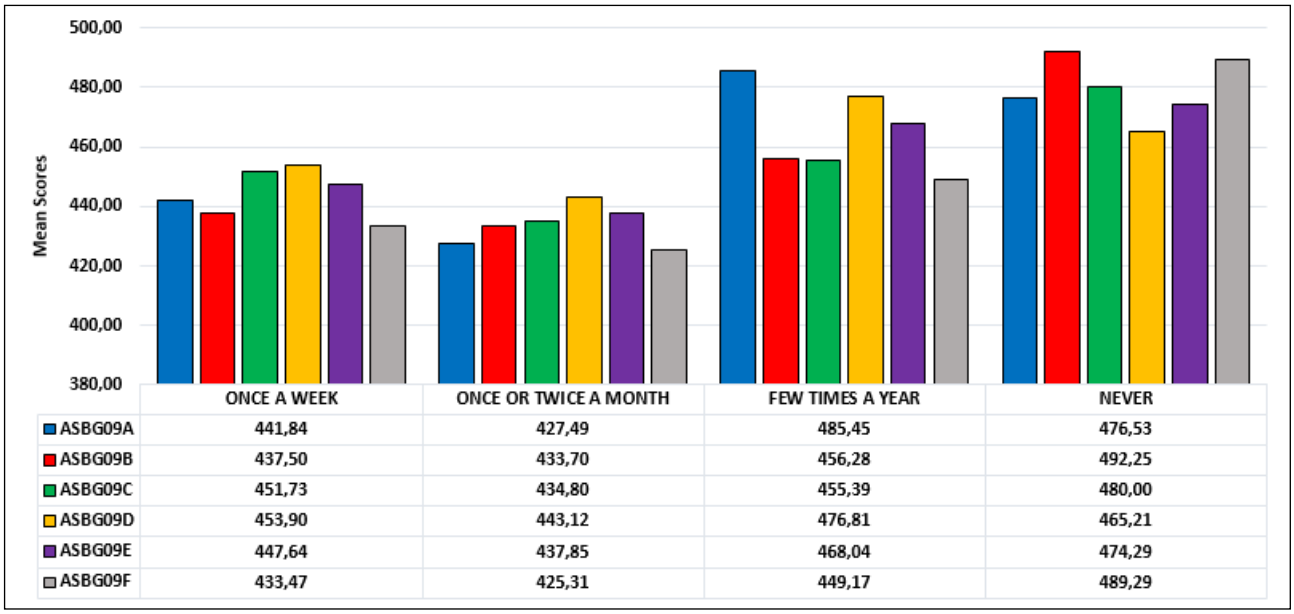


	ONCE A WEEK	ONCE OR TWICE A MONTH	FEW TIMES A YEAR	NEVER
ASBG09A	41,66	16,41	11,32	30,61
ASBG09B	33,63	21,80	12,10	32,47
ASBG09C	33,38	19,49	15,57	31,57
ASBG09D	40,34	19,55	15,71	24,39
ASBG09E	30,79	18,87	15,63	34,70
ASBG09F	28,66	15,92	11,02	44,40

Figure 10: Percentage of learners per predictor variable per time interval who experience being the victims of bully behaviour.

- *ASBG09A - During this year, how often were you made fun of or called names at school?*
- *ASBG09B - During this year, how often were you left out of games or activities by other learners at school?*
- *ASBG09C - During this year, how often did someone spread lies about you at school?*
- *ASBG09D - During this year, how often was something stolen from you at school?*
- *ASBG09E - During this year, how often were you hit or hurt by other learner(s) at school?*
- *ASBG09F - During this year, how often were you made to do things you didn't want to do by other learners at school?*

The mean scores of Grade 4 boy learners per predictor variable (who experienced being the victims of bullying behaviour from other learners *once a week, once or twice a month, a few times a year or never*) are presented in Figure 11 on the next page. Figure 11 illustrates that Grade 4 boy learners who reported no bullying behaviour had higher mean scores when compared to Grade 4 boy learners who reported being the victim of bullying behaviour once a week. The Grade 4 boy learners who only reported being a victim of bullying behaviour once or twice a month scored lower than Grade 4 boy learners were bullied weekly.



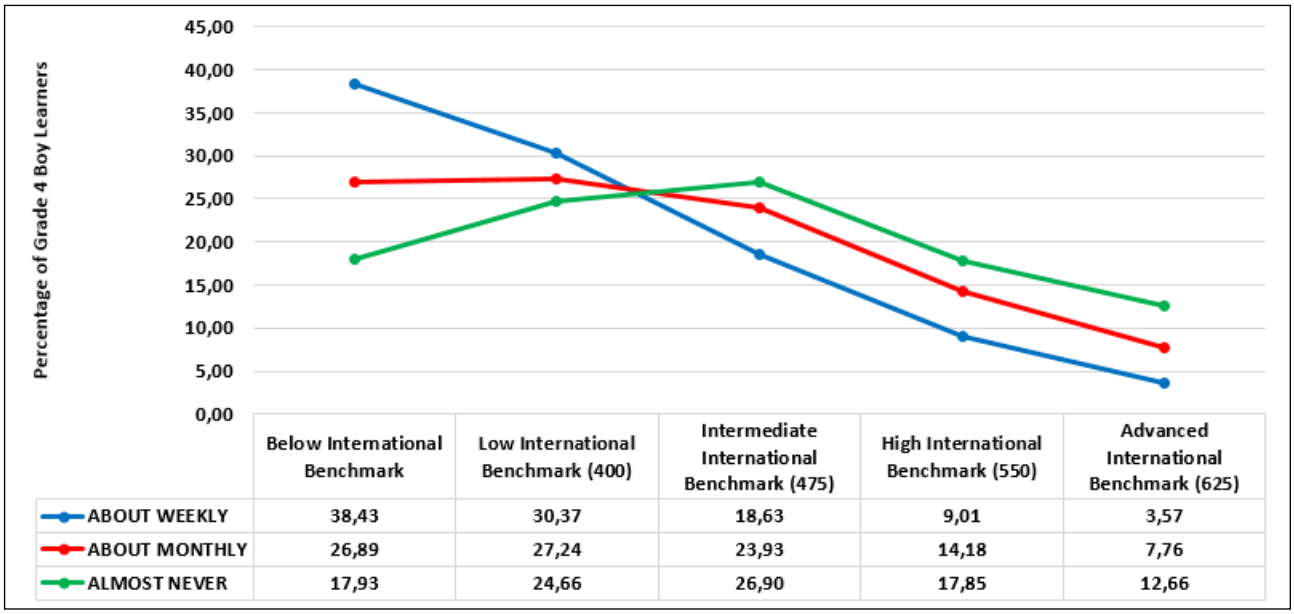
	ONCE A WEEK	ONCE OR TWICE A MONTH	FEW TIMES A YEAR	NEVER
ASBG09A	441,84	427,49	485,45	476,53
ASBG09B	437,50	433,70	456,28	492,25
ASBG09C	451,73	434,80	455,39	480,00
ASBG09D	453,90	443,12	476,81	465,21
ASBG09E	447,64	437,85	468,04	474,29
ASBG09F	433,47	425,31	449,17	489,29

Figure 11: Mean scores per predictor variable per time interval.

- *ASBG09A - During this year, how often were you made fun of or called names at school?*
- *ASBG09B - During this year, how often were you left out of games or activities by other learners at school?*
- *ASBG09C - During this year, how often did someone spread lies about you at school?*
- *ASBG09D - During this year, how often was something stolen from you at school?*
- *ASBG09E - During this year, how often were you hit or hurt by other learner(s) at school?*
- *ASBG09F - During this year, how often were you made to do things you didn't want to do by other learners at school?*

5.3.2. Benchmarks with plausible values used

Figure 12 on the next page signifies the percentage of Grade 4 boy learners per benchmark interval who experienced being bullied according to the *Learners Bullied at School Index* about weekly, about monthly, and almost never. At below the *Low International Benchmark (400),* the highest number of learners 38.43% (SE = 1.7) experienced being bullied about weekly. At the same benchmark (below the *Low International Benchmark (400))*, the lowest percentage 17.93% (SE = 3.34) almost never experienced being the victim of bullying. At the opposite end of the chart, at the *Advanced International Benchmark (625)* the highest percentage 12.66% (SE = 2.86) learners almost never experienced bullying and that the lowest number of Grade 4 boy learners 3.57% (SE = 0.61) experienced bullying weekly. Thus, from Figure 12 the more regular the experiences of bullying, the lower the *overall reading literacy achievement scores* of Grade 4 boy learners. At the opposite end, that the less frequent the occurrences of bullying experienced, the higher the *overall reading literacy achievement scores* could be expected.



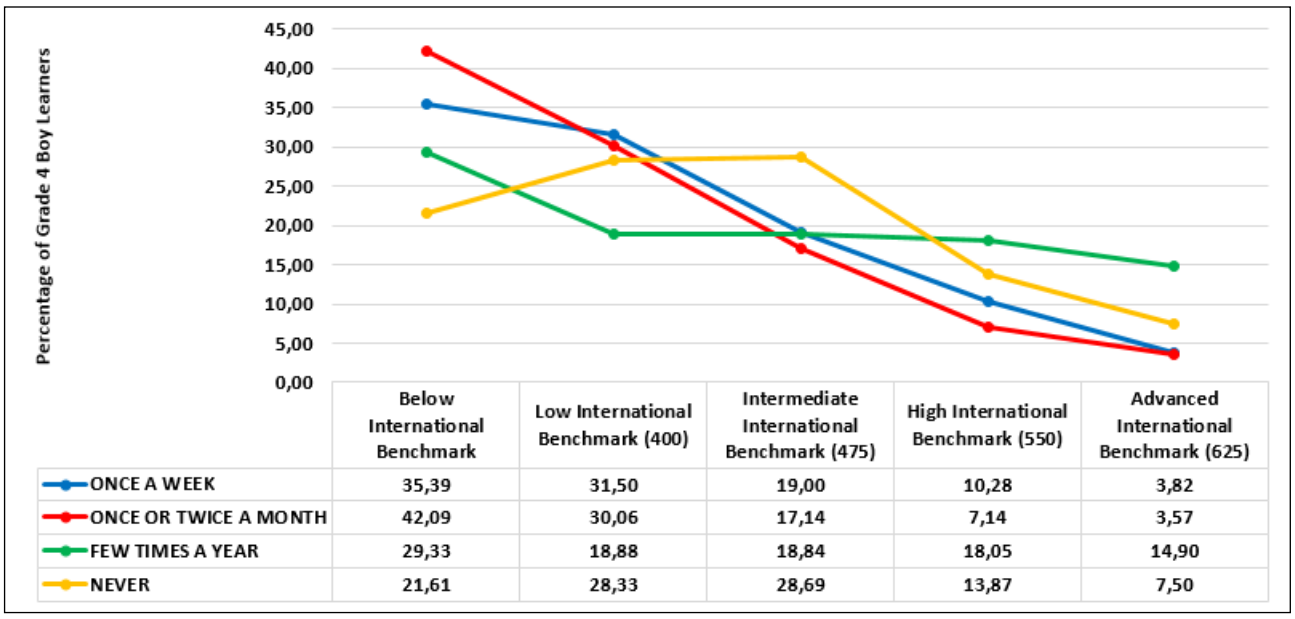
	Below International Benchmark	Low International Benchmark (400)	Intermediate International Benchmark (475)	High International Benchmark (550)	Advanced International Benchmark (625)
ABOUT WEEKLY	38,43	30,37	18,63	9,01	3,57
ABOUT MONTHLY	26,89	27,24	23,93	14,18	7,76
ALMOST NEVER	17,93	24,66	26,90	17,85	12,66

Figure 12: Percentage of Grade 4 boy learners bullied at school per benchmark interval according to the Learners Bullied at School Index.

Figures 13 to 18 on the next pages represent the breakdown of the six independent variables individually regarding the percentage of Grade 4 boy learners who experienced the variable within the four time intervals over the five benchmarks. For all six of the variables, the time intervals once a week, once or twice a month and a few times a year followed the same pattern. The highest percentage of Grade 4 boy learners achieved below the *Low International Benchmark (400)* and it then gradually declined to the *Advanced International Benchmark (625)* with the lowest percentage of Grade 4 boy learners achieving the benchmark. Also, visible for all six the variables were that the highest percentage of learners at the *Advanced International Benchmark (625)* either experienced the variable a few times a year or never. At the same benchmark (*Advanced International Benchmark (625))*, learners who experienced the variables once a week or once or twice a month were tied at the bottom with the least number of learners reaching the benchmark.

The percentage of Grade 4 boy learners per benchmark interval who experienced, *during this year, how often were you made fun of or called names at school,* once a week, once or twice a month, a few times a year or never was presented in Figure 13 on the next page. Grade 4 boy learners who experienced being made fun of or called names once or twice a month was the most with 42.09% of Grade 4 boy learners at below the *Low International Benchmark (400)* and the least number of Grade 4 boy learners achieved at the *Advanced International Benchmark (625)* with only 3.57%. At the *Advanced International Benchmark (625)*, the most learners (14.90%) fell within the few times a year time interval, and not in the never interval. The once a week, once or twice a month and a few times a year intervals gradually decreased from below the *Low International Benchmark (400)* to the *Advanced International Benchmark (625)*. However, the *never* group had an increase from

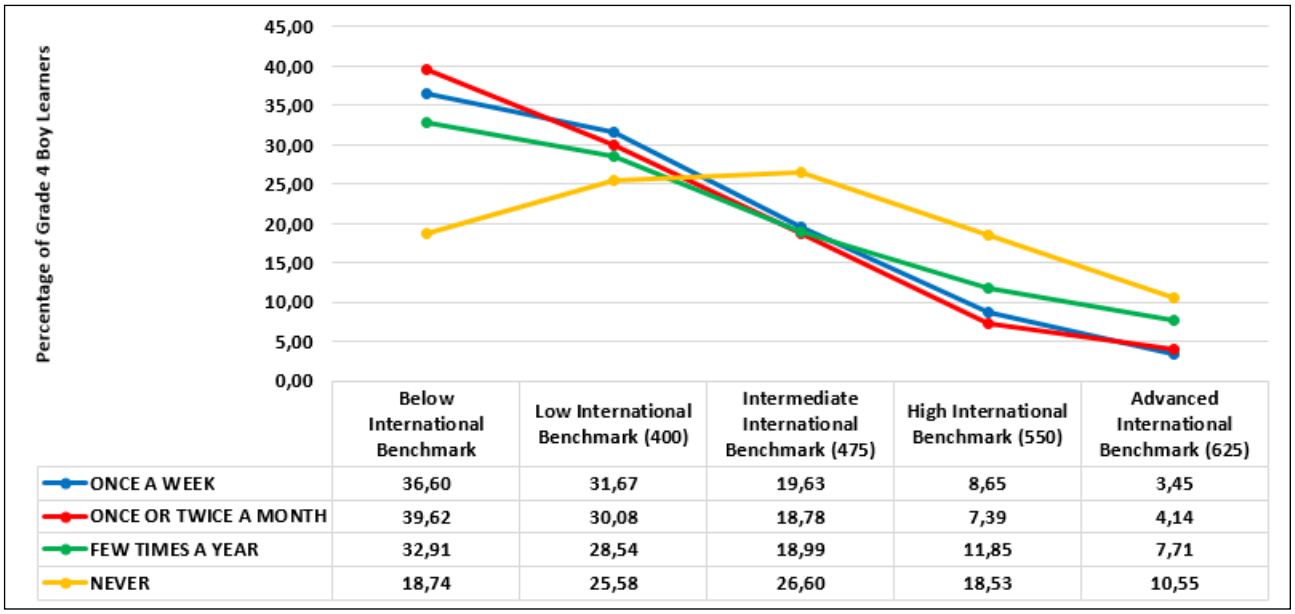
the *Below International Benchmark (<400)* to *Intermediate International Benchmark (475)* with a strong decrease from there to the *Advanced International Benchmark (625)*.



	Below International Benchmark	Low International Benchmark (400)	Intermediate International Benchmark (475)	High International Benchmark (550)	Advanced International Benchmark (625)
ONCE A WEEK	35,39	31,50	19,00	10,28	3,82
ONCE OR TWICE A MONTH	42,09	30,06	17,14	7,14	3,57
FEW TIMES A YEAR	29,33	18,88	18,84	18,05	14,90
NEVER	21,61	28,33	28,69	13,87	7,50

Figure 13: Percentage of Grade 4 boy learners that were made fun of or called names.

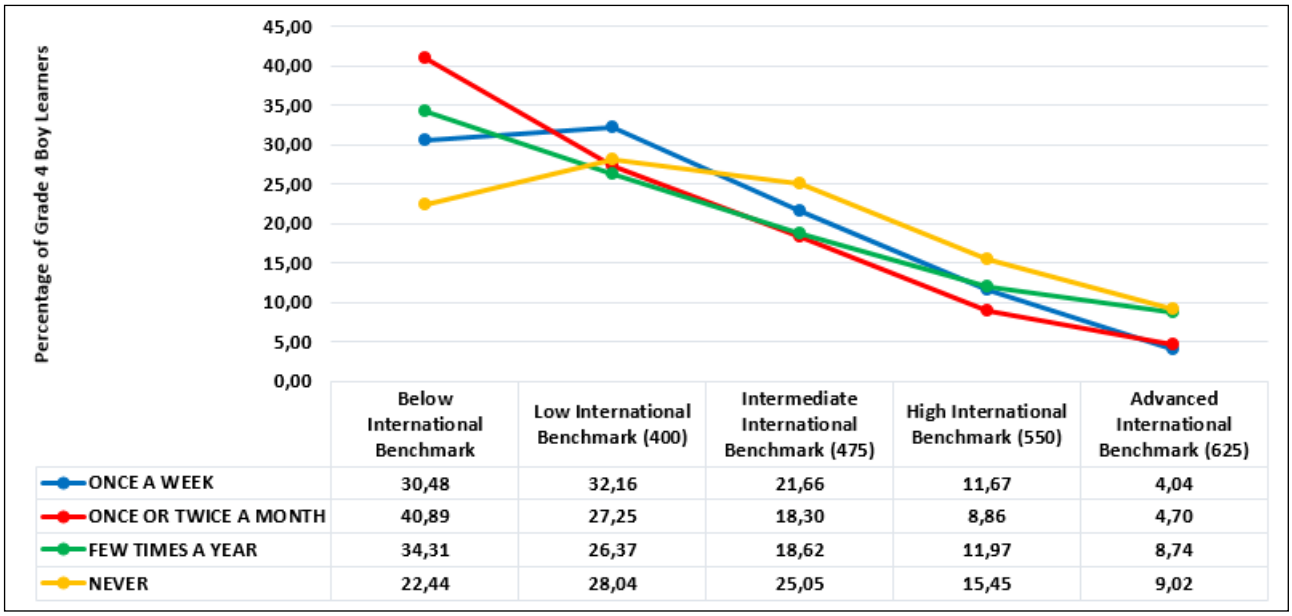
Figure 14 on the next page visually represents the percentage of Grade 4 boy learners per benchmark interval who experienced, *being left out of games or activities by other learners at school.* As with Figure 13, the same tendencies are visible. The once a week, once or twice a month and a few times a year time intervals all gradually declined from below the *Low International Benchmark (400)* to the *Advanced International Benchmark (625)*; the never interval had increased from below the *Low International Benchmark (400)* to the *Intermediate International Benchmark (475)* with a decrease from there to the *Advanced International Benchmark (625)* with only 10.55% of learners able to achieve this benchmark.



	Below International Benchmark	Low International Benchmark (400)	Intermediate International Benchmark (475)	High International Benchmark (550)	Advanced International Benchmark (625)
ONCE A WEEK	36,60	31,67	19,63	8,65	3,45
ONCE OR TWICE A MONTH	39,62	30,08	18,78	7,39	4,14
FEW TIMES A YEAR	32,91	28,54	18,99	11,85	7,71
NEVER	18,74	25,58	26,60	18,53	10,55

Figure 14: Percentage of Grade 4 boy learners that were left out of games or activities by other learners.

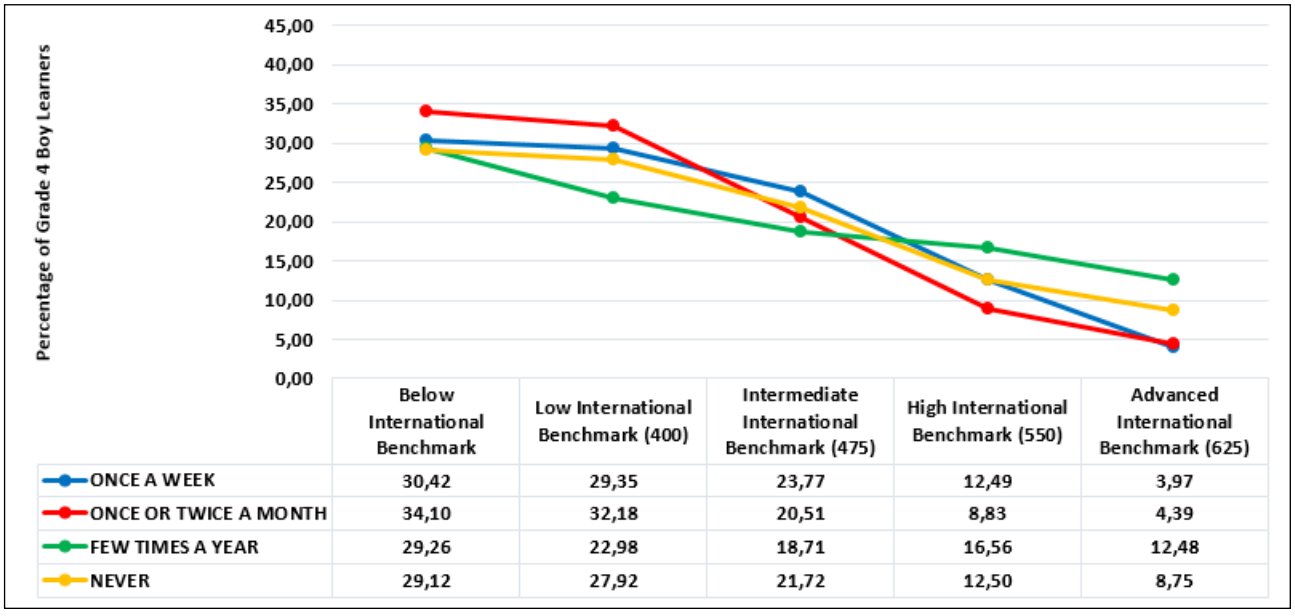
The first variable that did not follow the same curvature as the above mentioned was Figure 15 (presented on the next page) which represents the percentage of Grade 4 boy learners per benchmark interval who experienced, *someone spreading lies about them at school.* The once or twice a month interval and a few times a year interval gradually declined from below the *Low International Benchmark (400)* to the *Advanced International Benchmark (625)*. The once a week interval followed the same tendency as the never interval with a slight incline from below the *Low International Benchmark (400)* to the *Low International Benchmark (400)* and then declined from there to the *Advanced International Benchmark (625)*. The highest percentage of Grade 4 boy learners 40.89% could not reach the *Low International Benchmark (400)* and reported being a victim of having lies spread about them once or twice a month. At the *Advanced International Benchmark (625)* 9.02% was the highest percentage of Grade 4 boy learners who reported that they never fell victim to having lies spread about them.



	Below International Benchmark	Low International Benchmark (400)	Intermediate International Benchmark (475)	High International Benchmark (550)	Advanced International Benchmark (625)
ONCE A WEEK	30,48	32,16	21,66	11,67	4,04
ONCE OR TWICE A MONTH	40,89	27,25	18,30	8,86	4,70
FEW TIMES A YEAR	34,31	26,37	18,62	11,97	8,74
NEVER	22,44	28,04	25,05	15,45	9,02

Figure 15: Percentage of Grade 4 boy learners that reported that someone spread lies about them.

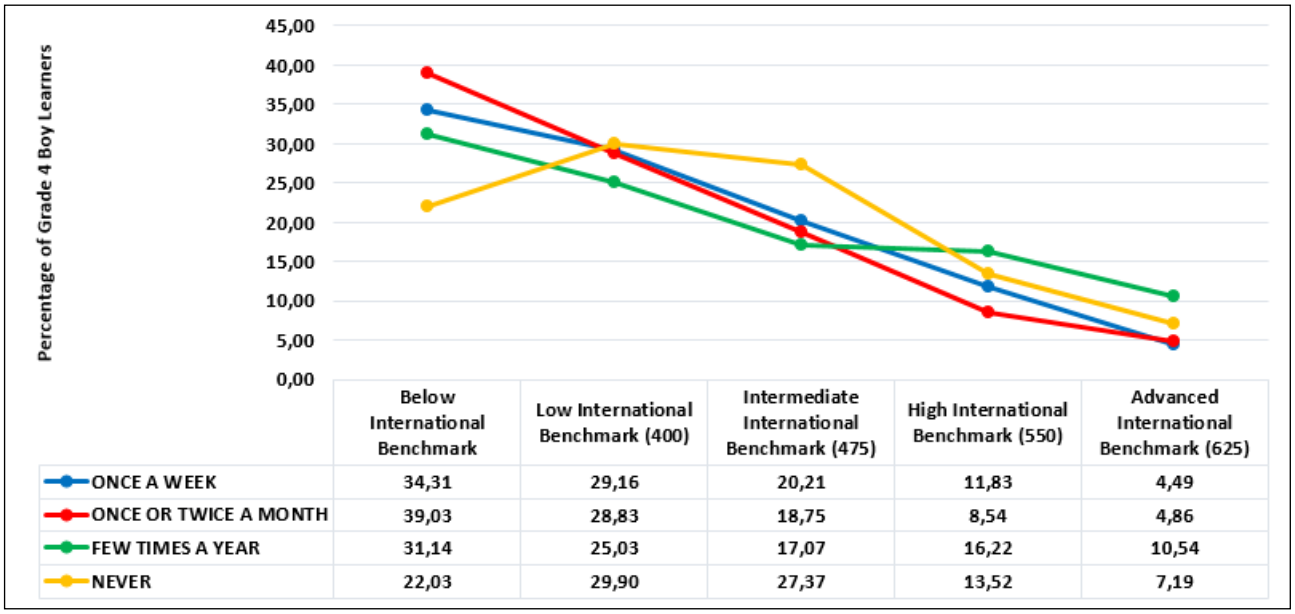
During this year, how often was something stolen from you at school, is presented in Figure 16. This was the only variable where all four time intervals follow the same curve from the highest percentage of Grade 4 boy learners scoring below the *Low International Benchmark (400)* with a sharp decline with the least percentage of Grade 4 boy learners achieving the *Advanced International Benchmark (625)*. 34.10% of the Grade 4 boy learners who reported being a victim of having something stolen from them at school by other learners achieved below the *Low International Benchmark (400).* A total of 12.48% of Grade 4 boy learners achieved the *Advanced International Benchmark (625)* and reported that they only fell victim to having something stolen from them a few times a year.



	Below International Benchmark	Low International Benchmark (400)	Intermediate International Benchmark (475)	High International Benchmark (550)	Advanced International Benchmark (625)
ONCE A WEEK	30,42	29,35	23,77	12,49	3,97
ONCE OR TWICE A MONTH	34,10	32,18	20,51	8,83	4,39
FEW TIMES A YEAR	29,26	22,98	18,71	16,56	12,48
NEVER	29,12	27,92	21,72	12,50	8,75

Figure 16: Percentage of Grade 4 boy learners that reported that something had been stolen from them.

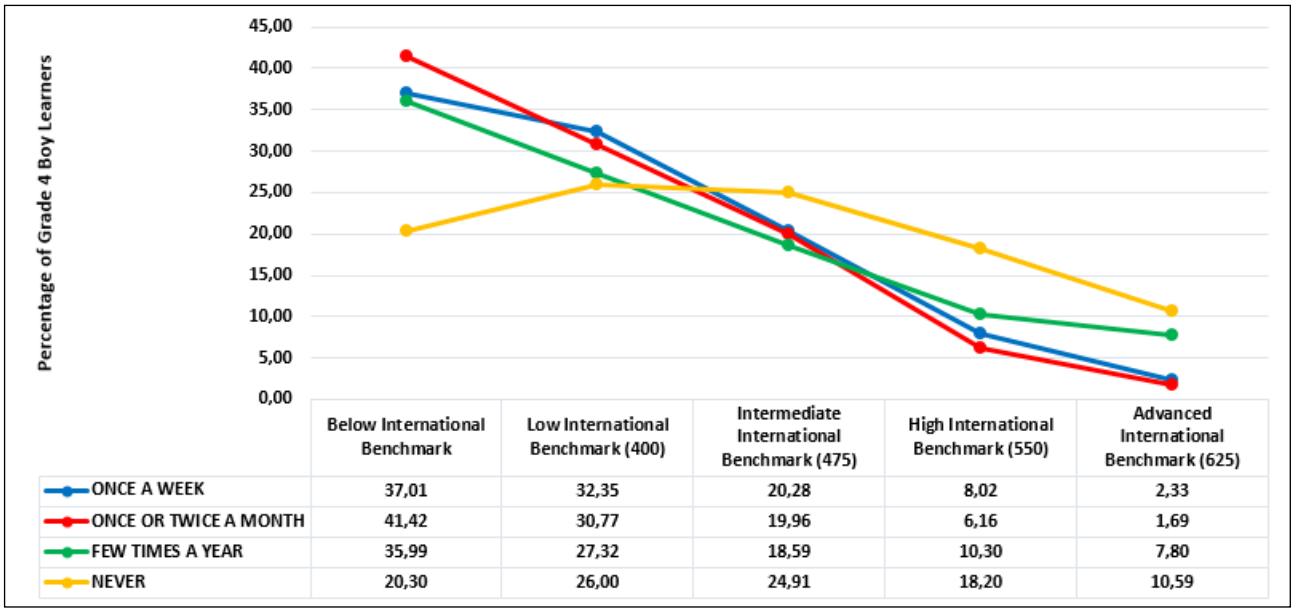
The variable, during this year, how often were you hit or hurt by other learner(s) at school is represented by Figure 17. 39.03% of Grade 4 boy learners reported being a victim of being hit or hurt by other learners once or twice a month scored below the *Low International Benchmark (400).* At the *Advanced International Benchmark (625)* 10.54% of Grade 4 boy learners reported being a victim of being hit or hurt by other learners a few times a year.



	Below International Benchmark	Low International Benchmark (400)	Intermediate International Benchmark (475)	High International Benchmark (550)	Advanced International Benchmark (625)
ONCE A WEEK	34,31	29,16	20,21	11,83	4,49
ONCE OR TWICE A MONTH	39,03	28,83	18,75	8,54	4,86
FEW TIMES A YEAR	31,14	25,03	17,07	16,22	10,54
NEVER	22,03	29,90	27,37	13,52	7,19

Figure 17: Percentage of Grade 4 boy learners that were hit or hurt by other learner(s) (e.g. shoving, hitting, kicking).

Figure 18 on the next page represents the percentage of Grade 4 boy learners per benchmark interval who *were made to do things they did not want to do by other learners at school.* A total of 41.42% of Grade 4 boy learners reported being a victim of being made to do things they did not want to do by other learners once or twice a month and scored below the *Low International Benchmark (400).* Only 10.59% of Grade 4 boy learners who never fell victim to this type of bullying behaviour were able to reach the *Advanced International Benchmark (625).*



	Below International Benchmark	Low International Benchmark (400)	Intermediate International Benchmark (475)	High International Benchmark (550)	Advanced International Benchmark (625)
ONCE A WEEK	37,01	32,35	20,28	8,02	2,33
ONCE OR TWICE A MONTH	41,42	30,77	19,96	6,16	1,69
FEW TIMES A YEAR	35,99	27,32	18,59	10,30	7,80
NEVER	20,30	26,00	24,91	18,20	10,59

Figure 18: Percentage of Grade 4 boy learners that were made to do things they did not want to do by other learners at school.

5.4. Inferential statistics

5.4.1. Correlations with plausible values used

Table 8 presents the correlation coefficient that measured the strength and direction of the relationships between the *Learners Bullied at School Index* and the *overall reading literacy achievement scores* of Grade 4 boy learners in the prePIRLS 2011 study. The variable, *Learners Bullied at School Index,* had a weak negative association of r = -.23 with the plausible value of *overall reading literacy achievement scores*. The negative association implied that as the experiences of being a victim of bullying increased, *overall reading literacy achievement scores* decreased by a proportionate number. The variable did not have a large association size in the range of r = +/- .50.

Table 8: Correlation Coefficients of the *Learners Bullied at School Index* with the 1st to 5th Plausible value: Overall reading PV1.

Variable	Correlation with ASRREA0
Learners Bullied at School Index	**-0,23**

Table 9 presents the correlation coefficient that measured the strength and direction of the relationships between the individual bullying variables and the *overall reading literacy achievement scores* of Grade 4 boy learners in the prePIRLS 2011 study. All six of the individual variables had a weak negative association with the plausible value of *overall reading literacy achievement scores*. The negative associations implied that as the experiences of being a victim of bullying increased, *overall reading literacy achievement scores* decreased by a proportionate number.

Table 9: Correlation Coefficients of the individual bullying variables with the 1st to 5th Plausible value: Overall reading PV1.

Variables[5]	Correlation with ASRREA0
During this year, how often were you made fun of or called names at school?	**-0.19**
During this year, how often were you left out of games or activities by other learners at school?	**-0.24**
During this year, how often did someone spread lies about you at school?	**-0.12**
During this year, how often was something stolen from you at school?	**-0.07**
During this year, how often were you hit or hurt by other learner(s) at school?	**-0.15**
During this year, how often were you made to do things you didn't want to do by other learners at school?	**-0.27**

The correlation coefficients in Table 8 and Table 9 indicate that a linear relationship exists between begin a victim of bullying and the *overall reading literacy achievement scores* of Grade 4 boy learners. Additionally, the correlation coefficients are statistically significant and the negative direction of the relationship indicates that as the instances of being a victim of bullying increases, the *overall reading literacy achievement scores* of Grade 4 boy learners, will decrease by a proportionate amount. The results of the correlation therefore serve as a statistical justification for doing the multiple regression analysis to further investigate the predictive relationship between the bullying variables and the *overall reading literacy achievement scores* of Grade 4 boy learners.

[5] For the Pearson correlation, the Likert scale items were entered in reverse order for the individual variables. This means that values of 1 are associated with never being bullied, while values of 2, 3 and 4 on the Likert scale are associated with bullying in increasing increments of time.

5.4.2. Regressions with plausible values used

5.4.2.1. Multiple regression explained

The following section paid attention to the last research question namely, '*What is the potential statistical relationship between the overall reading literacy achievement scores of Grade 4 boy learners and the degree to which they have experienced bullying as measured by prePIRLS 2011 looking at the Learners Bullied at School Index as well as the six independent bullying variables individually?*'. Multiple regression analysis was conducted to answer the question. Multiple regression was used to study the relationship amongst the numerous bullying variables and the *overall reading literacy achievement scores*. Attention was given to whether the regression coefficients (β-values) were significant, based on the interpretation of the t-values for each bullying variable. In addition to the t-values, the R^2 and adjusted R^2 values were also interpreted to check for cross-population validity.

Unstandardised regression coefficients point to the relationship with the *Learners Bullied at School Index* when controlling for other predictors, in this case, gender. Table 10 (on the next page) displays the multiple regression coefficients, standard error (SE) and test statistics (t-value) associated with the *Learners Bullied at School Index*. From Table 10, an unstandardised coefficient of -31.80 (SE = 4.58) where $p < .001$, was significant and inferred that the *Learners Bullied at School Index* had a negative association with *overall reading literacy achievement scores* and provided an indication that *overall reading literacy achievement scores* were expected to be lower by at least 32 points. In other words, where bullying was reported across Grade 4 boy learners in the prePIRLS 2011 study one could expect *overall reading literacy achievement scores* to be lower.

The t-value is calculated by dividing the regression coefficient with the standard error. This calculation provides a value that expresses how large the coefficient is relative to how much it varies in repeated sampling. If the coefficient varies a lot in repeated sampling, then the t-statistic will be smaller, and if it varies little in repeated sampling, then its t-value will be larger (Campbell & Campbell, 2008). A t-value of $t>1.96$ is significant at 0.05 (or 95%) and a t-value of $t>2.58$ is significant at 0.01 (or 99%).

Table 10: Multiple regression coefficients, standard error (SE) and test statistics (t-values) associated with variable *Learners Bullied at School Index*.

Variable	Regression coefficient	Regression coefficient (s.e.)	Regression coefficient (t-value)
(CONSTANT)	**531,08**	**12,88**	**41,25**
Learners Bullied at School Index	-31,80	4,58	-6,95

Table 11 on the next page displayed the multiple regression coefficients, standard error (SE) and test statistics (t-value) associated with the remaining six independent bullying variables individually. Thus, it was the *Learners Bullied at School Index* broken down into the individual variables.

- *During this year, how often were you made fun of or called names at school* had an unstandardised regression coefficient of β = -4.72 (SE = 1.43) which implied that learners who were made fun of or called names at school had a negative association with *overall reading literacy achievement scores* and provided an indication that Grade 4 boy learner achievement could be expected to be lower by at least 5 points. Therefore, the significant decrease in reading as a result of *being made fun of or called names at school* is significant at both the 0.05 and *0.01 levels of confidence, meaning that one can predict with as much as 99% confidence that the decrease in reading literacy scores is not coincidental, but in this case due to being made fun of or called names*.
- *During this year, how often were you left out of games or activities by other learners at school;* was a strong predictor and had a, β = -11.54 (SE = 1.44). Therefore, *overall reading literacy achievement scores* of Grade 4 boy learners could be lower by 12 points when Grade 4 boy learners experienced this variable. Therefore, the significant decreases in reading as a result of *being left out of games or other activities by other learners at school* is significant at both the 0.05 and 0.01 levels of confidence (t>1.96 and t>2.58).
- *During this year, how often did someone spread lies about you at school;* had a positive unstandardised regression coefficient. The variable had a positive association with *overall reading literacy achievement scores* with an unstandardised regression coefficient of β = 2.80 (SE = 1.36). The positive association with *overall reading literacy achievement scores* provided an indication that Grade 4 boy learners' achievement was expected to be higher by at least 1 point. Therefore, the significant increases in reading as a result of *being left out of games or other activities by other learners at school* is significant at the 95% confidence interval (t>1.96).

- *During this year, how often was something stolen from you at school;* had a positive unstandardised regression coefficient of β = 0.29 (SE = 2.14). The positive association with learner *overall reading literacy achievement scores* provided an indication that learner achievement was expected to be higher by a statistically insignificant 0.5 points.
- *During this year, how often were you hit or hurt by other learner(s) at school;* had a negative unstandardised regression coefficient β = -0.44 (SE = 1,29). The negative association with *overall reading literacy achievement scores* provided an indication that Grade 4 boy learner achievement can be expected to be lower by at least a statistically insignificant half a point in the presence of being hit or hurt by others.
- *During this year, how often were you made to do things you didn't want to do by other learners at school;* was a strong predictor and had a β of -15.97 (SE = 1.40), which meant that *overall reading literacy achievement scores* could be lower by 16 points when Grade 4 boy learners were subjected to doing things against their will. Therefore, the significant decreases in reading as a result of being made to do things they did not want to do by other learners is significant at the 95% and 99% confidence interval (t>1.96 and t>2.58).

Table 11: Multiple regression coefficients, standard error (SE) and test statistics (t-values) associated with variables.

Variable	Regression coefficient	Regression coefficient (s.e.)	Regression coefficient (t-value)
(CONSTANT)	**548.80**	**9.97**	**55.07**
During this year, how often were you made fun of or called names at school?	-4.72	1.43	-3.30
During this year, how often were you left out of games or activities by other learners at school?	-11.54	1.44	-8.00
During this year, how often did someone spread lies about you at school?	2.80	1.36	2.06
During this year, how often was something stolen from you at school?	0.29	2.14	0.14
During this year, how often were you hit or hurt by other learner(s) at school?	-0.44	1.29	-0.34
During this year, how often were you made to do things you didn't want to do by other learners at school?	-15.97	1.40	-11.37

It could be speculated that these positive associations could be contributed to the fact that learners who experienced lies spread about them or had something stolen from them by other learners at

school turned to reading for comfort and relief, and that learners choose to hide from the bullying behaviour in school libraries as they offered safe havens for these victims.

The negative association implied that for Grade 4 boy learners who reported being victims of these bullying behaviours, *overall reading literacy achievement scores* could be lower. It is speculated that these negative associations may be because of the fact that learners who experienced *being called names, being left out of games or activities, being hit or hurt and made to do things they didn't want to* by other learners at school, refrained from reading in an attempt to not fall victim of the bullying behaviour, thus leading to lower *overall reading literacy achievement scores*.

5.4.2.2. Model statistics

According to Field (2009), an adjusted R^2 value could be utilised to test for cross-validation or to evaluate the precision of the model across different samples. Therefore, the quantity of variation in the results would be answered for by the model if it had been extracted from the population. A desirable adjusted R^2 value is close to or equal to R^2. In other words, an adjusted R^2 value equal to the value R^2 indicated good cross-validity. Therefore, the model could predict the Grade 4 boy learners *overall reading literacy achievement scores* outcome, if the same variables were to be used in a different sample. Table 12 outlines the value of R^2, adjusted R^2 and associated standard errors (SE). The value of R^2 indicated the amount of variability in the Grade 4 boy learners *overall reading literacy achievement scores*, that is accounted for by the bullying index variables. Total variance explained by the *Learners Bullied at School Index* predictor was illustrated in Table 12. Furthermore, R^2 served as an indicator of the amount of variance there was to explain in the model within comparison with the overall amount of variation there was to clarify. In other words, R^2 is the amount of variance in the *overall reading literacy achievement scores* of Grade 4 boy learners that were shared by the *Learners Bullied at School Index*.

Table 12: Model statistics for the *Learners Bullied at School Index*.

R-Square	R-Square (s.e.)	Adjusted R-Square	Adjusted R-Square (s.e.)
0,05	0,01	0,05	0,01

The R^2 value (0.05) and adjusted R^2 value (0.05) were identical, thus indicating good cross-validity across the population. Furthermore, it could be said that the *Learners Bullied at School Index* accounted for 5% (0.05 x 100) (SE = 0.01) of the variation in Grade 4 boy learners *overall reading literacy achievement scores*. As only 5% of the variation in the *overall reading literacy achievement scores* could be explained by the *Learners Bullied at School Index* as indicated by Figure 19 on the next page. 95% was unaccounted for. Therefore, it is speculated that there must be other variables that also had an association that is worth further investigation in future research.

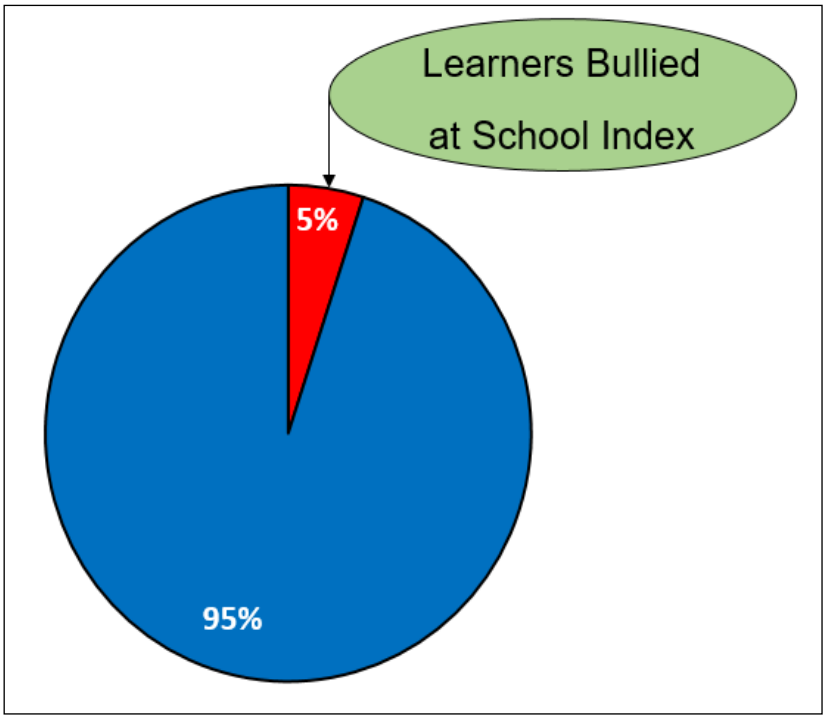


Figure 19: Variance of learner achievement regarding bullying behaviours experienced explained.

As mentioned in the previous chapter, the current research was not specifically designed to evaluate factors that related to bullying exclusively. The variables used dealt with bullying, but they were not part of a comprehensive bullying questionnaire conducted by the prePIRLS 2011 study. Consequently, the possibility exists that many aspects that relate to bullying have not been measured and examined due to the nature of the prePIRLS 2011 study. Cyberbullying was also not included as part of bullying behaviour indicators for prePIRLS 2011. Another point that must be considered when looking at the 5% was, to what extent could Grade 4 boy learners accurately reflect on bullying. Could a Grade 4 learner truly grasp the differences in bullying behaviour as a victim and could they distinguish between the degrees of frequency? A final point worth noting in the interpretation of the possibility of the 95% was that a self-report measure could have been underestimated given the age of the respondents.

Table 13 presents the model statistics for the six individual bullying variables. The R^2 value (0.10) and adjusted R^2 value (0.10) were identical. Thus, it indicated good cross-validity across the population. Furthermore, it could be said that the six bullying variables combined account for 10% (0.10 x 100) (SE = 0.01) of the variation in Grade 4 boy learners *overall reading literacy achievement scores*.

Table 13: Model statistics for variables ASBG09A-F.

R-Square	R-Square (s.e.)	Adjusted R-Square	Adjusted R-Square (s.e.)
0.10	0.01	0.10	0.01

Only 10% of the variation in the *overall reading literacy achievement scores* could be explained by the six bullying variables combined. This is graphically represented by Figure 20.

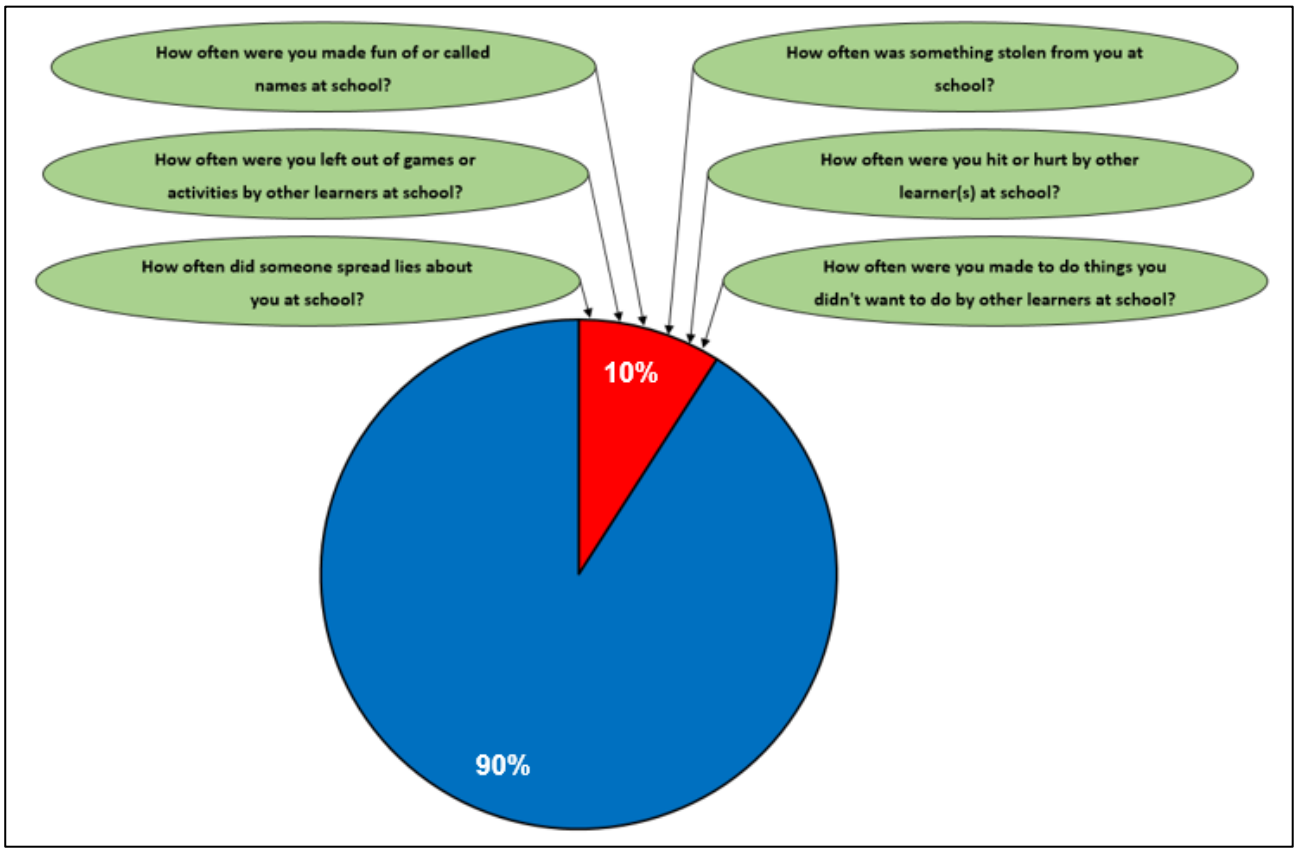


Figure 20: Explained variance of learner achievement regarding bullying behaviours experienced.

5.5. Conclusion

Chapter 5 presented the results of the descriptive and inferential data analysis that was conducted. The reliability results of the Cronbach's Alpha calculation indicated an overall reliability coefficient within the acceptable range of .733. The descriptive statistics revealed that bullying behaviour was a serious problem being faced by almost 84% of Grade 4 boy learners. Grade 4 boy learners who experienced instances of bullying on a weekly basis achieved lower *overall reading literacy achievement scores* in comparison to Grade 4 boy learners who almost never experienced bullying. The two most common acts of bullying experienced by Grade 4 boy learners at least once a week were: 'I was made fun of or called names' and 'something was stolen from me'. Finally, Grade 4 boy learners who reported no bullying behaviour had higher mean scores when compared to Grade 4 boy learners who reported being the victim of bullying behaviour once a week. With regards to the benchmarks and the *Learners Bullied at School Index* variable, at below the *Low International Benchmark,* the highest number of learners experienced being bullied about weekly at

the *Advanced International Benchmark* the highest percentage learners almost never experienced bullying.

The inferential statistics using the Pearson correlation revealed that the *Learners Bullied at School Index,* had a weak negative association with the plausible value of *overall reading literacy achievement scores.* The multiple regression revealed that the *Learners Bullied at School Index* had a negative association with *overall reading literacy achievement scores* and provided an indication that *overall reading literacy achievement scores* were expected to be lower by at least 32 points. In closing the model statistics indicated good cross-validity across the population and it could be said that the *Learners Bullied at School Index* accounted for 5% of the variation in Grade 4 boy learners *overall reading literacy achievement scores*.

The current study ends with Chapter 6 which includes a reflection on the theoretical framework and a discussion of the results. Some of the implications with regards to governing legislation, school safety and teaching practice are discussed. Final recommendations and limitations are also addressed before adding concluding remarks.

Chapter 6: Recommendations and conclusion

6.1. Introduction

To investigate the possible relationship between being a victim of peer bullying and Grade 4 boy learners *overall reading literacy achievement scores* in South Africa. This study draws on selected variables from the prePIRLS 2011 South African data. This is done to gain a better understanding of the relationship between being a victim of peer bullying and how it can lead to the decline or decrease of Grade 4 boy learners *overall reading literacy achievement scores*. This chapter will reflect on the theoretical framework that guided the research. A discussion of the final results is included. The implications and significance of the results regarding the governing legislation, school safety, and teaching practice. The current study's recommendations are highlighted, and limitations of the current study are acknowledged. The concluding remarks of this chapter will close of the research study.

6.2. Reflection on the theoretical framework

Bronfenbrenner's framework provided the basis for a comprehensive analytical model in this study's attempt to investigate the Grade 4 boy learners *overall reading literacy achievement scores* and the degree to which these learners could be victims of peer bullying behaviour as reported in the prePIRLS 2011 study. *Bronfenbrenner's Ecological Model of Human Development* was the theoretical framework for this study, as it closely supported the preliminary idea and appeared highly relevant to existing reading literacy achievement and bullying literature. A detailed discussion of the theoretical framework was given in Chapter 3.

Bronfenbrenner's Ecological Model of Human Development focussed on the explanation that to comprehend an individual's advancement, a person must think about the whole ecological system in which development happened. For the current study, human development was seen as the learner that obtained a more comprehensive and functional idea of the natural setting around him/her for them to grow into inspired and capable individuals that could participate in communal activities. In this study, the learner was not a stand-alone entity but rather was viewed as the centre point around which the different surrounding environments interacted with each other. According to Swearer and Doll (2001), the Ecological Model assumes that at the same time as development of language, knowledge, interpersonal skills and physiological condition, learners also conformed to their immediate public and natural surroundings. The current study focused on the individual and microsystem levels. The focus was done to obtain a better understanding of the relationship between the microsystem (per example being bullied by peers) and the individual in

terms of *overall reading literacy achievement scores.* The analysis revealed that the microsystem (being a victim of peer bullying) did indeed have a relationship with the individual *(overall reading literacy achievement scores).*

6.3. Results and discussion

This study was a secondary data analysis embedded within a quantitative research approach (discussed in detail in Chapter 4). Reliability was established by computing the Cronbach's alpha coefficient. Utilising descriptive analysis, it was possible to gain a better understanding of the percentages and mean scores achieved at the different benchmarks. The Pearson correlation coefficient was used to measure the strength of the relationship between the variables, and the multiple regression analysis was done to further study the relationship amongst the variables.

The research questions focused on whether a relationship existed between being a victim of bullying behaviour and Grade 4 boy learners *overall reading literacy achievement scores* as reported in the prePIRLS 2011 study. In this regard, selected variables from the prePIRLS 2011 Learner Questionnaire considered to be the predictor variables were provided. Reliability results were presented and provided evidence that the six individual bullying variables had reliability within the acceptable range with a Cronbach's Alpha of .733 (SE = .732). Therefore, indicating that reliability had been established and that the measure could generate the equivalent outcomes subject to the unchanging circumstances.

The variables were then used to determine the frequency and percentage of these bullying encounters. Based on the quantitative outcomes, certain determinations surrounding *overall reading literacy achievement scores* of Grade 4 boy learners were established. The Likert scale questionnaire allowed for the analysis of ordinal data as Grade 4 boy learners could specify the level of measurement (bullying encountered). The descriptive statistical analysis revealed that 84% of all Grade 4 boy learners experienced being the victims of bullying behaviour on a frequent (about weekly & monthly) basis. Only one-fifth (16%) of the Grade 4 boy learners reported being the victim of bullying almost never which was a low number. These Grade 4 boy learners were also the highest achieving portion of the sample with an average mean score of 497.86 (SE = 9.2) for their *overall reading literacy achievement scores*.

Furthermore, the study sought to answers the following research questions:

- **What is the relationship of bullying with Grade 4 boy learners' *overall reading literacy achievement scores* when categorised for each of the individual prePIRLS 2011 benchmarks?**

The descriptive statistical analysis focused on the benchmarks with plausible values and the expected result was that bullying could have a direct relationship with the *overall reading literacy achievement scores*. The results of the analysis indicated that the more regular the experiences of bullying, the lower the *overall reading literacy achievement scores* and that the reverse was true that at the opposite end, the less frequent the occurrences of bullying experienced, the higher the *overall reading literacy achievement scores* across all benchmarks.

- **What is the correlation between *overall reading literacy achievement scores* and being a victim of bullying as measured by the *Learners Bullied at School Index*?**

  The *Pearson correlation analysis* was the chosen method of statistical analysis to identify the strength of the relationship between being a victim of bullying and Grade 4 boy learners *overall reading literacy achievement scores* as reported in the prePIRLS 2011 study. The expected result was that a negative linear relationship existed between the variables. The final analysis revealed that the *Learners Bullied at School Index* had a medium to moderate negative linear relationship with the *overall reading literacy achievement scores* which implied that as bullying increased, the *overall reading literacy achievement scores* decreased, proportionately. All six of the individual variables had a weak negative association with the plausible value of *overall reading literacy achievement scores*. The negative associations implied that as the experiences of being a victim of bullying increased, *overall reading literacy achievement scores* decreased by a proportionate number.

- **What is the potential statistical relationship between the *overall reading literacy achievement scores* of Grade 4 boy learners and the degree to which they have experienced bullying as measured by prePIRLS 2011 looking at the *Learners Bullied at School Index* as well as the six independent bullying variables individually?**

  Multiple regression analysis was the chosen method of statistical analysis to determine if any statistical relationship existed between being a victim of bullying behaviours and the *overall reading literacy achievement scores* of Grade 4 boy learners by testing their categorical variables against each other. The expected result was that a statistical relationship existed between being a victim of bullying and the *overall reading literacy achievement scores*. The final analysis results also indicated such a statistical relationship. The *Learners Bullied at School Index* had a negative association with *overall reading literacy achievement scores* and provided an indication that *overall reading literacy achievement scores* could be expected to be lower by at least 32 points where being a victim of bullying behaviour was reported by Grade 4 boy learners in the prePIRLS 2011 study.

Two of the six individual bullying variables had a positive association with the *overall reading literacy achievement scores w*hich meant that for Grade 4 boy learners who reported being victims of the following two variables their *overall reading literacy achievement scores* could be higher with between 0.5-1 points respectively. These were, however, not statistically significant.

- *During this year, how often did someone spread lies about you at school?*
- *During this year, how often was something stolen from you at school?*

The remaining four variables, *during this year, how often, 1) were you made fun of or called names, 2) were you left out of games or activities*, 3) *were you hit or hurt and 4) were you made to do things you didn't want to do, by other learner(s) at school* had statistically significant negative associations with *overall reading literacy achievement scores.* The negative associations with *overall reading literacy achievement scores* provided an indication that Grade 4 boy learners' achievement were expected to be lower by between 0.5-16 points where these behaviours were reported by Grade 4 boy learners in the prePIRLS 2011 study.

6.4. Implication and significance

The current study's findings pointed to the importance of bullying and the relationship it had with the *overall reading literacy achievement scores* for Grade 4 boy learners as reported in the prePIRLS 2011 study.

6.4.1. Governing legislation

A quick glance at the Department of Basic Education governing legislation revealed that the White and Green papers in circulation were rather dated. The last paper was released in 2004 and dealt with the transformation to e-Education. Table 14 on the next page represents a reversed chronological list of all the White Papers and Table 15 (on the next page) of all the Green Papers. None of these publications made any direct reference to bullying and/or reading. However, within the White Paper 7, *e-Education: Transforming Learning and Teaching through Information and Communication Technologies (ICTs)* the launching of ICTs in education brought to light a crucial component of the Government's approach to enhance the standard of learning and teaching throughout the whole basic education system (DoE, 2004).

Table 14: Department of Basic Education: White Papers.

White Papers[6]	
Date	Title
02 September 2004	White Paper 7 on e-Education: Transforming Learning and Teaching through Information and Communication Technologies (ICTs)
02 July 2001	Education White Paper 6: Building an inclusive education and training system
01 May 2001	Education White Paper 5 on Early Childhood Education: Meeting the challenge of Early Childhood Development in South Africa
25 September 1998	Education White Paper 4: Programme for the Transformation of Further Education and Training
15 August 1997	Education White Paper 3: Programme for the transformation of Higher Education
14 February 1996	Education White Paper 2: The organisation, governance and funding of schools
15 March 1995	White Paper on Education and Training

Table 15: Department of Basic Education: Green Papers.

Green Papers[7]	
Date	Title
30 August 1999	Consultative Paper No 1 on Special Education: Building an Inclusive Education and Training System
15 April 1998	Green Paper on Further Education and Training: Preparing for the 21st Century through Education, Training and Work
01 December 1996	Green Paper on Higher Education Transformation

The e-Education strategy's objective was to concentrate on learning and teaching for the millennial demography who were being raised in a computerised community and were far more confident with technological innovations than their predecessors. The purpose was to develop electronic and information skill so that every learner developed into a self-confident and skilled person with regards to operating technology to add to an exciting and growing South African community (DoE, 2004). The shift to e-Education was of the utmost importance. However, it had to be kept in mind that with the increased drive to use ICT in education, the possibility existed for the increased instances of cyberbullying. The possible relationship between cyberbullying and e-Education warrants further investigation for future amendments to policies and practice.

A better understanding of bullying and cyberbullying could assist in building an improved level of clarity surrounding the problem. If the discussion is to move forward, an improved comprehension of how bullying and cyberbullying affects learners are needed so that stronger preventative measures can be designed, developed, implemented, and evaluated.

[6] http://www.education.gov.za/Resources/Legislation/WhitePapers.aspx

[7]http://www.education.gov.za/Resources/Legislation/GreenPapers.aspx

6.4.2. School safety

In recent years, the National School Safety Framework (NSSF) (2015) was put together to be able to supply an extensive approach to assist the national and provincial education departments in a synchronised undertaking to deal with the physical violence manifesting within schools. The objective of the NSSF was to concentrate on the degree of violence which could be found negatively affecting schools nationally. The NSSF attempted to offer guidelines on how to manage the schools to be safer environments by using recommended remedial and precautionary interventions. The NSSF combined established school safety and violence prevention campaigns and procedures and supplied the design that connected all the elements. The intention of the NSSF was to build a safe, violence and threat-free, supportive learning environment for learners, educators, principals, school governing bodies and administration. To accomplish this, school and non-school investors had to comprehend the character of violence considering that it impacted learners.

In addition to the NSSF and their attempt to further consolidate initiatives the Department of Basic Education had made the following pamphlets available online that dealt with bullying:

- Bullying at School: Tips for parents and schools[8]
- Management of Physical Violence at School[9]
- Challenging Homophobic Bullying in Schools[10]
- Cyberbullying[11]

In the Department of Basic Education's Annual Report 2015/16, the Department continued to monitor the implementation of policies, like the NSSF, aimed at supporting learner well-being. Since the approval of the NSSF by the Minister of Basic Education in April 2015 a total of 12 354 school-based training workshops were conducted on the Prevention and Management of Bullying in Schools (DBE, 2016a).

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[8]http://www.education.gov.za/Portals/0/Documents/Publications/Bullying%20A5.pdf?ver=2015-01-30-081322-067

[9]http://www.education.gov.za/Portals/0/Documents/Publications/Management%20of%20Voilence%20in%20schools.pdf?ver=2015-01-30-081322-193

[10]http://www.education.gov.za/Portals/0/Documents/Publications/Homophobic%20Bullying%20in%20Schools.pdf?ver=2016-02-19-133822-337

[11]http://www.education.gov.za/Portals/0/Documents/Publications/cyber%20Bullying%20A5.pdf?ver=2015-01-30-081322-130

Considering the movement towards e-Education and the implementation of the NSSF the Minister of Basic Education, Mrs Angie Motshekga, in 2016, emphasised that bullying hindered learners fundamental right to safe and secure education and their right to quality education. Mrs Motshekga (2016) acknowledged that in recent years the Internet had presented a domain for alternative forms of bullying to emerge. She urged all learners that their education was more crucial than anti-social habits of bullying. Mrs Motshekga encouraged all victims of bullying to be strong and to report any unpleasant attention generated from other learners. Mrs Motshekga (2016) concluded her speech by stating that the School Management Teams had to enforce the policies that dealt with bullying and guaranteed that justice prevailed for the victim.

A more recent strategy introduced by the DBE (2016b) is the Schooling 2025 plan, which is a long-term plan for the Basic Education sector which monitored the progress of measurable indicators covering aspects of Basic Education including but not limited to learner well-being, school safety and mass literacy (DBE, 2016b). The Schooling 2025 plan envisions that by 2025 learning happens using computers and that learners from Grade 3 onwards were computer literate. The plan also envisioned that teachers had received the training they required, to continuously improve their capabilities and confidence in their profession (DBE, 2016b). With the drive towards e-Education reiterated in the Schooling 2025 plan it begs the question whether primary school learners, teachers and principals were indeed prepared for the implications thereof.

6.4.3. Teaching practice

As mentioned in section 3.2 in the literature review teachers played a crucial role in the successful development of Grade 4 boy learners reading literacy. However, for teachers to be truly effective, they ought to be properly equipped with the skills necessary to teach reading and the skills associated with it. Therefore, greater emphasis could be placed on the teaching of reading skills at tertiary levels. Furthermore, other subject teachers (in training and qualified) should also be educated about the role they play in learners' reading literacy development as it is not solely the responsibility of the language teachers. Tertiary institutions ought to strive to create positive reading cultures. If teachers in training were to be exposed to healthy reading cultures, not just focused on academic achievement, but also on reading for enjoyment, it may be easier for them to replicate the behaviour once they are employed at schools.

The findings of the current research study posed consequences for practice and teaching in the following way: Primary school teachers potentially did not possess the necessary training to prevent and deal with bullying behaviour. Subsequently, the teachers could struggle to assist the Grade 4 boy learners who fell victim to bullying behaviour. Although 12 354 school-based educational courses had been carried out, by Provincial Master Trainers on the Prevention and

Management of Bullying in Schools, more workshops must be done, and post-workshop studies implemented to track and monitor the effectiveness of these workshops and whether the knowledge and skills shared were being put into practice by teachers.

The findings of the current study indicated that the *Learners Bullied at School Index* had a negative association with *overall reading literacy achievement scores* and provided an indication that *overall reading literacy achievement scores* could be expected to be lower where being a victim of bullying behaviour was reported by Grade 4 boy learners in the prePIRLS 2011 study. Therefore, teachers could be upskilled to identify and deal decisively with occurrences of bullying behaviour to firstly, prevent bullying from occurring, and secondly; if bullying did occur, to aid the victims with the necessary coping mechanism to prevent the negative relationship it has with *overall reading literacy achievement scores*.

Furthermore, the findings suggest that learners could be educated about the concept of bullying and the negative association it has with *overall reading literacy achievement scores*. Efforts should be made to create safe school environments where learners feel supported and are taught to report bullying behaviour. A final suggestion with regards to learners is that they should be equipped with the necessary skills to cope with diverse peer group dynamics.

6.4.4. Cyberbullying

The following researchers (Belsey, 2005; Heiman & Olenik-Shemesh, 2015; Lee, Abell, & Holmes, 2015; Patchin & Hinduja, 2006; Washington, 2015), define cyberbullying as the negative, aggressive or harmful behaviour that occurs intentionally, deliberately and repeatedly in order to cause harm through electronic technologies such as mobile phones, tablets or personal computers using a variety of platforms on the Internet such as social networks, chat rooms, emails and instant messaging. These behaviours can be directed towards and/or be carried out by an individual or group where these threatening and offensive messages are sent and received. The perpetrators of cyberbullying utilise multimedia platforms to distribute rumours, secrets, insults, and in some cases death threats to frighten, influence, control, and hurt their victims (R. W. Stewart, Drescher, Maack, Ebesutani, & Young, 2014).

Some of the characteristics of cyberbullying give insight as to why it has grown in popularity as a means of bullying. These include cyberbullying allowing the bully perpetrator anonymity as the bully can contact the victim without having a face-to-face encounter (Washington, 2015). Cyberbullying is also not bound to a time or place and provides the bully with a means of easy access and rapid distribution of harmful material to a much wider audience. Cyberbullying also prevents the victim from defending him or herself (Heiman & Olenik-Shemesh, 2015; Kowalski,

Limber, & Agatston, 2012; Lee et al., 2015; Smith et al., 2008). Some of the negative side effects of being a victim of cyberbullying include social and emotional problems and distress, substance abuse, higher levels of suicide and suicidal thoughts, delinquent behaviour, increased risk of depression, low self-esteem and anxiety, lower scholastic achievements and concentration and an increased risk of being physically hurt (Heiman & Olenik-Shemesh, 2015; Hemphill et al., 2012; Lee et al., 2015; Radliff, Wang, & Swearer, 2015).

According to Radliff et al. (2015), the number of learners who endure cyberbullying vary, from 10% to 40%. Many learners engaging in cyberbullying also state that they participate in conventional types of bullying. Another study states that as many as 85% of learners who are victims of cyberbullying are also victims of traditional bullying at school (Juvoven & Gross, 2008). It is documented that girl learners possibly endure more cybervictimisation than boy learners. Having said that, the effect of the higher volume of cyberbullying incidents on girl learners continues to be the undertaking of prospective research going forward (R. W. Stewart et al., 2014).

6.5. Recommendations

The study revealed the extent to which being a victim of peer bullying could affect the *overall reading literacy achievement scores* of Grade 4 boy learners. Having investigated the relationship, it is recommended that:

- A follow-up study utilising the prePIRLS 2016 data to investigate if there has been any change in the *overall reading literacy achievement scores* of the Grade 4 boy learners be done.
- Further research to investigate whether the bullying behaviour has persisted in affecting the Grade 4 boy learners' *overall reading literacy achievement scores*.
- A study exploring the nature and relationship of cyberbullying and how cyberbullying could have an association with the *overall reading literacy achievement scores* in Grade 4, as these learners were often exempted from research as the assumption was that these learners were too young and did not yet access to the mediums involved in cyberbullying.
- Further experimental investigations were needed to determine which other variables were also associated with the performance of the learners as 95% was unaccounted for after taking the *Learners Bullied at School Index* into consideration.
- Further work on the possible effects of gender on reading achievement could include the full sample of boys and girls and further investigation into additional variables that could serve as controls for location, SES and age.

- The following aspects are examined in prospective research since Van Staden and Bosker (2014) reported that the following factors associated with learners' poor performance in mathematics:
  a. insufficient subject matter understanding of teachers,
  b. the communication capability with learners in the LoLT,
  c. the scarcity of educational supplies,
  d. challenges for educators to handle and organise classroom exercises successfully,
  e. demands to finish syllabi,
  f. significant teaching burdens,
  g. overcrowded classrooms,
  h. inadequate correspondence concerning policy developers and professionals,
  i. the absence of assistance because of the shortfall of skilled employees in the Ministry of Education.

These reported factors could serve as possible research topics to be analysed against the reading literacy data provided by the prePIRLS 2011 study. The subsequent prePIRLS cycles could include more robust measures of bullying as it was a global problem faced by all learners.

6.6. Limitations of the current research study

Several important limitations had to be considered. The most significant limitation is situated in the reality that the research was a secondary data analysis. The data of the current investigation were limited by the fact that it did not gather the data directly. Thus, there was no familiarity with the physical collection environment and processes involved in the data collection. However, the data analysis allowed for unfamiliar data to be used as the original prePIRLS 2011 study used strenuous data quality measures. For this study, only numerical data were necessary. The second limitation related to the sampling strategy, taking only Grade 4 boy learners into consideration. However, the aim was to gain insight into the phenomenon of the relationships between being a victim of bullying and Grade 4 boy learners *overall reading literacy achievement scores* specifically, as the Grade 4 boy learners were underperforming when compared to the girl learners. The age of the participating Grade 4 boy learners could also be considered as a limitation, as it could be contested that the Grade 4 boy learners did not fully understand and comprehend what bullying entailed.

Another limitation was the fact that using only *overall reading literacy achievement scores* limited the results. Thus, the results could not be generalised to any other subjects. Furthermore, the present research was not primarily structured to examine aspects relevant to bullying specifically.

The bullying variables used were chosen, as these variables dealt with bullying, but they were not part of a comprehensive bullying questionnaire.

The lack of additional background variables with regards to the sample is another limitation of the current study. Additional background variables could have aided in making a more accurate prediction of the effect of bullying on reading literacy scores. However, the exclusion of additional background variables was not substantive to the hypotheses under investigation. A final limitation is that the data that were used is already five years old by the time the study was completed in 2016, the data might not have indicated the current state of affairs in behaviours at schools. However, the newest data from prePIRLS 2016 were not available at the time of the data analysis.

6.7. Concluding remarks

The occurrence of bullying among learners remains a problem, not only in South Africa but also internationally. It is evident that being a victim of peer bullying has a negative association with Grade 4 boy learners *overall reading literacy achievement scores*. The notion is in line with previous research findings that have already highlighted the negative effect that bullying has on academic achievement (Juvonen et al., 2011; Swearer et al., 2010). Learners do not automatically become literate. Teachers must be aware of barriers such as bullying and adequately address and prevent such behaviour especially since improved accessibility to primary and secondary schooling amongst more youthful populations in sub-Saharan African countries is on the increase UNESCO (2013).

Van Staden (2006) warns that if reading comprehension is not improved and poor reading outcomes are not prevented, young learners will not only leave primary school being illiterate, but their illiteracy tends to continue after entering secondary school. Van Staden's (2006) warning is in line with the UNESCO (2013) report findings that Africa has witnessed a rise in the number of illiterate adults, as was discussed in detail in Chapter 1. Therefore, bullying must be addressed holistically. Learners, teachers, principals, parents, caregivers, communities, and government all should rise to the challenge and stand together in eradicating bullying in South African schools to break the negative association it has with reading literacy achievement.

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