Exploring Differential Item Functioning on reading achievement between English and isiXhosa language subgroups

by

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PROMOTER: DR S. VAN STADEN

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“I declare that the dissertation which I hereby submit for the degree M.Ed. in Assessment and quality assurance in education and training, at the University of Pretoria, is my own work and has not previously been submitted by me for a degree at this or any other tertiary institution.”

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31 OCTOBER 2017

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- Compliance with approved research protocol,
- No significant changes,
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- Data storage requirements.

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ABSTRACT

Post-Apartheid South Africa has undergone an educational language policy shift from only Afrikaans and English in education to the representation of all 11 official languages: Afrikaans, English, isiZulu, isiXhosa, isiNdebele, siSwati, Sesotho, Setswana, Tshivenda and Xitsonga. The national languages policy included the Language in Education Policy (LiEP), which stipulates that learners from grades 1-3 in all ways possible should be provided the opportunity to be taught in their home language (HL). With this change, there has been a need to increase access to African languages in education. The 2007 Status of LoLT report released by the Department of Education (DoE) revealed that since 1996 up to 65% of learners in the foundation phase are being taught in their home language. In other ways, the LiEP has been successful in bridging the gap of access to African languages in the basic education system.

With that said, there has been rapid growth of interest in early childhood cross-cultural literacy assessment across the globe. Internationally South Africa has participated in the Southern and Eastern Africa Consortium for Monitoring Education Quality as well as the Progress in International Reading Literacy Study studies. The design of these particular international studies meant participation in the same assessment but in different languages, calling into question the equivalence of assessments across languages. Assessing across languages should aim to encourage linguistic equivalence, functioning equivalence, cultural equivalence as well as metric equivalence. South Africa has taken part in three cycles of the Progress in International Reading Literacy (PIRLS) study. The purposes of the current study is to present secondary analysis of the prePIRLS 2011 data, to investigate any differential item functioning (DIF) of the achievement scores between English and isiXhosa.

The Organisation for Economic Co-operation and Development (OECD) developed a framework of input, process and output for curriculum process. The framework shows the multiple facets that needs to be considered when implementing a

curriculum in a country. The curriculum process framework was used as the theoretical framework for this study. The framework views curriculum success as a process of measuring how the intended curriculum (input) was implemented (process) and should be reflected in the attained curriculum (output). The adapted framework is LiEP as the attained curriculum, as learners in the prePIRLS 2011 are tested in the LoLT in Grades 1-3. Followed by the prePIRLS 2011 assessment, as the implemented curriculum testing the learners' comprehension skills requires by grade 4 in their HL. Lastly, the attained curriculum refers the learners' achievement scores in the prePIRLS 2011 study.

A sample of 819 Grade 4 learners (539 English L1 speaking learners and 279 isiXhosa L1 speakign learners) that participated in the prePIRLS 2011 study were included in this study. These learners wrote a literary passage called *The Lonely Giraffe,* accompanied by 15 items. The study made use of the Rasch model to investigate any evidence of Differential Item Functioning (DIF) on the reading achievement of the learners.

The findings showed that the items did not reflect an equal distribution. In addition, an item by item DIF analysis revealed discrimination on one subgroup over the other. A further investigation showed that these discriminations could be explained by means of inaccurate linguistic equivalence. The linguistic equivalence could be explained by means of mistranslation and/or dialectal differences. Subsequently, the complexities of dialects in African languages are presented by providing isiXhosa alternative translations to the items. The significance of the current study is in its potential contribution in further understanding language complexities in large-scale assessments. Additionally, in attempts to provide valid, reliable and fair assessment data across sub-groups.

Key Terms:

PrePIRLS 2011, reading literacy, isiXhosa dialects, Rasch measurement, reading literacy achievement, item bias, translations, secondary analysis

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LIST OF ABBREVIATION

ANA	Annual National Assessment
CEA	Centre for Evaluation and Assessment
DBE	Department of Basic Education
DOE	Department of Education
HL	Home Language
IEA	International Association for the Evaluation of Educational Achievement
LIEP	Languages in Education Policy
LoLT	Language of Learning and Teaching
PIRLS	Progress in International Reading Literacy Study
PrePIRLS	preProgress in International Reading Literacy Study
SACMEQ	Southern and Eastern Africa Consortium for Monitoring Educational Quality
SPSS	Statistical Package for the Social Science Study
UNESCO	United Nations Educational, Scientific and Cultural Organization

Table of Content

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1: INTRODUCTION AND BACKGROUND

1.1 INTRODUCTION

The aim of the study is to explore the possible effects of Differential Item Functioning (DIF) using data from the Grade 4 prePIRLS South Africa 2011 study. It proposes to investigate the English and isiXhosa responses to a passage aimed at assessing learners' abilities to read for literary experience, and to provide alternative translations for the literary passage in the three isiXhosa dialects spoken across three areas, namely, Mount Frere to Umzimkhulu, Lusikisiski, and Mbashe to Kei river

Prior to the first democratic elections in 1994 there were only two official languages, Afrikaans and English, but after the elections, under the interim constitution, English, Afrikaans, isiZulu, isiXhosa, isiNdebele, siSwati, Sesotho, Sepedi, Setswana, Tshivenda and Xitsonga together received recognition as official languages (RSA, 1996). South Africa is a multilingual society with 11 official language and part of the interim constitution was to provide equality in education and promote education development (RSA, 1996).

As stipulated in the Constitution (Chapter 2), learners have the right to be taught in a language of their choice (RSA, 1997b). The Language in Education Policy (LiEP) states that learners in every way possible should be given the opportunity to be taught in their home language in Grades 1 to 3 and from Grade 4 they should be introduced to English as a language of teaching and learning (DBE, 2012).

South Africa, in particular, has been struggling to improve the reading literacy performance in primary schools. Studies such as the Progress in International Reading Literacy (PIRLS), the Southern and Eastern African Consortium for Monitoring Educational Quality (SACMEQ) and the Annual National Assessment (ANA) have shown that South Africa's primary school learners' abilities to read are much lower than those of counterparts internationally (UNESCO, 2007).

1.2 THE CONTEXT FOR THIS STUDY

An organisation for large-scale comparative studies for educational achievement and other aspects of education, the International Association for the Evaluation of Educational Achievement (IEA) is an independent, international co-operative of national research institutions and governmental research agencies of participating countries. It aims to provide international benchmarks to help policymakers provide high quality data in order to increase understanding of factors that influence teaching and learning. The IEA conducts assessments on topics such as Reading Literacy, Mathematics, Sciences and Civic education, with reading assessment known as the Progress in International Reading Literacy Study (PIRLS).

South Africa participated in PIRLS 2006 for the first time, with a test was administered in the official languages at Grade 4 and 5 levels (Howie et al., 2008). The scaling and the participants' achievements were depicted by using the 500 points mean and 100 standard deviations as set international (Mullis et al., 2009). The Grade 4 learners achieved an average score of 253 (SE=4.6) and the Grade 5 learners achieved an average score of 302 (SE=5.9). It is notable that South Africa's sample was formulated keeping in mind the languages distribution in the country. South Africa achieved the lowest score of all 45 participating education systems, hence the design for PIRLS 2011 was revised, with Grade 5 learners tested only in English and Afrikaans (Howie et al., 2012). However, for the purpose of testing learners across the official languages, prePIRLS 2011 was introduced, designed to be an easier assessment to accommodate countries in which learners were still developing their reading skills (Mullis et al., 2012).

Based on to the prePIRLS 2011 data, learners who wrote the test in English and Afrikaans achieved the highest average scores in South Africa. Those who wrote it in English achieved an average scale score of 525 (SE=9.9) and Afrikaans achieved an average scale score of 530 (SE=10.1). The three highest scoring African languages included that of siSwati with 451 (SE=5.8), followed by isiZulu with 443 (SE=9.3), and isiXhosa with 428(SE=7.4).

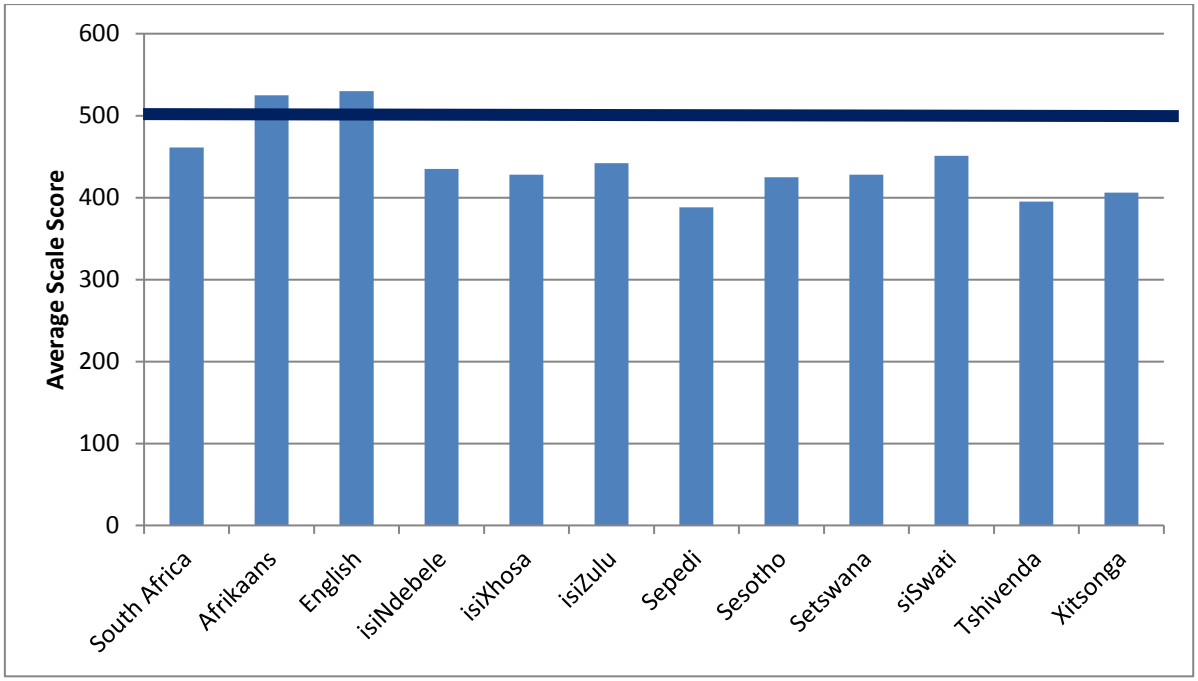

Figure 1.1: South African Learner Performance in prePIRLS 2011 2011 by Language of the Test. Note: the light blue line indicates the International Centre point of 500 Sourced from (Mullis et al., 2012).

As illustrated in Figure 1.1 (above), isiXhosa is placed fifth best performing language out of the 11, though the achievement is significantly lower than the centre point, considering it is the second most widely spoken language in the country (Census, 2011). For this reason, the study aims to investigate the possible reasons for the isiXhosa prePIRLS 2011 results.

According to oral history (Peires, 1981), the ancestors of amaXhosa were the first group of the Nguni to migrate to South Africa, around the 13th century, from the east coast of Southern Africa. The language isiXhosa is an agglutinative tonal language of the Bantu family, which is a family group from Southern African tribes (Loest et al., 1997). There is a clear distinction between amaXhosa and isiXhosa speakers, the former being those who claim descent from an ancestral king named Xhosa, which is amaQcaleka and amaRharhabe of the present day (Bekker, 2003). The latter, isiXhosa speaking tribes are the Thembu, Mpondo, Mpondemise, Bhele, Zizi, Hlubi and Bhaca. The Xhosa speaking tribes have their own history but speak the language isiXhosa and The Xhosa speaking tribes came from Natal as refugees of Mfeqana wars and settled in the amaXhosa land in the early 18th century (Bekker, 2003). The refugees became part of the amaXhosa and adapted their language and culture, hence current isiXhosa speaking groups' customs have a close

commonality (Mayer, 1971). Their isiXhosa dialect thus differs slightly from the original one spoken by the amaXhosa (Bekker, 2003). Due to the South Africa's political history, many of the isiXhosa speaking people were pressured to leave their tribes and homelands and seek better employment in urban areas such as Johannesburg, Cape Town and the industrial hubs of Port Elizabeth, Kimberly and Rustenburg. They settled in these urban and industrial cities where they integrated with English, Afrikaans and other African speakers. Due to migrant labour and their nature of work they often spoke the employer's language (Peires, 1981) and so there were new isiXhosa dialects that had developed from integration and migrant labour.

The study aims to explore learner achievement in the prePIRLS 2011 South Africa taking into account translation bias due to the development of isiXhosa dialects.

1.3 PROBLEM STATEMENT

Prior to the apartheid era it was the missionaries in South Africa who began to provide reading resources for Africans (Edwards & Ngwary, 2011). Although the majority of resources published in South Africa were in Afrikaans and English (DAC, 2008) in 1994 a mandate was issued under the interim constitution which was responsible for readdressing language inequality. The Pan South African Language Board (PanSALB) is an organisation which is responsible for the development of the 11 official languages and promotion of multilingualism (RSA, 1996). The boom in translation then followed the democratic elections but lack of standardisation of African languages has impacted literacy development in the country. The reasons for these challenges include the pool of people undertaking the translation of books for children being small and the frequent complaints regarding the quality of the translation (Edwards & Ngwary, 2011). It has further caused issues in the standardisation of the different African languages (Prah, 2009). The PanSALB has established lexigraphy units for each language to develop terminology and standardisation of languages though there is little evidence from the unit's development as most of the work was undertaken under apartheid (Heugh, 2006). There seem to be a delay in regards to keeping pace with the needs of the publishing industries (Edwards & Ngwary, 2011) so the issues around translation

and standardisation have negatively impacted the education sector. The curriculum promotes multilingualism and learners being taught in the home language. The lack of resources and terminology in African languages has resulted to Afrikaans and English still being the preferred languages for teaching and learning. On the other hand, the government is introducing educational policies which should encourage learners to be taught in the home language.

In South Africa, the Language in Education Policy (LiEP) has been implemented to recognise the different home languages and create opportunities for learners to be taught in their home language from Grades 1 to 3. The policy was published to highlight the use of home language as a language of learning and teaching (LoLT), guided by the South African Schools Act 1996(b) with legislation aimed at promoting multilingualism, the development of the official languages, and respect for all languages used in the country (DoE, 1997). The LoLT is another language policy that forms part of the LiEP and suggests that learners are to be taught in their Home Language (HL) (DoE, 2010). The National Curriculum and Assessment Policy Statement (CAPS) of 2011 for HL and First Additional Language (FAL) stipulates that the main developmental skills are listening, speaking and language structure which are further developed and refined but with an emphasis on reading and writing skills (DoE, 2011).

The LiEP is a building block in implementing multilingualism in schools and classrooms. The principles of the policy is to maintain home language for teaching and learning, but poses the question posed is as to whether the policy is effectively implemented in classrooms. South African classrooms today are linguistically diverse and this dynamic situation could cause potential challenges for the teachers in deciding on the language of instruction (Pretorius, 2014). In addition, because of these diverse societies, learners identify with home language not only because of their home language but also the dominant language where they reside. Due to the diversity of society, learners also speak languages that are most spoken in their communities. In addition, and inter-cultural marriages have resulted in families having more than one language spoken in their household. These discrepancies between home languages do not guarantee effective implementation of the LiEP for children in the foundation phase. According to Probyn et al. (2002), schools are not equipped to make decisions about the school language policies that meet the

requirements of the LiEP. There is a lack of resources to teach in African language and African teachers are not adequately trained to teach in their home languages (van Staden & Howie & Bosker, 2014).

The debate continues whether the LiEP has been successfully implemented in schools, with ineffective implementation of the policy blamed for mostly affecting African learners in former Model C schools[1] (Mncwango, 2012). The LiEP encourages schools to offer HL as a LoLT (1997b), however, African learners in former Model C schools have English or Afrikaans (Mncwayo, 2012). The LoLT means that African learners have to adapt to the schools' language of learning which in most cases is different to their home language. A strong argument made by some schools that parents enrol their children to learn English therefore there is no demand to offer African languages (Mncwayo, 2012). Additionally, a case study done by Probyn et al. (2002) showed that three of the four sampled former Model C schools refused to consider revising their school language policy to accommodate African learners. The key principle of the LiEP is to promote multilingualism and to maintain all cultures and languages across all ethnicities. In contrast, the education curriculum stipulates that learners from Grade 4 be introduced to English as LoLT and their HL as a first additional language (DBE, 2009).

As a result, most learners undergo a language transition in Grade 3 and 4 (Howie et al., 2009). Due to the lack of resources and training to teach African languages, the rationale is that English is the favoured language of teaching (World Bank, 2007). Grade 3 learners who are taught in their home language have to change to the LoLT in Grade 4, presenting a challenge for the learners as the introduction of English in Grade 3 does not equip them for the transition or the language demands encountered in Grade 4. The common underlying principle in reading proficiency relates to academic proficiency (Cummins, 2001), so in order for learners to be able to learn in any other subject it is vital that they master the foundation of reading. Thus, in a bilingual education system it is important for learners to learn in their home language to develop strong literacy skills for building academic literacy proficiency (Pretorius, 2014). In an intervention that was conducted in functional

[1] Model C Schools refer to the Afrikaans and English segregated schools during the apartheid regime.

township schools, Pretorius (2014) describes the transition as “from learning to read to reading to learn”. There is an unloaded gap between Grades 3 and 4 which presents a need to catch up in the intermediate phase. Within a multilingual education context that expects learners to be bi-literate, reading to learn is undertaken in a language that is not their home one, and this contributes to the challenges of the LoLT transitions (Pretorius, 2014). In order to have an effective teaching and learning environment, teachers need to ensure that their teaching methodologies and practices are correct and efficient.

Code switching is generally not accepted as a classroom strategy or methodology (Probyn, 2001), though it is being practiced in South African classrooms, where teachers and learners share a common home language that is used for teaching and learning (Probyn, 2009), while the LoLT is English. Teachers use code switching to utilise the linguistic resources of the classroom in a responsive way and in so doing the hope is to achieve a range of cognitive and effective teaching and learning goals. In a bilingual classroom in which LoLT is not the home language, teachers are faced with goals of the content and the language of teaching (Wong-Fillmore, 1986). Teachers’ classroom practises are moulded by the language proficiency of the learners (Cummins, 2001). According to Martin-Jones (1995), code switching is related to the language policy debate, and the LiEP encourages schools to teach in the home language, though schools still insist on having English as a LoLT (Mncwayo, 2012). Learners’ poor proficiency in the language of teaching and learning has a direct association on their academic achievement (Probyn, 2001). The Annual National Assessment (ANA) has shown that learners are still performing below the expected benchmark in literacy reading.

The past 20 years have shown an increase in countries that participated in international testing for learning in mathematics, science and reading (Kamens & McNeely, 2010). Although there has been an increased interest in these cross-cultural comparative assessments there have been methodological challenges (Wolf et al., 2015). The factors that weigh heavily on them can be briefly summarised in four major categories: 1) the scope of the item content’s equitability for each of the countries participating; 2) comparisons across countries being facilitated by the use of common scaling techniques; 3) sampling being representative and adequate; and 4) the appropriate language to be used in testing

(Kamens & McNeely, 2010). Comparative studies such as prePIRLS 2011, Southern and Eastern Consortium for Monitoring Educational Quality (SACMEQ) and the Trends in Mathematics and Science Studies (TIMSS) are standardised tests developed for an English population. The value of standardised testing is not identical for a learner whose home language is not English (Goh, 2004). In South Africa, prePIRLS 2011 was administered in Grade 4 in the LoLT of Grades 1-3, as this was presumably the home language to which learners would have been exposed in the Foundation Phase (Howie et al., 2012). The question posed whether the standardised tests developed for an English-speaking population and translated into the 10 other official languages create bias in assessment. The challenges faced are replicating a test in another language whilst consistently retaining its original meaning. The contextualisation of the passages may also create the possibility for some learners being disadvantaged.

1.4 RESEARCH QUESTIONS

Based on the above background, the main research question is posed as follows:

- What is the difference in the reading achievement score between English and isiXhosa Grade 4 prePIRLS 2011 passage *The Lonely Giraffe*?

The main research question is then divided:

Sub-question 1:

- To what extent can the differences explained by providing evidence of bias in Differential Item Functioning (DIF) be found between English and isiXhosa Grade 4 prePIRLS 2011 response to a reading passage *The Lonely Giraffe*?

Sub- question 2:

- To what extent could any of the other isiXhosa dialects have provided alternative forms of the items to the passage *The Lonely Giraffe*?

1.5 RESEARCH METHODOLOGY

The aim of this study is to explore translation bias by using DIF methods, employing a quantitative secondary analysis of the prePIRLS 2011 South African data and the learner achievement booklets drawing responses to a passage from *The Lonely Giraffe,* a literary work that has a total of six free response questions and nine multiple choice questions. It explores items only from achievement booklets in English and isiXhosa. Quantitative methods make up a process that is systematic and objective, backed up by numerical data (Maree, 2013). Quantitative research consists of experimental and non-experimental designs (Creswell, 2008) and the nature of the study is a quantitative secondary analysis making use of a non-experimental design existing data.

Secondary analysis can be defined as second-hand (McCaston, 2005) with a research design that is collected for a different purpose from the primary research (Sørensen et al., 1996). This study made use of existing data gathered for the purpose of prePIRLS 2011 to explore any item bias for the English and isiXhosa passages by means of quantitative secondary analysis. The sampling required by the prePIRLS 2011 study was a target population of learners representing at least four years of schooling (Mullis et al., 2009). In South Africa's case, schools were sampled according to language of instruction and school status, referring to the LoLT of schools in the first three schooling years.

An intended number of 345 schools were sampled for prePIRLS 2011 (Howie et al., 2012), with the total who participated in the prePIRLS 2011 being 15,744, of whom 2,205 were English and 1,090 isiXhosa. The reading assessment instrument comprised Grade 4 level fictional (literary) stories and non-fictional (informational) stories. The item types in the test booklets consisted of multiple choice as well as free response questions (Howie et al., 2012). For the purpose of this study, the focus was on the passage *The Lonely Giraffe*, a passage in a story about a group of animals in a bushveld setting and how a lonely giraffe acts as a rescuer during a crisis to secure his place among the other animals (van Staden & Howie, 2011). The passage appears in test booklets 3, 4 and 12. The prePIRLS 2011 achievement booklets were randomly assigned to the learners before the test was administered, with assessment instruments developed in English. In the South African context the assessment instruments were translated into the 10 other official languages. The

translation process of the prePIRLS 2011 South Africa underwent strict guidelines and procedures set out by the IEA for all participating countries (Howie et al., 2012). This was instituted to ensure that all official languages underwent the same verification and quality assurance. This study aims to investigate how assessment instruments developed for an English population and when translated into African languages creates item bias.

In order to answer the main question a Rasch Item Response Theory (IRT) was used to analyse the secondary data from prePIRLS 2011. IRT works as a single parameter model that measures learners' probability to answer a test item correctly (Smit, 2004). The probability of a learner being able to answer a test item depends on the item bias so the aim of the analysis would be to establish whether the item functions differently for learners of different probabilities. According to Smit (2004), item bias is associated with differential item functioning (DIF), that is the level of difficulty of a test item that depends on some characteristics of a group (Cambridge, 1998). DIF is used when individuals of different backgrounds are tested and has the assumption that individuals have the same proficiency but different probabilities to answer the question correctly (Garmerman & Goncaluas & Siares, 2011). In this particular study the probability of answering the question correctly is dependent on the English and isiXhosa group differences, therefore differences in language. The language differences can then be associated with different probabilities (Gierl & Khaliq, 2001). RUMM2030 software was used to analyse the data through Rasch IRT.

Based on the outcomes of the evidence of bias (main question), the hypothesis was that there would be differences in the item responses from the English and isiXhosa learners. The different probabilities of the two language groups influence the way in which the item is answered correctly. In this case, the performances of the learners from the language groups were not the same and varied across the items. With this assumption, the main question was divided into two sub-questions. For the purpose of answering sub-question 1, descriptive statistics were used to identify and report variations in reading literacy achievement between English and isiXhosa *The Lonely Giraffe* responses. The IEA's International Database Analyser (IDB Analyser) software was used to report the descriptive statistics, a plug-in for the Statistical Package for the Social Sciences (SPSS) developed by the IEA (van Staden &

Howie, 2011) to combine and analyse data from large scale data sets such as PIRLS, TIMSS and SITES. In order to provide alternative assessment instruments, the English passage *The Lonely Giraffe* from prePIRLS 2011 was given to three isiXhosa language Grade 4 teachers. These teachers were from the three isiXhosa regions, namely the namely Mount Frere to Umzimkhulu, Lusikisiski, and Mbashe to Kei river to translate into isiXhosa. This stage of the data analysis was a consolidation to discover whether there were dialect differences in isiXhosa. The differences and similarities of these instruments could be used to provide language bias evidence.

1.6 STRUCTURE OF THE DISSERTATION

Chapter 2 is dedicated to the original study prePIRLS 2011, the historical background and its development. This will be addressed by discussing the history of the IEA, its functions and the literacy studies conduct prior to the prePIRLS 2011. Additionally the chapter will consider the factors that have contributed towards the prePIRLS 2011 from the PIRLS 2006 results and gauge South Africa's overall performance in the prePIRLS 2011, as well as the benchmark indications of the Grade 4 learners' performance. The chapter will also view South Africa's prePIRLS2011 performance by language. A review of the prePIRLS 2011 conceptual framework, called the learning to read context, addresses home, school, national curriculum, classroom, learners' attitudes and behaviour that influence a learner's reading achievement. To be presented in the chapter is the prePIRLS 2011 assessment framework which is based on two purposes purpose for reading and processes of comprehension. The chapter will also report on the research design and methodology for the originally study prePIRLS 2011, the instruments design and text allocation per booklet, the translation processes as well as the quality assurance the study adheres to. The chapter will examine at the sampling methods it followed and the data analysis procedures. The aim of this chapter is to address all techniques of the original study prePIRLS 2011.

Chapter 3 is the literature review of the themes of the study. A perspective of the language in South Africa will be tackled, with the language context prior to and during the apartheid regime, followed by the language in the new democratic South

Africa, comparing the language policies from these three different eras and exploring the differences in the official languages from the perspective of African languages. The second theme in the literature review is the different language policies implemented in the new democratic South Africa. The discussion will include a scrutiny of the *Chapter 2 Bill of Rights* and exploring the ways in which the democratic South Africa aims to promote multilingualism, respect for all races, languages and cultures. The discussion will include looking at the Language in Education Policy, its key principles, implementation and debates around the topic. The prePIRLS 2011 was conducted when the Revised National Curriculum Statement (RNCS) was still in place so the chapter will look into the significant learning areas in languages under it. A brief discussion on assessment will review how different authors view assessment in a school-based context, assessment in national and international contexts. This theme aims to explore how the differences and similarities in these three different levels of assessment can contribute positively or negatively towards a learner's performance. The last theme in the literature review is the standardisation of African languages. As regards the development, write-up and standardisation of African languages in South Africa, the focus will be isiXhosa as the sub-group that participated in the prePIRLS 2011. The theme will deliberate the isiXhosa lexicography and illustrate the different dialects within the language.

Chapter 4 includes secondary analysis research design, using the Rasch theory to measure the item difficulty levels of the learner achievement scores with Rumm 2030 software. Second, the descriptive statistics will be included to answer the research questions. The chapter will briefly discuss the nature of the prePIRLRS 2011 data collection, capturing, processing, reliability and validity. For the purpose of this study the focus is on the English and isiXhosa achievement booklets.

Chapter 5 is based on data analysis that begins with descriptive statistics for the overall achievement scores for English and isiXhosa sub-group language for *The Lonely Giraffe*. Descriptive statistics also present the number of correct respondents in each item, following a statistical technique named the ANOVA to test the null hypothesis between the means scores between the sub-groups. This analysis also displays the p-value of each item to determine the functioning between the two sub-groups. After the items that provide evidence for non-functioning are identified, an

additional phase of analysis is conducted. This third analysis consisted of item characteristic curves (ICC). The ICC graphs enable one to depict the differential item functioning of the English and isiXhosa language groups. These graphs are based on the Item Response Theory (IRT), which measures the predicted value against the obtained value and indicate whether the item has any difficulty level discrimination towards one group over the other. From the ICC graphs, the items that show evidence of discrimination towards isiXhosa will undergo the final stage of analysis. These identified items will then be given to Foundation Phase teachers from different isiXhosa dialect areas to review the translations. All the comments will be compiled to determine whether the difficulty levels are due to translation issues or bias in the items.

Chapter 6 is the final chapter of the study, where the recommendations and conclusions are discussed. The data presented in chapter 5 indicated four main recommendations. Lastly, the chapter concludes by explaining the identified translation errors in terms of the test translation error dimension theory.

CHAPTER 2: THE PREPIRLS 2011 STUDY IN SOUTH AFRICA

2.1 INTRODUCTION TO PREPIRLS 2011

The International Association for the Evaluation of Educational Achievement (IEA) is an organisation for large-scale comparative studies of educational achievement and other aspects of education. It is an independent, international cooperative of national research institutions and governmental research agencies that aims to provide, *inter alia*, international benchmarks to assist policymakers to provide high quality data to increase their understanding of factors associated with teaching and learning (Mullis et al., 2012). It conducts assessment of topics such as reading literacy, mathematics, science and civic education and conducts assessment research in well-known international studies such as the Trends in Mathematics and Science Studies (TIMSS), and the Progress in International Reading Literacy Study (PIRLS) (Mullis et al., 2012).

This chapter aims to provide an overview of the research design and methodology of the framework used by the IEA for the prePIRLS 2011 study. It will include a discussion of the history and background of the study and factors that contributed to its establishment, with a description of South Africa's performance as well as the benchmark allocations. It will then address the research design of the prePIRLS 2011 study that will look at the paradigm, the assessment framework, the process followed in the passages selection, the translation guidelines and the scientific allocation of passages in the booklets. The methodology is used to discuss the sampling method, data collection and the quality control procedures to which the study had to adhere. The current study is a secondary analysis of the prePIRLS 2011 data and the main purposes of this chapter is to address the international study design and methods of the prePIRLS 2011 used.

2.2 BACKGROUND TO PREPIRLS 2011 IN SOUTH AFRICA

The first international comparative reading literacy study initiated by the IEA took place across 32 educational systems in 1991. The Reading Literacy study aimed to examine reading literacy across countries that included Belgium, Botswana, Canada, Denmark, France, Finland, Germany, Greece, Hong Kong, Sweden, Thailand, USA and New Zealand. The framework design of the study assessed the

nature of reading instruction, relationships between reading comprehension and the aspects of the home and school environment. The target population was nine and 14 year old learners and Finland scored the highest reading literacy achievement with both age groups, while the USA achieved high reading scores in the nine year old learners' assessment and Sweden, France and New Zealand achieved high reading scores in the 14 year old assessment. It was also learnt that schools that were more effective in the development of reading literacy had more female teachers and the availability of the books at home, school or at a nearby community library was identified as a key factor for high achievement in reading literacy (Brinkley et al., 1995).

Ten years later this study was followed by the Progress in International Reading Literacy Study (PIRLS) in 2001 with 35 education systems[2] or countries participating. PIRLS 2006 was the third study under the IEA, and enabled countries to identify long-term trends. The third cycle would allow the countries to monitor the developments in reading and education over time (Mullis et al., 2009). The research objectives of prePIRLS 2011 were to explain national performance and international comparisons for:

The reading achievement of Grade 4 learners in South Africa;

The reading achievement of Grade 4 learners in 11 official South African languages, and the achievement of benchmark in reading;

Grade 4 learner competencies in relations to goals and standards for reading education;

The impact of the home environment and social conditions on Grade 4 learner performance and how parents foster reading literacy with PIRLS 2006 as baseline data;

The organisation and planning of the reading curriculum in the Grade 4 by schools with PIRLS 2006 as baseline data;

[2] Refers to the education curriculum of the countries that participated in the prePIRLS 2011 study.

Classroom approaches to and strategies for the teaching of reading in Grade 4, taking into account time and reading material for instruction; and

Policy implementation regarding curriculum and infrastructural development at schools at Grade 4 level.

Adopted from (Howie et el., 2012 p 21)

The research objectives aimed at establishing a new baseline as prePIRLS 2011 were a new study but the 2011 cycle has been unable to provide trend data as yet.

South Africa participated in the IEA's reading literacy study for the first time in the PIRLS 2006 study, then conducted in South Africa by the Centre for Evaluation and Assessment in 441 schools in October and November 2004, which resulted in the assessment of 16,073 of Grade 4 learners and 14,657 Grade 5 learners across all 11 official languages. The assessment of two grades endorsed the tracking progress from Grades 4 to 5. Overall, South Africa was one of the lowest performing countries with the Grade 5 learners achieving the lowest score of 302 (SE=5.6). The Grade 4 learners achieved an average score of 253 (SE=4.6) (Howie et al., 2008).

South Africa participated in PIRLS 2011, the fourth study under the IEA on international literacy comparative reading assessment, and the second cycle in which they participated. In addition to PIRLS 2011, South Africa opted to participate in prePIRLS 2011 which was administered across all 11 official languages in Grade 4. As an easier assessment, it allowed developing countries the opportunity to measure reading literacy achievement, since achievement scores in PIRLS 2006. South Africa were at very low levels. In PIRLS 2011 only Grade 5 learners were tested in English and Afrikaans (Howie et al., 2012), since learners who were tested in these languages in PIRLS 2006 were performing the best.

2.3 SOUTH AFRICA'S PERFORMANCE IN PREPIRLS 2011

The performance of South Africa in prePirls 2001 can be broken down as in this section.

2.3.1 South Africa's overall performance

South Africa was one of three countries that participated in prePIRLS 2011 along with Colombia and Botswana (Howie et al., 2012). It was the lowest performing country relative to the scale with a centre point of 500 (median) and a standard deviation of 100. The centre point made it possible for cross-country comparison since the countries presented a wide variation (Mullis et al., 2012).

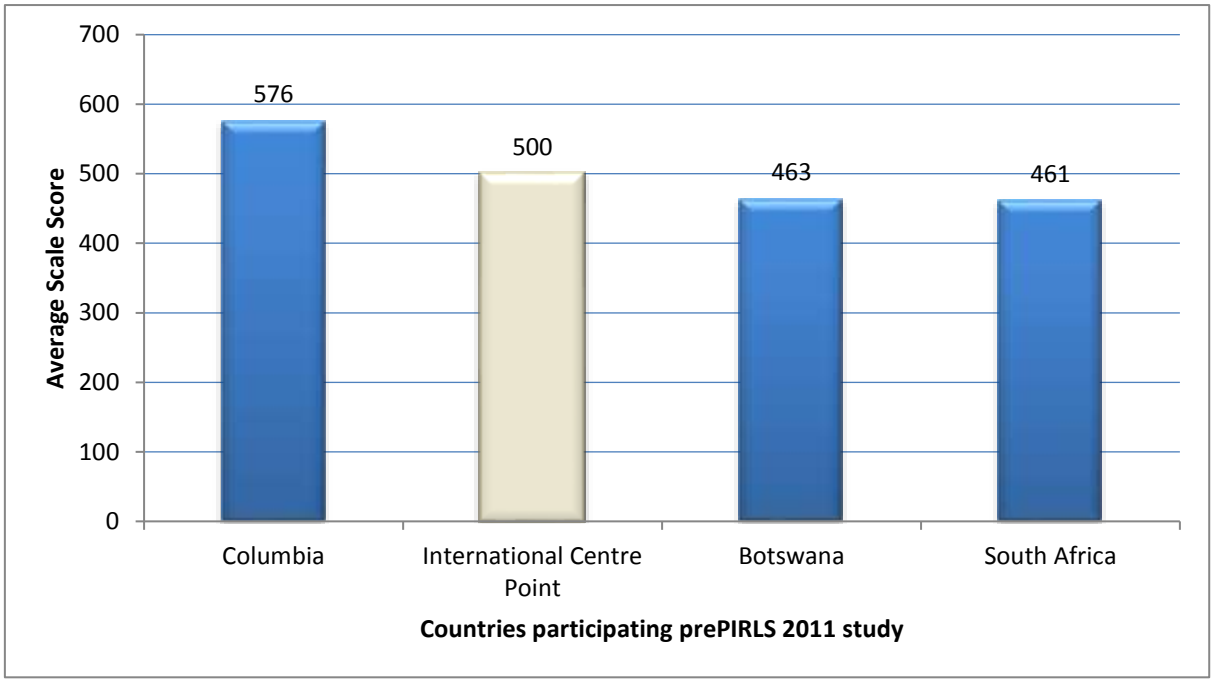

Figure 2.1: South African Grade 4 Learner Performance in prePIRLS 2011 compared internationally

Figure 2.1 (above) shows the performance of the countries that participated in the prePIRLS 2011 study, indicating the overall performance of South Africa with an average score of 461 (SE=3.7). The overall performance of South Africa and Botswana is significantly lower that the centre point of 500 by 37 and 39 points. Colombia obtained an average score of 576, which is above the centre point by 76 points (Howie et al., 2012). Botswana and South Africa were the only African countries participating in this particular study and South Africa remained the lowest performing in Africa. Girls achieved an average score of 475, and boys an average score of 446, confirming international trends in gender comparison.

2.3.2 PrePIRLS 2011 Benchmarks

In prePIRLS 2011, Grade 4 learners' reading achievement was categorised by four benchmarks, namely (1) advanced international; (2) high international; (3) intermediate international; and (4) the low international (Mullis et al., 2009). Table 2.1 (below) indicates the different ones, with scores associated with and the level of competence presented by each.

Table 2.1: International benchmarks of Reading Achievement (Mullis et al., 2012).

Advanced International benchmark	
625	When reading literary texts, learners can: Intergrade ideas and evidence across a text to appreciate overall themes Interpret story event and character actions to provide reasons, motivations, feelings and character traits with full text – based support When reading information texts, learner can: Distinguish and interpret complex information from different parts of texts and provide full text – based support Integrate information across a text to provide explanations, interpret significance and sequence activities
High International benchmark	
550	When reading Literary texts, learners can: Locate and distinguish significant actions and details embedded across the text Make inferences to explain relationship between intentions, actions, events and feelings and give text – based support Interpret and integrate story events and character actions and traits from different parts of text Evaluate the significant of events and actions across the entire story Recognise the use of some language features When reading information text learners can: Locate and distinguish relevant information within a dense text or a complex table Make inferences about logical connections to provide explanations and reasons Integrate textual and visual information to interpret the relationship between ideas Evaluate content and textual elements to make generalisations
Intermediate International benchmark	
475	When reading Literary texts, learners can: Retrieve and reproduce explicitly stated actions, events and feelings Make straight forwarded inferences about the attributes, feelings and motivations of main characters Interpret obvious reasons and causes and give simple explanations Begin to recognise language features and style When reading information texts, learners can:

	Locate and reproduce two or three pieces of information from within the text Use subheading, text boxes and illustrations to locate parts of the text
Low International benchmark	
400	When reading Literary texts, learners can: Locate and retrieve an explicitly stated detail When reading information texts, learners can: Locate and reproduce two or three pieces of information from within the text Use subheadings and text boxes, and illustrate to locate part of the text

The prePIRLS 2011 South Africa's overall benchmark performance is as follows;

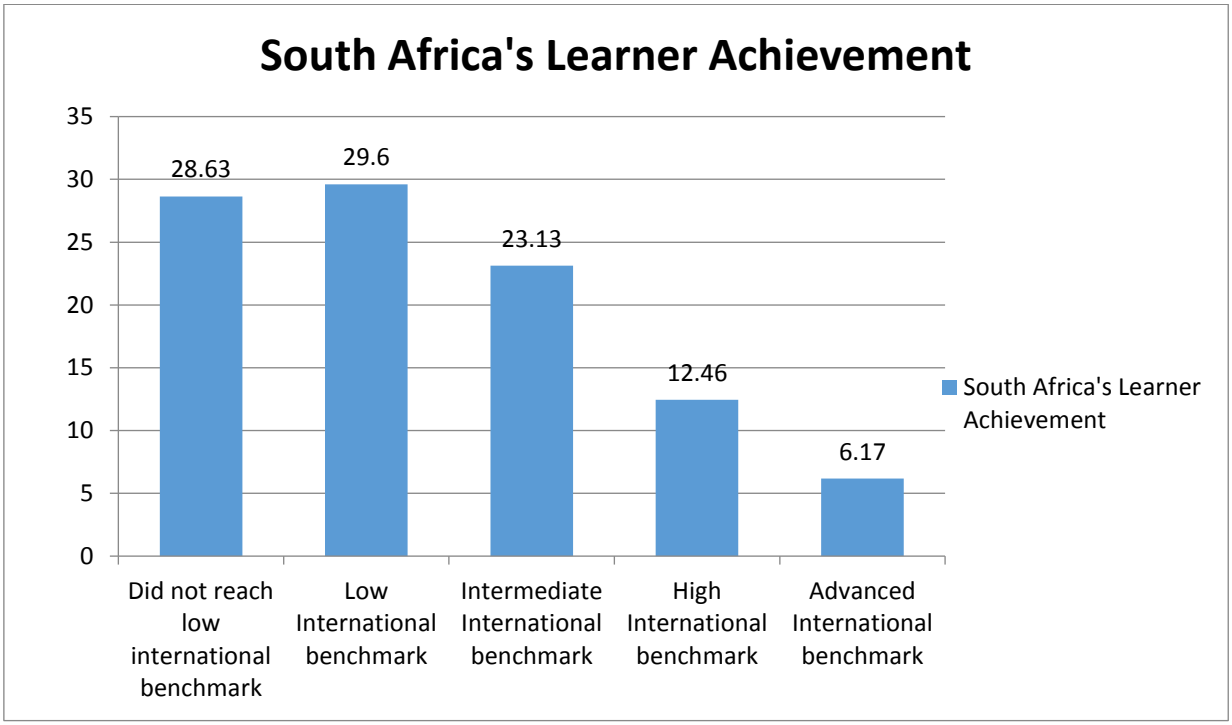

Figure 2.2: prePIRLS 2011 South Africa's benchmark achievement (Howie et el., 2012. p 47).

Figure 2.2 (above) shows that 29% of South African learners who participated in prePIRLS 2011 achieved within the low international benchmark. A small percentage of 12.4% learners reached the high international benchmark and only 6.1% reached the advanced international benchmark. A majority of the Grade 4 learners participating reached between the lower two benchmarks. The total percentage of these learners in the lower two benchmarks is 52.73%, which translates to the majority of the Grade 4 learners who were only able to reach

between 0 and 475 scale score points. Additionally, a much lower percentage, 18.63%, reached the higher two benchmarks. The difference between the higher and lower benchmarks amounted to a difference of 34.1% of learners, with an alarming 28.63% unable to even reach the low international.

2.3.3 South Africa's performance by language

PrePIRLS 2011 was administered in the 11 official languages. Of the 10 African languages, nine performed below the international centre point (Howie et al., 2012).

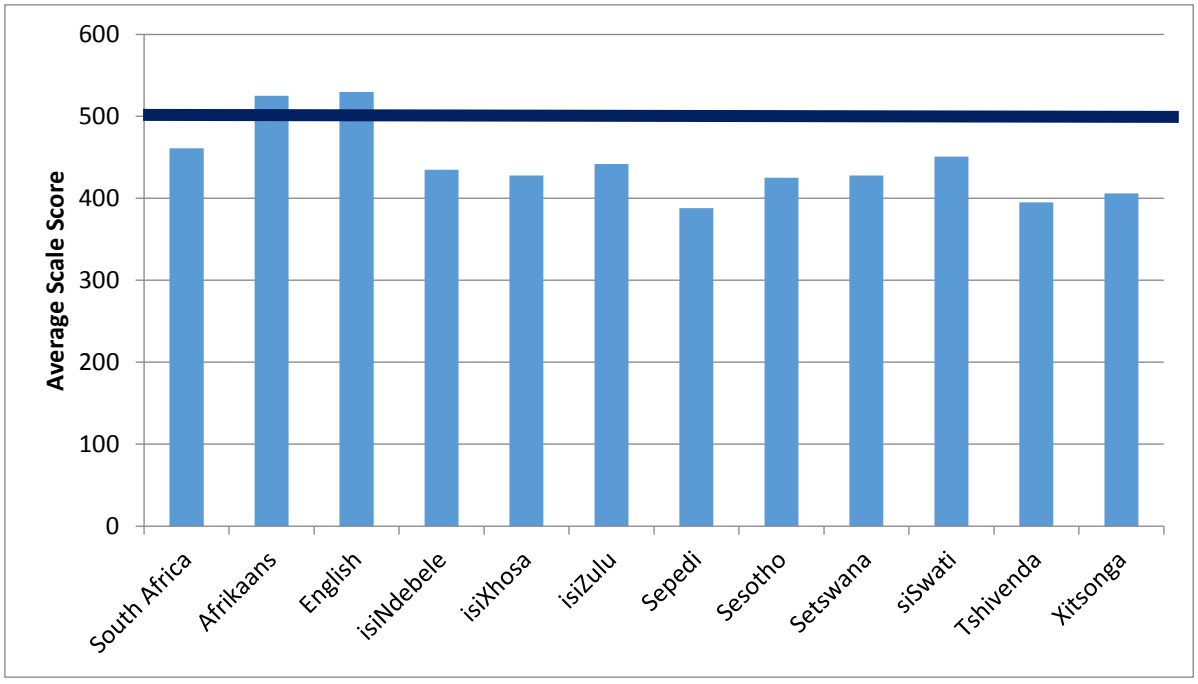

Figure 2.3: South African Learner Performance in prePIRLS 2011 by Language of the Test

Grade 4 learners who wrote the test in English and Afrikaans achieved the highest average scores in South Africa, above the international centre point of 500. Learners who were tested in English achieved an average scale score of 525 (SE=9.9) and those who were tested in Afrikaans achieved an average scale score of 530 (SE=10.1). The three highest scoring African languages was siSwati with 451 (SE=5.8), followed by isiZulu with 443 (SE=9.3) points, then isiXhosa with 428 (SE=7.4) points. The lowest performing African languages were Sepedi with 388 (SE=7.4) and Tshivenda with 395 (SE=7.6) points (Howie, et al., 2012).

This study focuses on the language isiXhosa, the second most widely spoken language in South Africa, across three provinces, Eastern Cape, Western Cape and Northern Cape (Census, 2011). The learners who wrote the test in isiXhosa in the prePIRLS 2011 achieved an average score of 428 (SE=7.4) points, substantially below the international centre point of 500.

2.4 PREPIRLS 2011 LEARNING TO READ

Reading literacy is defined by the IEA as fundamental to the prePIRLS 2011:

> *… the ability to understand and use those written language forms required by society and/or valued by the individual. Young readers can construct meaning from a variety of texts. They read to learn, to participate in communities of readers in school and everyday life, and for enjoyment (Mullis et al., 2009).*

The aim of the prePIRLS 2011 assessment was to provide interaction between the reader and the passage to construct a meaning from text. It understood reading in school and in everyday life, with learners constructing meaning and developing effective reading strategies to reflect on reading (Howie et al., 2012). The reading experiences of learners show an association with home, school, classroom context and the communities in which they live (Mullis et al., 2009). The assessment framework was based on a belief that a learner's reading achievement made a contribution to various contexts, such as national and community, home, school and classroom.

Instruction and experiences, as well as learner behaviour and attitudes, form part of these contexts, as can be seen in figure 2.4 (below).

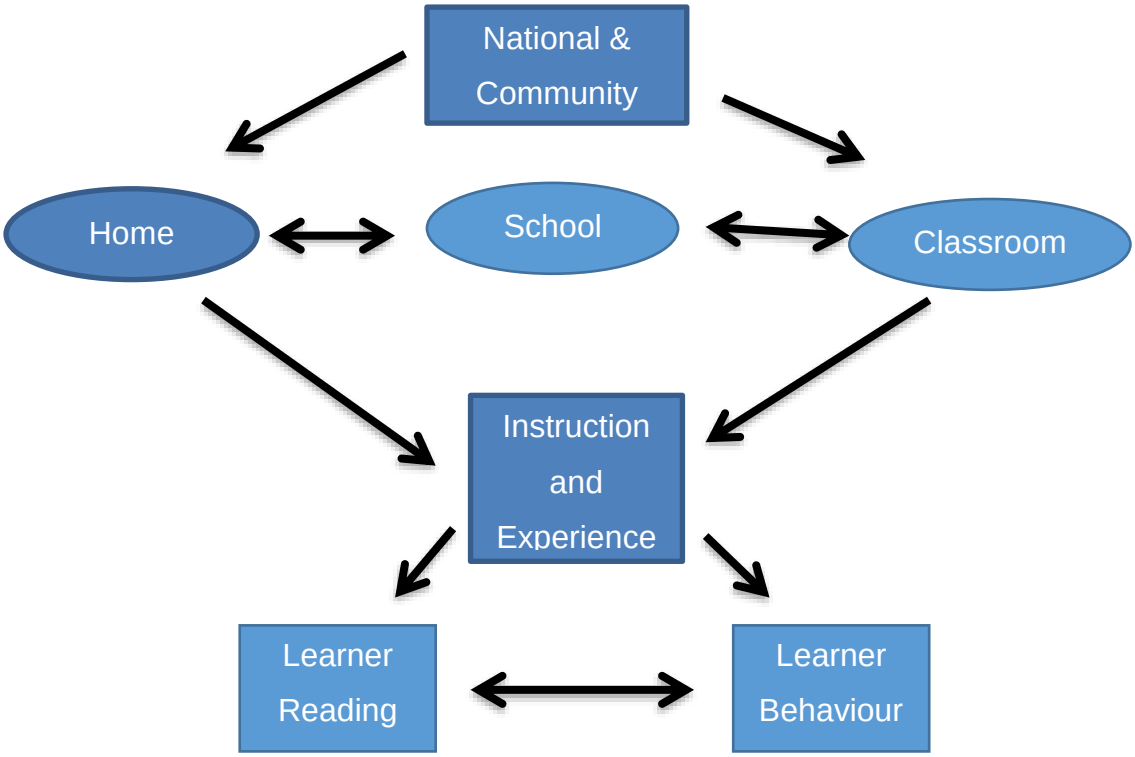

Figure 2.4: The prePIRLS 2011 Conceptual Framework (Mullis et al., 2012).

The conceptual framework posits that learner reading achievement is based on six main contexts. The national and community contexts involve aspects such as the socio-economics and Gross Domestic Product (GDP), which have a relationship with the home, school and classroom environment to which the learners are exposed. The home context refers to the child's access to domestic, economic, social and educational resources. In additional to the home context is the emphasis on parental literacy development and the parents' reading behaviour and attitudes, which will impact the learners' achievement by means of modelling and guidance. The school context refers to the type of school a learner is in and how that affects reading and attainment. This also includes the productivity and work ethic the school has as well as its organisation (Howie et al., 2012). The classroom context is apparent through the teacher education and development, teacher characteristics and attitude. Another aspect is the classroom context, which include characteristics such class size, instructional resources, technology use and activities (Mullis et al., 2012). The learner behaviour and attitude consist of reading literacy behaviour, positive attitudes towards reading and attitudes towards learning to read (Howie et al., 2012).

2.5 PREPIRLS 2011 ASSESSMENT FRAMEWORK

The prePirls 2011 assessment framework comprised the following components.

2.5.1. Purposes for Reading

For fourth year schooling learners' reading is often focussed on two aspects, namely narratives and informational texts, whilst the prePIRLS 2011 study was centred on two purposes of reading, namely, a) reading for literary experiences; and b) reading to acquire and use information. The assessment had an equal allocation of both. The items that accompanied the passages also addressed the reading purposes, for example, a literary text as a fictional passage and questions about the themes, plot, setting and characters. Literary experiences allow a reader to engage with the text to express feelings, atmosphere, ideas, settings, actions, consequences and character (Mullis et al., 2012). For Grade 4 learners literary reading offered the learners a chance to explore the situations and feelings that they might have come across. PrePIRLS 2011 literary text was mainly in the form of narrative fiction.

The informational passages were in a form of informative articles or instructional text and asked questions that addressed the information contained in the passage (Mullis et al., 2012). Reading for the use and acquisition of information could be addressed in several informational texts. Young learners usually read informational texts to cover a wide range of content for example scientific, historical, and geographical and social sciences (Mullis et al., 2012). The prePIRLS 2011 assessment focused on informational text that would reflect learners' authentic experiences with reading informational passages in and out of the schooling environment.

2.5.2 Processes of Comprehension

According to Baker and Beall (2009), readers construct meaning in different ways. The prePIRLS 2011 assessment framework assessed mainly four processes of comprehension, namely, a) focus on and retrieve explicitly stated information; b) making straightforward inferences; c) interpreting and integrating ideas and information; and e) evaluating and critiquing content and textual elements (Mullis et al., 2012).

Focus on explicitly stated information looks at how a reader retrieves it in a text to answer a question, including tasks that will identify information relevant to the specific goal of reading, searching for specific ideas, definitions of words or phrases, identifying the setting of a story and finding the topic sentence or main idea (Mullis et al., 2012). To make straightforward inferences a reader constructs meaning from a text through ideas not clearly stated in it (Zwaan & Singer, 2003). The prePIRLS 2011 assessed this text processing by inferring that one event causes another event and conducting the main point made by a series of arguments. The ability to make straightforward inferences also includes tasks that will identify generalisations made in the text and describing the relationship between characters (Mullis et al., 2012).

The third process of comprehension in the prePIRLS 2011 assessment framework was to interpret and integrate ideas and information such that the reader might engage with a text that would focus on local or global meaning. To achieve this particular text process involved inclusion of discerning the overall message or theme of a text and considering an alternative to actions of characters, comparing and contrasting text information, inferring a story's mood or tone and interpreting a real-world application of text information (Mullis et al., 2012).

Concerning the evaluation of content and textual elements a reader shifts the focus from constructing meaning to critically analysing the text itself. The tasks for the comprehension process are judging the completeness or clarity of information in the text. The reader evaluates the likelihood that the events described could really happen and the author's argument and describe the effect of language features, such as metaphors or tone and determining an author's perspective on the central topic (Mullis et al., 2012).

A summary of the percentage of prePIRLS 2011 study purposes for reading and processes of comprehension are allocated in table 2.5 (below), from which it can be deduced that prePIRLS 2011 study was meant to be an easier assessment, with the majority of questions aimed at assessing learners' ability to focus on and retrieve explicitly stated text.

Table 2.2: Percentage of prePIRLS 2011 Reading Assessment Devoted to each Reading Purpose and Comprehension Process taken from Mullis et al., 2012

Reading Assessment	**prePIRLS 2011**
Purpose for Reading	
Literary Experience	50%
Acquire and Use Information	50%
Processes of Comprehension	
Focus on Retrieve Explicitly	50%
Make Straightforward Inferences	25%
Interpret and Integrate Ideas and Information	25%
Evaluate and Critique Content and Textual Elements	

2.5.3 Reading Literacy Behaviours and Attitudes

The prePIRLS 2011 study also considered the attitudes and behaviours of a learners' reading literacy development. The original study collected data to measure these behaviours and attitudes through prePIRLS background questionnaires (Mullis et al., 2012). The background questionnaires included a learner, learning to read (or parent questionnaire), teacher and school questionnaire. The purpose of the attitudes and behaviour framework derived from a theory that young children in primary school develop skills, behaviour and attitudes associated with reading literacy at home and at school. Figure 2.4 illustrates how the different contexts influence the learners' attitude and behaviour towards reading. The national and community context influences the home, school and classroom environment. Inevitably, these contexts impact the learners' attitudes and behaviours towards reading literacy (Mullis et al., 2012).

The school questionnaire is given to the school principal to collect data to address the community and school contexts. Schools play a crucial role in the development of reading literacy, mainly because they are the hub for formal learning (Mullis et al., 2012). The prePIRLS 2011 assessment framework identified factors in schools that affect reading literacy acquisition. Firstly, the school's characteristics which include the residential area in which the school is situated are addressed by the

school questionnaire. Secondly, the school's organisation for instruction in literacy-related policies is used to determine the formal reading instruction the learners receive. Thirdly, the school's climate for learning which inevitably has an impact on the academic programmes is addressed. Lastly, the availability and quality of the school's resources also contribute to the quality of learning instruction and are addressed by the school questionnaire (Mullis et al., 2012).

The teacher questionnaire was given to the teacher of the sampled class, and the questionnaire aimed to collect date on the classroom context. The teacher and classroom environment is another influential determinant on a learner's literacy development. Firstly, the questionnaire determines how the teacher's education and development assist in their own knowledge and understanding of how learners learn to read. Secondly, it determines how a teacher's attitude and characteristic impacts the learners in the classroom experiences of reading. Thirdly, the classroom context is ascertained by determining the class size, teaching approaches, teaching strategies, instructional materials and use of technology. All these classroom contexts assume an influence on the learners' progress (Mullis et al., 2012).

The learning to read questionnaire was given to the learners' parents, guardian or caregiver. It provided insight into the home environment on reading literacy. A family's belief about reading as well as the learner's exposure to text impacts the learner's own belief and experience about reading (Baker et al., 1996). The questionnaire measured two aspects, firstly, economic, social and educational resources, secondly parental emphasis on literacy development.

The learner questionnaire was completed by the learner and explored the learners' characteristics and attitudes. The first aspects in the questionnaire measured the reading literacy behaviours of the learner. As a learner develops reading literacy the time he or she spends reading and doing the activities become significant (Mullis et al., 2012). Therefore, the time spent on reading, including outside school reading activities, cultivates a habit of long-life reading habit for learners and increases the practise skills (Duke, 2004). The second aspect is the learners' attitudes towards learning to read and reading itself. The assumption is that learners who read well have a positive attitude towards reading and learning to read (Mullis et al., 2009; 2012). For example, a learner who spends more time reading will consequently

develop proficiency in reading and one who has a strong self-concept about reading ability will continue to read on current levels of learning and will enjoy challenging readings.

2.6 PREPIRLS 2011 STUDY AND METHODS

PrePIRLS 2011 utilised the IEA approaches to international surveys and comparatives studies (Howie et al., 2012). The research approach of the study is a quantitative cross-sectional survey design which makes use of assessment instruments and questionnaires.

2.6.1 prePIRLS 2011 Assessment Instruments

PrePIRLS 2011 instruments included the achievement booklets and background questionnaires which had been developed in English and distributed to the participating countries by the International Study Centre (ISC). The achievement booklet is the assessment book the learners completed by reading passages and answering questions based on the passages. It included Grade 4 level fiction stories and informational level text passage, supplied by the different participating countries. The passages were aimed at engaging the learners in a full range of reading strategies, for example, a) retrieving and focusing on specific ideas; b) making simple and more complex inferences; and c) examining and evaluating text features. The items that accompanied the reading passages consisted of two types of questions, namely, multiple-choice and free response (Howie et al., 2012).

A matrix design was used to ensure the spread of passages across the booklets (Howie et al., 2012). The reading passages and its items were divided into groups and blocks, for example, the literary passages from L1 – L4 and the informational passages I1 – I4. This meant there were a total of eight blocks, which needed to be distributed across 12 different achievement booklets (Mullis et al., 2009).

Table 2.3.: Matrix sampling blocks (Mullis et al., 2012).

Purpose for Reading	*Block*			
Literary Experience	L1	L2	L3	L4
Acquire and use information	I1	I2	I3	I4

Table 2.4: prePIRLS 2011 booklet design

Booklet	Literary Experience	Acquire and Use Information
1	L1	L2
2	L2	L3
3	L3	L4
4	L4	I1
5	I1	I2
6	I2	I3
7	I3	I4
8	I4	L1
9	L1	I1
10	I2	L2
11	L3	I3
12	I4	L4

Additional to the assessment instruments are the background questionnaire which aimed to collect data relating to the reading behaviour of learners and the reading attitudes of learners, parents, teachers and school principals. The learner questionnaire included items that could collect information about the learners' home and school experiences about learning to read. Furthermore, the learner questionnaire also collected information about the attitudes of the learners' reading habits (Mullis et al., 2012). The learner questionnaire was in the language in which the learners completed the prePIRLS 2011 assessment.[3].

To ascertain the learners' reading experiences at home a parent questionnaire was also designed. Referred to as the Learning to Read Survey in prePIRLS 2011 it also

[3] The language of testing coincided with the Language in Learning and Teaching in which learners were taught during their Foundation Phase.

included parents' behaviour and attitudes towards reading. As with the learner questionnaire the parent questionnaire was also translated in the LoLT of the learner. The teacher questionnaire was completed by the language teacher, aimed at gathering information about the teaching and learning related to reading and language in the classroom context. The school questionnaire was completed by the principal and aimed to collect data about the school context related to reading and language (Mullis et al., 2012). The teacher and school questionnaires were only administered in English as a cost-saving device, with the assumption that teachers and principals would be able to read English. For the purpose of this study, the background questionnaire data will not be explored or analysed.

2.6.2 PrePIRLS 2011 Sampling

The sampling required by the study was a target population who had four years of schooling. In South Africa this meant Grade 4 learners, with a design that required at least 150 schools (Mullis et al., 2009). A three-stage stratified cluster sampling design was used in prePIRLS 2011 (Joncas & Foy, 2010), meaning that during the first stage schools were sampled, then during the second stage intact classrooms were randomly selected followed by all the learners in these classes as the third stage sampling unit (Joncas & Foy, 2010).

In South Africa, the sample was stratified specifically by language of instruction. A total of 345 schools were sampled for prePIRLS, but only 341 schools participated in the study (Howie et al., 2012). The schools that did not participate were due to schools' refusal to participate or the closing of schools. The 341 schools translate into a total 15 744 Grade 4 learners who wrote the prePIRLS 2011 assessment.

2.6.3 Translation processes

The instruments had to be modified by means of conceptualisation into South African context and items translated in the other ten languages (Howie et al., 2012). A process of back translation was used (Stubbe, 2010). Passages and items were developed in English, professional translators were appointed to translate from English into Afrikaans, isiNdebele, isiXhosa, isiZulu, siSwati, Sepedi, Sesotho, Setswana, Tshivenda and Xitsonga, after which they were translated back into

English (Howie et al., 2012). The back translation is a process used to check that the meaning of the passage in the translated language remains the same as presented in English. The instruments underwent a scrutinised process of international translation verification submitted to the IEA, which appointed independent translation verifiers to assure quality, verify the translations and adhere to standardisation (Howie et al., 2012). Due to the number of official languages in South Africa, the IEA only verified the seven most spoken languages, namely, Afrikaans, English, isiXhosa, isiZulu, Sepedi, Sesotho and Setswana (Howie et al., 2012). The CEA had to ensure additional quality for the remaining four smaller languages.

2.6.4 Quality Assurance

The study consisted of several checkpoints that were set by the IEA as strict guidelines for quality assurance during data collection. Throughout the data collection, external monitors visited schools during testing to ensure all procedures were according to IEA standards. The instruments then went to the next stage of the project which was the scoring of the response items by scorers comprising student teachers and retired teachers. As far as possible, mother tongue speakers were used (Howie et al., 2012) and in this phase of the study a certain percentage of booklets in each language were quality assured to ensure that scoring was conducted fairly across all booklets. This meant that some booklets were scored twice to ensure consistency in marking, after which international scoring reliability was checked. This meant that all countries who administered the assessment in English exchanged booklets to score. The data capturing was by a service provider appointment by the CEA. Both the multiple choice and coded response items were captured. A total of 60% of the achievement booklets were captured twice to ensure consistency with the data capturers. The software used to capture the data was *WinDem* and all these quality checkpoints aimed to increase the validity and reliability of the study (Howie et al., 2012).

2.6.5 Data Analysis

The achievement instruments were randomly assigned to learners before the test date, each instrument being marked with the learner's name and surname, 8 digit

ID number linked to the school and class of the learner. The data collection was conducted by a market research company appointed by the CEA. Training was provided to the fieldworkers and the fieldwork supervisors to ensure standardised procedures and compliance with the IEA guidelines. The data collection took place during October and November 2011 (Howie et al., 2012). The assessment was in a form of a one day test session. The learners were given in total 80 minutes to complete the achievement booklets (40 minutes per booklet) with a compulsory break after the first 40 minutes.

The prePIRLS 2011 South African achievement data is presented by language and gender (Howie et al., 2012). A learner who participated in prePIRLS 2011 was only assessed on a certain subset of items from the entire prePIRLS 2011 reading item pool (Foy et al., 2011). Because a learner was assessed on a subset of the items there was a need to have a learner's score for the entire assessment framework for analysis and reporting purposes. In line with the purpose, prePIRLS 2011 uses the item response theory (IRT) scaling approach to describe a learner achievement on the assessment. IRT works as a single-parameter model that measures learners' probability to answer a test item correctly (Smit, 2004). The scaling approach utilities a multiple imputation termed 'plausible values', the use of which is a methodology to obtain proficiency scores in reading. To increase the reliability scores of the scaling approach, prePIRLS 2011 uses a term known as 'conditioning, a process by which learners' responses to the items are combined with information about their background (Foy et al., 2011).

2.7 CONCLUSION

This chapter presented an outline of the prePIRLS 2011 study as it was conducted for international purposes. It discussed the background with an overview of the South African performance presented by looking at the overall performances of the country, the benchmark performance points and the achievement scores by language. It also included the assessment framework with the purposes for reading and processes of comprehension. The chapter aimed to show how the sample was selected as well as how the achievement instruments and background questionnaires were posed. A description was given of how quality assurances during data collection were ensured. It ends with a description of the use of plausible

values to report achievement results, which for the current study forms a critical part of the analysis.

CHAPTER 3: LITERATURE REVIEW

This chapter is an overview of reviewed literature, the first topic being the changes in the educational landscape in South Africa, comparing the educational context of the apartheid era and the 'new South Africa'. A debate around the Language in Education Policy (LiEP) will be dealt with, to discuss how different scholars may view it, exploring the challenges and the successful aspects. The chapter will also look at the curriculum history in South Africa followed by a breakdown of the Grade 4 language RNCS outcomes and standards. It will include an outline of the assessment standards in reading literacy as viewed nationally and internationally to understand what they mean in a global educational context. Additionally, the chapter will present findings of the systemic evaluation such as the Annual National Assessment and international comparative studies namely the Southern and Eastern African Consortium for Monitoring Educational Quality (SACMEQ) and the Progress in International Reading Literacy Study (PIRLS). Lastly, the chapter will unfold the processes involved in standardisation of languages in South Africa, by considering what formulates a standardised language.

3.1 CHANGES IN THE SOUTH AFRICAN EDUCATIONAL LANDSCAPE

South Africa has a protracted history of language policy and development with Language having been used as a tool for segregation for many years (Sayed, 2011). In 1948, under the Apartheid Act, the language policies were formalised and made legislation. Between then and the first multiracial democratic elections in 1994 the government recognised only Afrikaans and English as official languages (Brook Napier, 2011) with no acknowledgment of the African languages by the government, since all public signs, boards and communications were in Afrikaans or English only. The Apartheid regime not only not refused to recognise African languages it also constructed education policies that would be different across the racial groups.

Under Apartheid, South Africa consisted of four provinces the Cape Colony, Natal, Transvaal and the Orange Free State, each with its own legislation but the supreme legislation being the Constitution which overruled provincial legislation. The population distribution across all four provinces remained the same with Bantus

(black people) dominating followed by whites except for the Cape Colony with Coloureds and lastly Asians (Census, 1960). Table 3.1 (below) presents the statics of the 1960 Census.

Table 3.1: Population distribution under the apartheid regime. Sources: Census 1960 Statesman's Year-Book 1967–1968;

Province	**Cape Colony**	**Natal**	**Transvaal**	**Orange Free State**	**Total**	**Percent**
Bantu	3,011,080	2,199,920	4,633,378	1,083,886	**10,928,264**	68.3%
White	1,003,207	340,235	1,468,305	276,745	**3,088,492**	19.3%
Coloured	1,330,089	45,253	108,007	25,909	**1,509,258**	9.4%
Asiatic	18,477	394,854	63,787	7	**477,125**	3.0%
Total	**5,362,853**	**2,980,262**	**6,273,477**	**1,386,547**	**16,003,139**	100.0%
% of South Africa	33.5%	18.6%	39.2%	8.7%	100.0%	

According to Table 3.1, by 1960 South Africa had a total population of 16,003,139, a large proportion of whom, 68.3%, consisted of Bantus, 19.3% Whites, 9.4% Coloured and 3% Asian. The province with the largest population was Transvaal with 39.2%, because of high labour migration from rural to urban settlements for the mining industry and economic boost in urban areas.

During apartheid the educational policies and practices did not recognise multilingualism (Brook Napier, 2011), underpinned by the Bantu Education Act of 1948 which labelled schools for white learners as European or Model C schools and those for non-white learners as Native schools (RSA, 1953). The Native language Education Policy outlined that learners from Grades 1 to 3 would be taught in an African language (Alexandra, 2003). The African language was decided by either the homeland administration under which the school fell or by Bantu provincial administration (RSA, 1953). In addition, a first additional language for the native schools was a choice between Afrikaans and English (Alexandra, 2003). The

apartheid governments recognised the importance of learning in home language but officials rejected the ideology, citing the following (UNESCO, 1953:11):

> *It is axiomatic that the best medium for teaching a child is his mother tongue…But, it is not always possible to use mother tongue in school and, even when possible, some factors may impede or condition its use.*

According to Alexandra (2003), the language policy was in line with the most up-to-date international educational research, which proposed the idea of building a society that regarded Africans as inferior. Moreover, the government claimed to provide academic evidence for the detribalisation of African people (Alexandra, 2003).

Under the same Bantu Education Act, No 47 1948, the language medium from Grades 4 to 12 was either Afrikaans or English and the First Additional Language was an African language (Alexandra, 2003), which meant that for white and non-white school groups the medium of instruction was only Afrikaans or English. The time allocated for the languages in black native schools was set in a way that learners spent more learning and teaching time on Afrikaans and English (Nkondo, n.d). The weekly allocated time was 4 hours 30 minutes for Afrikaans and English, 3 hours and 30 minutes for their mother tongue (Transvaal Education Department, 1970).

In Model C schools, learners took Afrikaans and English for equal amounts of time of 4 hours per week. The second phase of Bantu Education began in 1975, when the Ministry insisted that from Grades 4 to12 the LoLT would be both English and Afrikaans. This legislation resulted in a lot of resistance by learners themselves as well as teachers and native community members (Alexandra, 2003).

The apartheid system managed to use language in education as a tool to segregate learners from different backgrounds, races and cultures. As a result of the Bantu Act, significant importance was placed on teaching in Afrikaans or English and the African languages remained neglected. The irony of the language policy is how African learners had to use Afrikaans or English and white learners did not have to learn any African language. Indirectly, this policy was sending a message to the African learners that their languages were not essential and it was more significant

to learn Afrikaans or English (Nkondo, n.d). South Africa's government, through local resistance and international sanctions realised the importance of reforming its segregated policy and move towards a more non-racial, democratic country that acknowledges every language and culture as part of the nation.

3.2 LANGUAGE IN EDUCATION IN SOUTH AFRICA SINCE 1994

In 1994, South Africa held its first democratic elections in which citizens above the ages of 18 years old of all races, ethnicities and cultures were given the opportunity to vote. The language policies were integral to the new government strategy to redress the discrimination of the past and rebuild a new identity for the country (Chick, 2002). The aim of the LiEP was to promote multilingualism and a non-racial country. Language equity was one of the main development key issues in developing African languages and improving access to these languages. In Chapter 1 (6) of the new constitution Afrikaans, English, isiNdebele, isiXhosa, isiZulu, Sepedi, Sesotho, Setswana, siSwati, Tshivenda and Xitsonga were legislated as official languages.

According to the South African Census 2011, the language distributions in households were as follows:

Table 3.2: Home Language distribution in South Africa (Census, 2011)

Official Language	**Percentage of the population speak the language**
Afrikaans	13.5%
English	9.6%
isiNdebele	2.1%
isiXhosa	16%
isiZulu	22.7%
Sepedi	9.1%
Sesotho	7.6%
Setswana	8%
siSwati	2.6%
Tshivenda	2.4%
Xitsonga	4.5%

According to Table 3.2, isiZulu (22.7%) is the most spoken language, followed by isiXhosa (16%) and by Afrikaans (13.5%) (Census, 2011). The other official languages are spoken by fewer than 10% of the population. The total number of people who speak African languages are many more than for Afrikaans and English. Due to the diverse language society it is important for government to ensure all language needs and demands for the country are addressed, thus, under the Interim Constitution of 1996 the government aimed to install democratic policies in all sectors, including education and language (Reconstruction and Development Programme, 1994).

The language policy innovations in the new South Africa included a multiple-languages model which focused on language inclusivity in education (Desai, 1994). Chapter 2 of the Bill of rights in the Constitution promoted cultural diversity and basic human rights (RSA, 1996). The LiEP targeted language practices in schools, specifically addressing the LoLT (National Education Policy Investigation, 1996) It was introduced under the interim Constitution of 1996 as a mandate to promote multilingualism and respect for all languages and cultures in the country (RSA, 1996), stating that learners from Grades R to 3 should be offered their HL as one of LoLT as far as possible. The LiEP aimed to promote mother tongue teaching and learning (DBE, 2007).

The Norms and Standards regarding Language Policy published in the South African Schools Act 1996 set out guidelines on issues concerning learners which included aspects of attendance, admission policy, language policy and code of conduct. The act stipulated protocol and procedures with regards to school governance and general provisions (RSA, 1996). The purpose was to ensure a centralised guideline that all public schools could adhere to. Chapter 1 (5) deals with admission procedures to public school based on educational requirements without unfairly discriminating in any way. With regards to the language policy in public schools it was to be determined by the school governing body. In section 6B, the Act highlighted non-discrimination in respect of official languages. This section of the act provides a centralised system on how schools undertake the decision of determining the language policy.

3.3 EDUCATIONAL LANDSCAPE: APARTHEID ERA VERSUS THE NEW SOUTH AFRICA

South Africa made a conscious effort to improve language policies from two official languages in 1948 to 11 by 1994. The aim was to officially recognise the African languages that were neglected under the segregation acts. Language in education has also undergone major reconstruction of recognising all official language as well as improving the access to these languages on a school level through the LiEP. Today, it is the aim of the LiEP to give the opportunity for learners to learn in their home language, but this is not the reality in practice. These innovative language policies have been implemented in the education system for a total of 22 years.

Table 3.3: Summary of the Educational landscape from Apartheid to Post-Apartheid

	Apartheid	**South Africa post 1994**
Official Languages	2	11
School enrolment criteria	Racial	According to Educational requirements and residing area.
School Language Policy	Province Administration and the Native administration the school fell under.	School Governing Body
School Legislation	Native Education Act, White Education Act,	South African Schools Act 1996
Language of Instruction	**Bantu Education:** Grades 1-3: African Language Grade 4-12: Afrikaans and English **White Education:** Grade 1-12 Afrikaans or English	**LiEP:** Grades 1-3: Home Language Grades 4-12: Afrikaans or English

Table 3.3 (above) shows the change in educational landscape under apartheid and the new South Africa. In summary, the current education system is more inclusive and follows a centralised curriculum, achieved through a centralised non-racial approach, language in education policy, school admissions procedures as well as governance in the schools.

3.4 LANGUAGE IN EDUCATION POLICY

The LiEP was introduced under the interim constitution of 1996, the aim being to address the issues of language in learning and teaching in education by providing a centralised document to which all public schools were expected to adhere. The LiEP stated that learners from Grades 1 to 3 should be provided in every way possible with an opportunity to be taught in their home language (RSA, 1996). The forthcoming Grade 4 to 12 learners should then change their LoLT to English to help promote multilingualism in classrooms and maintain respect for all official languages (RSA, 1996). This section will address the debate around the LiEP, to evaluate whether the goal of the policy has been achieved.

3.4.1 Home Language Teaching

Home language teaching and learning is a sound policy initiated for development of African languages, which are underdeveloped in the areas of standardisation, terminology and literature (Edwards & Ngwaru, 2011). Granville et al. (2010) argue that all learners should be at least taught one African language throughout all their schooling years and that the already qualified educators who can teach in one or more should start doing so, with newly qualified educators obtaining an African language as part of their qualification and training (Granville, 2010). The development and the insistence of African languages can be understood as an approach to balance the access to official languages and to bridge the gap created by discriminating policies.

These motives are in line with the constitutional objective of living in a multilingual society and, as Pretorius (2014) argues, learning to read in HL builds strong literacy skills. Similarly, Cummins (2001) is in favour of it playing a fundamental role in a learner's development in reading proficiency skills and supplementary skills in a second language. This judgement is based on a common framework for language proficiency by Cummins (2008), known as cognitive academic language proficiency (CALP). The CALP looks at a learner's ability to understand and express in oral and written modes, describing language proficiency as the ability to understand, express concepts and ideas that are relevant to success in schools (Cummins, 2008). According to CALP, language proficiency develops through social context in the interaction of schooling (Cummins, 2008), implying that language proficiency also means the extent to which a learner has access to and command of the oral and

written academic context. The CALP model findings were relevant to a bi/multilingual learner, so theoretically if a learner masters the language proficiency skills in the home language it provides necessary cognitive skills to tackle an additional one.

In summary, the LiEP is a practical policy for two major reasons. Firstly, the development of African languages should be instilled in the curriculum through compulsory offering of African languages as HL or FAL in all 12 years of schooling. Further, learners should have the right to choose any of the 11 official languages as LoLT (Granville et al., 2010). Secondly, the authors based their promotion of the LiEP on justifying the need to grasp literacy proficiency and cognitive skill in home language first. This argument translates into having the foundation skills to learn a second language. Authors such as Pretorius (2014) and Cummins (2001, 2008) acknowledge the importance of mastering early literacy skills by learning to read in the home language. Therefore, learning a second language would be easier because of the foundational skills developed.

3.4.2 The Debates around the LiEP Policy

In practice, the LiEP has its implementation challenges and there are authors who oppose the idea of multilingual education. Scholars such as Mncwango and Moyo (2000) argue that it intends to have justified goals but has been incorrectly implemented, and the foundation of multilingualism starts at school level (Mncwango, 2012). The authors believe that schools are good agencies to rebuild the nation. Furthermore, schools can be utilised as tools to promote multilingualism and diversity in the country but the groundwork implementation and practise of the LiEP does not enhance its proposed goal. Pretorius (2014) raises a practical issue in that the LoLT changes to mostly English in the intermediate phase, and learners tend to struggle in Grade 4 with LoLT transition. During the foundation phase, learners are in the process of developing literacy skills in their HL, but are introduced to a second language for the first time at Grade 4. Consequently, teachers have to catch up in Grade 4 and are mostly confronted with learners who have underdeveloped skills in English.

Another factor that counts negatively towards the LiEP is that parents prefer their children to be taught in English (Heugh, 1996). According to Tshotsho (2013),

parents are reluctant for their children to be taught in an African language because they are not convinced of the future benefits of home language education. English is used in business and workplace and is the language used mostly for tertiary education. A decrease in the demand of multilingual education from parents and lack of impracticality of home language also result in authors such as Probyn (2009) and Kamwangamalu (2010) concluding that parents are more willing to enrol their children in schools that teach in English.

The lack of standardisation of African languages has resulted in limited reading material, books and terminology. One of the claims that Tshotsho (2013) makes is that the Department of Education had inadequately developed programmes and teaching materials to teach in HL. The former Model C schools are then unenthusiastic to accommodate increasing numbers of African learners in their classrooms (Probyn, 2009) and argue that the lack of trained teachers and resources are the main factors prohibiting them from providing African languages as the LoLT (Mncwango, 2012). To effectively promote multilingual education will be more expensive than the single option of English (Mncwango, 2012). The last point made by Heugh (2006) is that it is very difficult to allocate a home language to South African children as they live in a multicultural and integrated society with more than one HL. Instead of enforcing the idea of one African language per learner it centralises the LoLT as English and offers numerous African languages as first or second additional ones.

In brief, the arguments for authors against the practise of the LiEP can be summarised as three main factors. Firstly, the implementation has had a greater impact on the learners' reading proficiency, even in a second language. Secondly, parents prefer their children to be taught in English as it is associated with access to the world of employment, status and power (Banda, 2004). Thirdly, there is a lack of resources to be able to provide LoLT in African language effectively.

Overall the LiEP is a suitable policy which addresses the needs of the country (Granville et al., 2010). On the one hand, HL teaching and learning has the ability to increase learners' reading proficiency (Cummins, 2001) and it promotes a multilingual society that respects cultures and ethnicities. On the other hand, the practicality of the policy remains a challenge. The lack of teacher training and

resources has impacted negatively on the implementation of the LiEP (Tshotsho, 2013). Parents prefer their children to receive an English education rather than an African one for future opportunities.

3.5 REVISED NATIONAL CURRICULUM STATEMENT

The Department of Basic Education (DBE) has clearly outlined the objectives and aims of the education curriculum, one of the main ones being to provide fair and equal education across all races, cultures and languages (DBE, 2010) with standards and requirements for HL subjects the same across all languages. One of the first curricula to be implemented in the post-1994 South Africa is Curriculum 2005, an education model based on the principles of outcomes based education (OBE) (Jansen & Taylor, 2003) and aimed at providing a framework for development of an alternative system to the apartheid education system (Chisholm, 2003). The curriculum focused on learner-centred education which positioned the educator as a facilitator. Furthermore, it emphasised results and success on the outcomes and the achievement through different paces rather than a subject-bound curriculum (Jansen & Taylor, 2003). The curriculum was open and relied on educators creating their own learning programmes and materials (DBE, 1997). As with any curriculum, it had its own success and challenges. In a curriculum review committee report (2000) implementation of the curriculum has been confounded by:

- Lack of alignment between curriculum and assessment policy
- Inadequate orientation, training and development of teachers
- Variability of quality of learning support materials, often unavailable and not sufficiently used in classrooms
- Policy overload and limited transfer of learning into classrooms
- Shortages of personnel and resources to implement and support C2005
- Inadequate recognition of curriculum as the core business of education departments (Chisholm, 2003).

The Curriculum Review Committee therefore recommended a reformed curriculum that would address the misfits of Curriculum 2005. In 2001, the new National Curriculum Statement (NCS) was introduced, its fundamental design being to specify the knowledge content more clearly (Jansen & Taylor, 2003). For that reason, the NCS presented smaller learning areas, a reintroduction of history and

most importantly promotion of the values of the Constitution (Chisholm, 2003). The second phase of the NCS was applied in 2006, as the Revised National Curriculum Statement (RNCS), adding the learning outcomes and assessment standards that were designed from critical and development outcomes (DOE, 2003) and emphasised learner-centred and activity-based education. In 2008, the Curriculum Review Committee reported on the RNCS and found four main concerns:

- Complaints about the implementation of the NCS
- Teachers being overburdened with administration
- Different interpretations of the curriculum requirements
- Underperformance of learners (Du Plessis, 2013).

For the above reasons the curriculum underwent further revisions and new features were included or replaced in the new Curriculum Assessment Policy Statement (CAPS), with the following aspects addressed:

- CAPS Foundation Phase instructional time increased
- Mathematics to be called 'numeracy' and Language referred to as 'literacy'
- First Additional Language is added to the Foundation Phase
- Intermediate Phase learning areas decreased from eight to six subjects
- Senior Phase School-Based Assessment to count for 40% and the year-end examination 60%
- Further Education and Training Phase content reorganised for several of the subjects and the exam structure changed in some of the subjects
- All Grades use a 7-point scale
- Learning outcomes and assessment standards removed and called 'topics and skills'
- Learning area and learning programmes called 'subjects'
- CAPS given a week-by-week teaching plan
- The curriculum statements and learning programmes guidelines replaced by one document, CAPS (Du Plessis, 2013).

Following the NCS, another wave of curriculum change happened in the form of the Revised National Curriculum Statement (RNCS), with provision for all 11 official languages as home language (HL), first additional language (FAL) and second

additional languages (SAL). Access to language teaching in schools is available in all 11 official languages and can be offered as HL, FAL or SAL. Furthermore, the curriculum stated that learners in foundation phase (Grades R to 3) should be taught in HL as recommended by the LiEP (DoE, 2003). The language curriculum in the RNCS made provision for promoting multilingualism in the classrooms by all learners being offered an additional language. The HL assessment standards stated that learners should be able to understand and speak the language. The curriculum supported the development of this competence with regard to numerous types of literacy, namely reading, writing, visual and critical literacies. The first additional language guidelines acknowledged that learners did not necessarily have any knowledge of the language when they came to school (DoE, 2003) and the curriculum started by developing learners' ability to understand and speak the language. Learners would be able to transfer the literacies acquired in their HL to their first additional language with support for those learners who would use their first additional language as one of learning and teaching in Grade 4.

The SAL was planned for learners who wished to learn three languages and the third language might be official or foreign. The Assessment Standards ensured that learners would be able to use the language for general communicative purposes. Less time would be allocated to learning the SAL than to the HL or first additional language (DoE, 2003).

The reading curriculum for Grade 4 summarised the outcomes in four main categories:

Reading and viewing:

- Listening and Speaking
- Language usages and Structure
- Writing and Presenting (DBE, 2012. p 14).

For the target population of this study the Grade 4 reading curriculum specified that 'reading and viewing' outcomes are achieved when the learner is able to understand in a simple way some elements of stories and understand in a simple way some elements of poetry on social issues (DoE, 2003).

In Grade 4, the assessment standards were as follows:

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

In light of the curriculum, prePIRLS 2011 focused on written assessment as the purpose for reading and the processes of comprehension (Howie et al., 2012). The purposes for reading were divided into: 1) reading for literary purposes, and: 2) reading for the use and acquisition of information. Each of the reading purposes comprised 50% off the assessment (Mullis et al., 2012). In assessing the processes of comprehension, the learner was required to:

- focus on and retrieve explicitly stated information
- make straightforward inferences
- interpret and integrate ideas and information
- examine and evaluate content, language and textual elements (Howie et al., 2012. P.11).

The assessment standards and objectives of prePIRLS 2011 corresponded with the RNCS standards implemented at the time when the study was conducted. The outcomes and objectives of prePIRLS 2011 were those the learners in South Africa were expected to be able to achieve. Subsequently, this also meant that with

regards to curriculum content expectation the RNCS is on par with international demands and standards.

3.6 READING LITERACY

Literacy can be defined as the ability to read and write and according, to Perry (2012), literacy focuses on particular skills such as phonemic awareness, fluency and comprehension (Perry, 2012). Literacy can be used for recreation and personal growth, while providing young children with the ability to participate more extensively in their communities and societies (Mullis et al., 2012). It can also be defined as a symphony of words put together to convey a message or a meaning. Part of literacy is also to comprehend and to show understanding of words and to engage in the process of reading (Perry, 2012). As a concept it is broad and has several meanings and relates to different views. With multicultural education, the growth of the use of technology in teaching the expansion of texts is no longer just on paper (O'Byrne & Smith, 2015) as a recent term 'multi-literacies' has been used to describe and include various forms of literacy, notably in text, visuals, digital and other formats.

Reading literacy refers to the ability to understand and use written language forms by society in which readers can construct meaning from different types of text (Mullis et al., 2012). PrePIRLS 2011 defines reading literacy as a constructive and interactive process, consequently the meaning is constructed in the interaction between reader and text in the context of particular reading experiences (Mullis, Martin, Kennedy, Trong & Sainsbury, 2009. p.11). In a classroom environment reading literacy is often assessed to determine the learners' abilities to understand and construct meaning. Early literacy development provides them with the ability to develop reading proficiency from a young age and have an introductory foundation to reading as a whole (Cummins, 2001).

3.6.1 Early Literacy Development in South African classes

Early literacy development is the foundation of reading proficiency (de Witt et al., 2008), whilst according to Chall's (1983) developmental model of reading, reading has five stages, scaled from 0 as the lowest to 5 as the highest. Pre-reading takes place in stages 0, 1 and 2, which is the period of 'learning to read' and 3, 4 and 5 as the period of 'reading to learn' (Chall, 1983). This model posits that up to Grade

3, literacy emphasises ‘learning to read’, meaning that learners will begin to acquire reading fluency using texts (Pretorius, 2014). By the time a learner reaches Grade 4 he or she is in the third stage of ‘reading to learn’, and required to apply reading skills (Willenberg, 2005). The model is closely related to CALP by Cummins (2001), with factors in the South African context that do not ensure effective early literacy development in classrooms. Firstly, African learners undergo a language transition from Grades 3 to Grade 4 (Howie et al., 2012). As Pretorius (2014) highlights, the issues that learners are being taught in their home language until Grade 3 and from Grade 4 are introduced to a new language of learning. The African learners in Grade 4 are expected to ‘read to learn’ with their second language.

Secondly, ‘code switching’ is being practiced in South African classrooms, when teachers and learners share a common home language that is used for teaching and learning (Probyn, 2009), while the LoLT is English. Code switching is generally not accepted as a classroom strategy or methodology (Probyn, 2001), but teachers use it as a linguistic resource in a responsive way to achieve a range of cognitive and effective teaching and learning goals. On the other hand, learners are not adequately exposed to the English LoLT as stipulated in the curriculum instruction, therefore, African learners find themselves in the ‘learning to read’ phase in their home language but struggle with ‘reading to learn’ in English (Pretorius, 2014).

3.7 ASSESSMENT IN LITERACY

‘Assessment’ is a broad concept and authors have their individual opinions of interpreting the term. The purpose of this particular study is to examine assessment in education and how the lack of standardisation in African language may serve as a bias in testing. Assessment is generally defined as the process of evaluating the content knowledge, skills and acquired information a learner has obtained in a specific subject. According to Walvoord (2004), it is a systematic data collection of information about learners whilst for Palomba et al. (1999) it has as a purpose the improvement of learning and development. The term is driven by the questions that seek to answer what learners should know in the process ascertaining through data collection whether they have acquired skills, content and habits of mind that will make them successful (Dwyer, 2008).

Assessment is a term generically used to describe quizzes, tests, surveys and exams (Sheperd & Godwin, 2004). Considering the above authors' perspectives one can then define it as being focussed on the purpose it aims to achieve and aligned to a specific subject or learning area. Together with the purpose of the assessment and the subject content, a form needs to be articulated in a way that will enhance learning. For instance, assessment of reading literacy is regularly administered by standardised tests which can assist in interpreting learners' reading achievements (Sattarpour & Ajideh, 2014). Reading literacy assessment has a specific focus, which in prePIRLS 2011 was on early childhood reading for literary experience, to acquire and use information (Mullis et al., 2008). The goal of the foundation phase is to support learners as soon as possible and use the appropriate assessment instruments.

3.7.1 Comparative studies

South Africa participates in a number of national and international assessment programmes to track learner performance across grades. National evaluation results are often used for making important decisions that will impact learners, educators, communities, administrators, schools and districts (Au, 2007). International assessments enable countries to monitor their curriculum standards and goals on a global scale. Equally important is the indication of performance that national and international assessments can provide (Kamens & McNeely, 2010).

In 2010, the Department of Basic Education introduced a systemic evaluation called the Annual National Assessment (ANA) to monitor numeracy and literacy in Grades 1, 2, 3, 6 and 9. The purpose was to highlight the areas in numeracy, literacy knowledge and skills, but the results reflected that learners participating were inadequately equipped (DBE, 2012). The key weakness areas were summarised into a few categories:

- Many learners cannot read with comprehension
- Many learners are not able to produce meaningful written outputs
- Learners lack the ability to make correct inferences from the given information in a text
- Learners' knowledge of grammar is very limited
- Learners struggle to spell frequently used words correctly

- Handwriting, particularly in the Foundation Phase, leaves much to be desired in many cases (DBE, 2013).

The learners who participated in the Foundation Phase were assessed in their home language. The performances in the 11 home languages that are offered in schools are as follows:

Table 3.4: Overall performance of the foundation phase learners in the ANA 2012 (DBE, 2013)

HOME LANGUAGE	**GRADE 1**	**GRADE 2**	**GRADE 3**
Afrikaans	63,5	61,6	60,5
English	62,4	58,9	53,9
IsiNdebele	51,5	54,9	46,5
IsiXhosa	54,3	52,3	49,9
IsiZulu	56,3	56,7	53,1
Sepedi	52,5	51,7	46,6
Setswana	51,2	45,0	44,3
SiSwati	54,3	55,6	48,0
Sotho	57,6	54,6	54,0
Tshivenda	58,8	56,1	49,4
Xitsonga	58,0	54,7	49,1

As presented in table 3.4, the problem seems to be at Grade 3, as most African languages did not achieve above 50%. Afrikaans and English achieved the highest average marks across all three grades.

The Southern and Eastern African Consortium for Monitoring Educational Quality (SACMEQ) showed trends in reading levels and mathematic achievements for Grade 6 learners (SACMEQ, 2007), emphasising that the planning of improvements in the quality of education required better indicators of literacy and numeracy skills. The indicators allow decision-makers to assess the performance of school systems and to provide information that could be used for strategies aimed at improving the quality of education. The SACMEQ assessments were placed on a single scale with the anchor as a mean score of 500 and a standard deviation of 100 (SACMEQ,

2007). South Africa first joined the study in 2000 SACMEQ II; then the 2007 SAMEQ III study.

Table 3.5: Levels and Trends in Learner achievements across Regions in South Africa (SACMEQ, 2007)

Province	**2000 Literacy Levels**	**2007 Literacy Levels**
Eastern Cape	444	448*
Free State	446	481*
Gauteng	576	573
KwaZulu-Natal	517	486**
Mpumalanga	428	474*
Northern Cape	470	506
Limpopo	437	425**
North West	428	506
Western Cape	629	583**
South Africa	492	495
SACMEQ II & II	500	512

**provinces achieved below the 500 mean score point*

***provinces that have decreased literacy levels by more than 10 points*

Table 3.5 shows the SACMEQ literacy achievement by province in 2000 and in 2007 according to the provinces' achievements, indicating the overall achievement scores in South Africa. The overall scores are below the mean score of 500, so in general the literacy skills for Grade 6 learners in the country are below average. A total of five provinces achieved below the mean score of 500 at an average of 463 points in the SACMEQ 2007. Scores for KwaZulu-Natal, Limpopo and Western Cape decreased from 2000 to 2007 by more than 10 points, an indication of improvement from SACMEQ II to III, but still of concern that many provinces failed to reach the 500 mean score point.

The Progress in International Reading Literacy Study (PIRLS) is an international comparative study that aims to measure learner reading literacy proficiency (Mullis *et al.*, 2012). In South Africa, the assessment was conducted in 11 official languages in Grade 4 (Howie *et al*., 2012). As noted in chapter 2, South Africa first participated in PIRLS 2006, then in PIRLS 2011. Due to poor performance in PIRLS 2006 the country opted to participate in prePIRLS at a Grade 4 level (Howie *et al.,* 2012). The prePIRLS was an easier assessment and conducted in all 11 official languages,

whereas PIRLS 2011 aimed at Grade 5 level was administered only in Afrikaans, English and isiZulu. The sample was designed for analysis by languages (Howie *et al.,* 2012). An average of 500 points with a standard deviation of 100 points was obtained through the use of Item Response Theory. The scaling and the participants' achievements were depicted by using the 500 points and the 100 standard deviations as the set international mean (Mullis et al., 2007). The overall performance of South African learners in prePIRLS 2011 achieved an average score of 253 (SE=4.6).

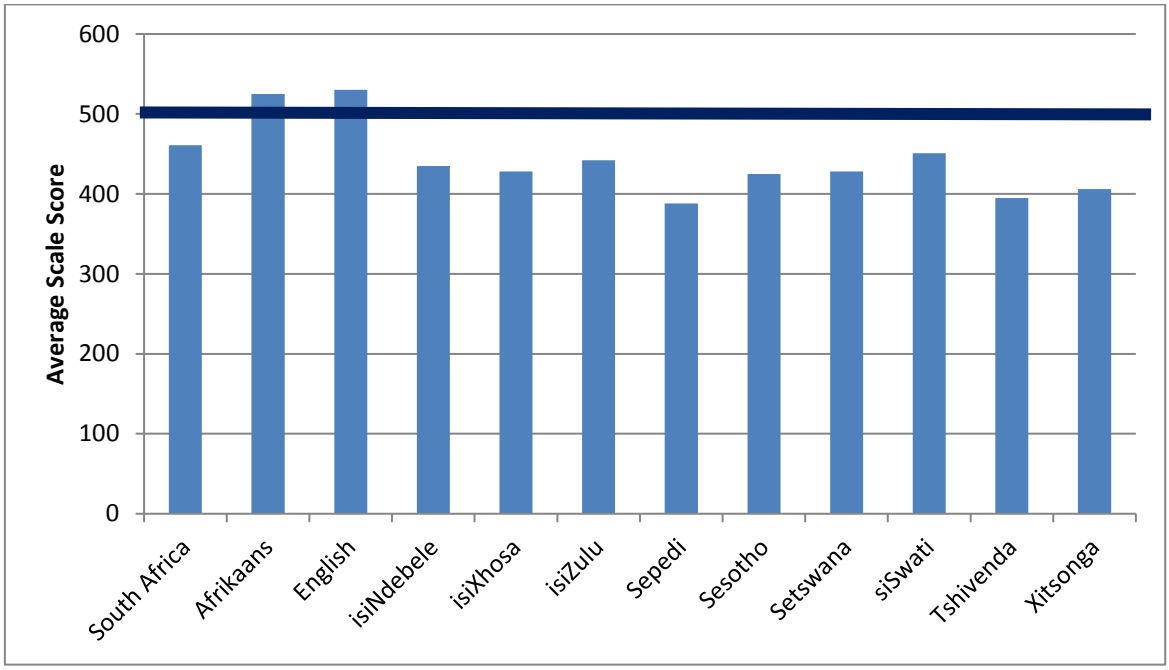

Figure 3.1: South African Learner Performance in prePIRLS 2011 by Language of the Test. Note: the light blue line indicates the International centre point of 500 sourced from (Howie et al., 2012)

According to figure 3.1, learners who wrote the test in Afrikaans and English achieved the highest average scores in South Africa, since these were above the international centre point of 500. Learners who wrote prePIRLS 2011 in English achieved an average scale score of 525 (SE = 9.9) and Afrikaans achieved an average scale score of 530 (SE= 10.1). The three highest scoring African languages were siSwati with 451 (SE=5.8), followed by isiZulu with 443 (SE=9.3), and thirdly isiXhosa with 428 (SE=7.4). For both SACMEQ and the prePIRLS 2011 studies South Africa achieved below the centre point of 500. Overall, South African literacy

proficiency levels in the foundation phase do not meet the requirements of indicators set out internationally.

The increased growth in international assessment has posed dynamic challenges and perhaps raised issues around the subject so it is essential that an international assessment ensures that the content and scope of items is equitable for all countries participating. Furthermore, organisations or associations need to establish a measure, for example, a common scale technique for comparison purposes. There are several factors that can be taken into account in cross-country assessment. Firstly, the sampling needs to be randomly assigned and representative, with use of language appreciating and accommodating all countries participating (Wolf et al., 2015). Secondly, a common scale needs to be developed, for example, the prePIRLS 2011 assessment ensured that an international centre point of 500 was set. Thirdly, a consolidated correct translation procedure should be practised to ensure standard assessment (Mullis et al., 2012). The authors have emphasised that cultural sensitivity, deeper understanding and respect for all other cultures are key concepts in providing valid translation and cross-cultural research. On the issue of translation, Mason (2005) articulates the idea of translation to strive to achieve conceptual equivalence, which implies that an item may be translated into different words but the original meaning remains intact (Mason, 2005). Many scholars suggest that multiple translators should be used in the process of translation (Hambleton & Kanjee, 1993; Maneesriwongual & Dixon, 2004, Mason, 2005). To check equivalence of the assessment they use frequency word counts, instruments with strong test-retest reliability measure, and a pilot test-retest with bilingual participants using two versions. A suggestion is also made to conduct workshops with focus groups strategies to review each item and reach consensus on the best translation (Beauford et al., 2009).

The translation procedure of the prePIRLS 2011 assessment was from English to the other ten official languages. The assessment booklets were first given to professional translators to translate into the assigned language. The second phase was the back translation, in which a different translator would translate from the assigned language into English. This phase was to ensure that the meaning of the translated text remained the same as English (Howie et al., 2012). Thereafter, the IEA verified the translation by only sending the most spoken languages, namely,

Afrikaans, English, isiZulu, isiXhosa, Sepedi, Sesotho and Setswana to independent translators. This was an additional checkpoint in the study to ensure truthful translation. Authors such as Hambleton and Kanjee (1993) look at cross-cultural testing, and summarise translation challenges into: (a) cultural differences; (b) technical factors; and (c) judgement and empirical design. All three factors together are sources of invalidity in test translation work. Beauford et al. (2009) also highlight the need for international test instruments to adhere to cultural appropriateness and standardisation of African languages.

3.8 LANGUAGE PLANNING

Language planning in South Africa was one of the critical obligations after 1994 to rebuild national pride and restore the values of diversity, integrity and respect for cultures and races. Under the interim Constitution of 1996 (Ch. 1 section 6) the recognition of 11 official languages as opposed to only Afrikaans and English was legislated for (RSA, 1996). The fundamental aim of this act was to take into account the oppressive legislation of the apartheid regime that had marginalised the nine African languages in the country. To implement it in a more practical manner and looking at positive measures towards growing the status and use of the African languages, language policies were developed (Yu & Dumisa, 2015). The language planning has mainly been implemented through four major government departments: i) Arts, Culture and Heritage; ii) Communication; iii) the Department of Basic Education and Higher Education and Training; and iv) Justice and Constitutional Development (RSA, 1996). Additionally, agencies, policies and bodies were also established to fulfil the responsibility of the act, namely:

- Pan South African Language Board (PanSALB)
- Language Task Group (LangTag)
- Language in Education Policy (LiEP)
- The National Language Policy Framework (NLPF)
- The Use of Official Languages Act 12 of 2012 (Yu & Dumisa, 2015).

PanSALB was established as a statuary body that would monitor and implement the use of and status of all official languages, with structured lexicographical units for each official language that would ensure terminology, standardisation and promotion of multilingualism (Edwards & Ngwaru, 2011). According to Heugh

(2006), most of the terminology work was in fact carried out during apartheid and remains relevant today. The first people to write up African languages were the missionaries using their knowledge of orthographies and grammar with the language speaker providing vocabulary (Alberts & Mollema, 2013). In spite of the attempts of the missionaries to develop spelling and orthography for African languages, each missionary used his or her own knowledge of history, genesis, linguistic and political boundaries, resulting in a number of discrepancies (Poulos & Msimang, 1998). For example, the same words were spelt differently by different missionaries.

In 1928, efforts were made to readdress the discrepancies in orthography by the Union government by appointing an advisory committee on Bantu Studies and Research to harmonise the orthographies of the African languages, with the Suto-Pedi-Chuana Sub-Committee for the Sotho languages, Sesotho, Sepedi and Setswana. However, the difficulties and the representatives from the languages differed so much that the orthographies from the committee were not accepted (Alberts, 2013). The Transvaal Department of Education than called a conference with an aim of reducing the orthographic differences in African languages, resulting in a *Sotho Terminology and Orthography No. 1* published in 1951, then *the Zulu/Xhosa Terminology and Orthography No. 1* in 1957 (Poulos & Msimang, 1998).

Webb (2013) wrote that nothing of real substance had changed since 1996 regarding the political status of the African languages as they were not used meaningfully in parliament, courts of law, universities, schools or the print media. Many scholars, such as Cele (2004), Foley (2004), Tshotsho (2013) and Webb (2013) further criticised the language policies for being too politicised, which had resulted in poor implementation, failures of which were said to be mainly due to two factors: 1) difficulties in balancing the interests of all 11 official languages; and 2) slow linguistic development, which included standardisation and making them relevant to advancing literature, science and technology.

The standardisation of African languages has become a problem and the emphasis on the differences between various official languages has masked the commonalities within Nguni and Sotho clusters (Edwards & Ngwaru, 2011). From

the translator's perspective it is these differences in orthography that make it challenging to standardise African languages:

> *If we develop materials in Setswana, you will find that people, say in Kimberley or areas outside the Hurutsi, look at those material and say: Ah this isn't proper Setswana, this isn't my Setswana this is Hurutsi Setswana". And it is true of all our languages-isiXhosa, isiZulu, whatever you would like to mention. There are in some instances quite significant variations that are considered unacceptable by other speakers of the same language. (Edwards & Ngwaru, 2011. p 596).*

Prinsloo's (2011) proposal is that it should be the right of the language speakers rather than those of the language that should capture the true essence of the debate around African languages in South Africa. Within society are also linguistically diverse groups, such that language in South Africa is no longer limited to specific geographical borders, regions, cultures or tribes. In the new democratic classrooms there are high probabilities of having learners from multiple home languages (NEEDU, 2012). Through social changes the African languages have evolved, developed and become different orthographies within one language, leading to different dialects (Prinsloo, 2011). The dialectisation of African languages serves as a complicating factor when deciding on which dialect will be seen or used as the most standardised language in which the learners can be taught (NEEDU, 2012).

3.9 ISIXHOSA LEXICOGRAPHY

As noted above, most development in African languages was after 1910 (Poulos & Msimang, 1998), with translations, terminology, dictionaries still relevant and useful in the 21st century. The earliest record of written isiXhosa lexicography dates back to 1776 through a dictionary titled *Appendix to Sparrman* (Mtuze, 1992). The author Andrew Sparrman, a natural scientist, compiled a short isiXhosa dictionary containing numerals, nouns, adjectives and verbs (Nkomo & Wababa, 2013). For Pahl (1989), the list of words differs slightly from those used today. A total of 16 isiXhosa lexicography works have been published between the years of 1776 and 2008. Nkomo & Wababa (2013) also found evidence of a relatively long history of lexicography work for isiXhosa as an African language. Taking into account the extensive isiXhosa dictionaries published and long history of lexicography, one can gather that isiXhosa as a language is fairly standardised. To an extent the lexicography has addressed mistranslations in the previous works, such as the

Kafir-English Dictionary (KED) 1899/1915 (Nkomo & Wababa, 2013). The focus of the particular lexicography was to look at the mistranslation of cultural terms in the KED (Moropa & Kruger, 2000). It is evident that much work has been carried out in the past with regards to isiXhosa lexicography (Nkomo & Wababa, 2013).

The question posed by Nkomo & Wabab (2013) is whether current dictionaries could be updated to suit the more complex dialects and meet the current lexicographic needs amongst isiXhosa speaking communities. There are several isiXhosa speaking communities in South Africa, grouped according to tribes such as Bhaca, Mpondo, Hlubi, Gcaleka, Ngqika, Thembu, Mfengu, Mpondomise, Xesibe, Cele, Ndlambe and Ntlangwini. The different communities also associate with specific dialects of isiXhosa (Nyamenda, 1994), spoken predominantly in the Cape Provinces, but with dialect variations particularly distinctive in the former homelands, Transkei and Ciskei. The first missionary to settle amongst the Xhosa people was Theodorus van der Kemp, from the London Missionary society in 1799 with Chief Nqgika and his people along the Tyume River (Nyamenda, 1994). In this way, the Ngqika dialect was learnt and written down, with the bible translated and the language taught in school by the missionaries who succeeded van der Kemp. The pioneering processes lead the Ngqika dialect to be seen today as the ultimate standardised isiXhosa language, sharing many similarities with the Ndlambe and Thembu dialect. With the further writing up of the language, isiXhosa included not only the Ngqika but also the Ndlambe and Thembu dialects (Nyamenda, 1994).

The other dialects spoken in the regions of the Mpondo, Bhaca, Hlubi, Mpondomise, Xesibe, Cele and Ntlangwini were regarded as independent languages of the Xhosa cluster. The Ngqika, Thembu and Ndlambe dialects are recognised as official written and taught isiXhosa and enjoy higher status among Xhosa speakers than the other dialects. According to Gxilishe (1996), the question is whether or not to use the learners' non-standard dialects in the classroom. The author explains that the two strong arguments for using one standard dialect in classrooms would on one hand be that it may be a useful bridge to the standard language. On the other hand, the use of home language has shown to be to the satisfaction of many, beneficial in promoting the child's self-image and sense of belonging (Gxilishe, 1996). The relationship between dialect and language is often seen as exclusive rather than inclusive.

If by implication a language is a sum of many of its dialects, the general assumption is that some dialects are not the 'proper language' or are even unscientific (Mesthrie, 1998). Lodge (1995) address the issue of dialect and standard language as follows:

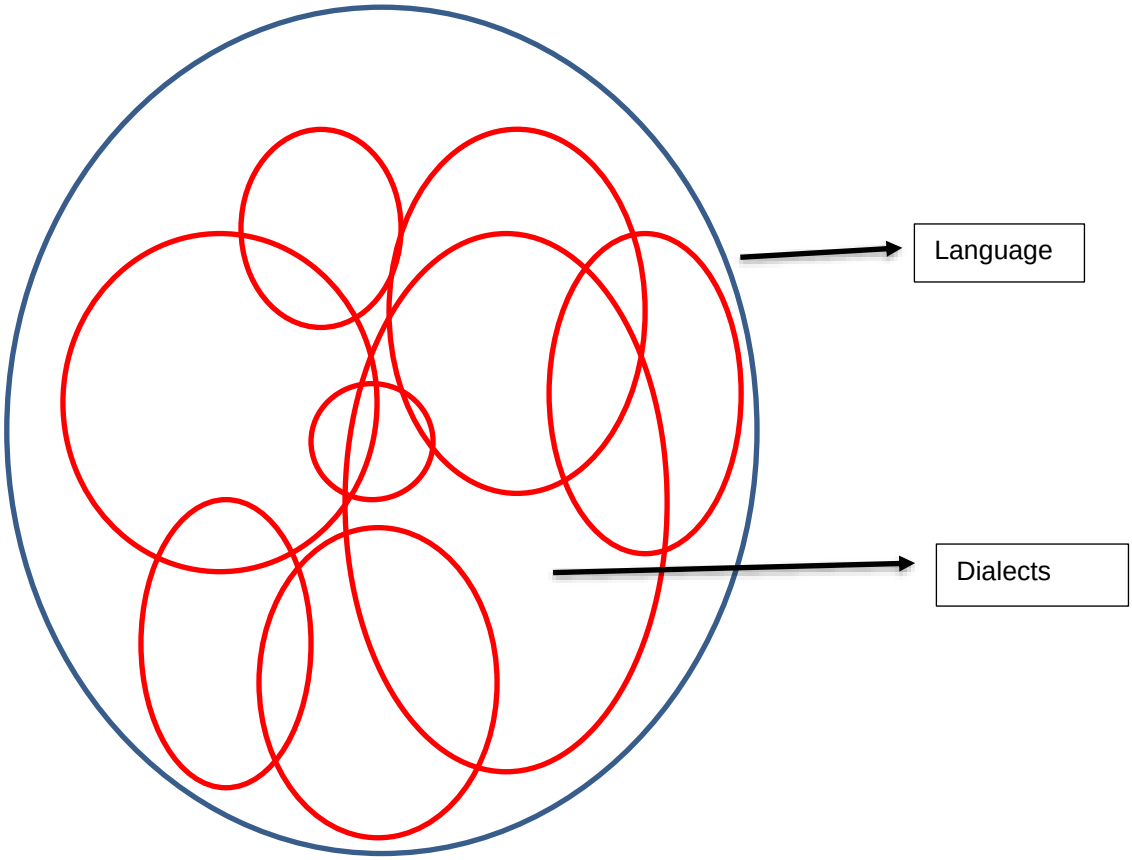

Figure 3.2: Adapted from Lodge, RA. (1995). French: from dialect to standard. London: Routledge.

Looking at figure 3.2, the standard language is simply a dialect along with all the others. Everybody speaks a dialect, even if it is the standard language. If one would have to reconstruct the figure to present what authors such as Gxilishe (1996) and Nyamende (1994) understand around the issues of isiXhosa dialects, the figure would be represented as follows:

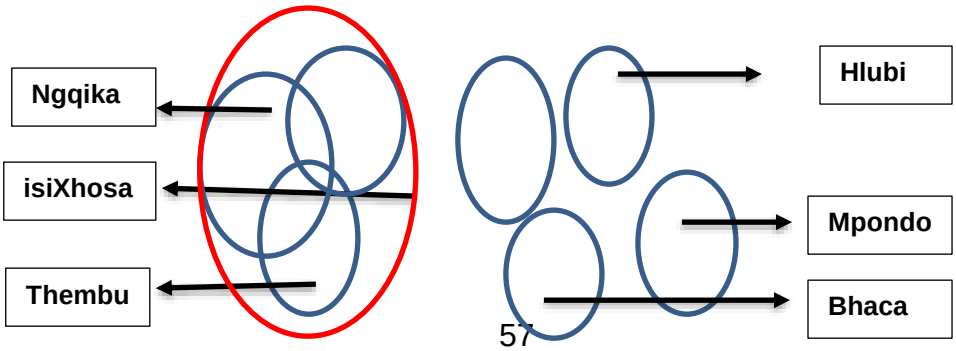

Figure 3.3: A reconstructed figure from dialects issues of isiXhosa by Gxilishe (1996) and Nyamende (1994).

Figure 3.3 demonstrates the current isiXhosa language issue and how only a few isiXhosa dialects are seen and recognised as standardised isiXhosa, whereas there are other dialects which form part of the isiXhosa language but that have been regarded as unofficial, non-standard or even not "proper" isiXhosa. Another illustration of how these dialects can be of disadvantage to a learner in a classroom environment due to translations, terminology and vocabulary of words (Nyamenda, 1994) can be presented as follows:

Example 1:

Bhaca dialect:

isiXhosa	**Bhaca**
Ukhuko – mat	isicamba - mat
Umvumndla – hare	unoqwaja- hare
Ukuthetha – to speak	ukubhobha- to speak
	(Nyamenda, 1994:205).

Example 1 shows how words in isiXhosa and the Bhaca dialect are completely different in conveying the same meaning. By implication, a learner who completes a paper in isiXhosa, but whose home language is Bhaca, may be confused and unable to conceptualise the meaning of the low frequency words as presented in the example above.

Example 2:

Mpondo:

isiXhosa	**Mpondo**
Ndiyahamba – I am going	**Ndr**iyahamba – I am going
Indoda endala – an old man	**indr**oda endrala – an old man

Intombi – a girl	**intr**ombi – a girl
Umn**tu** – a person	umntru-a person
Inkwen**kwe** – a boy	**inkrw**en**krwe** – a boy

(Nyamende, 1992:205).

Example 2 indicates the different spelling used for word in isiXhosa and the Mpondo dialect. Predominantly, the difference in spelling is in the prefix or the suffix which in African languages will show the pronoun of a word. Consequently, the different spelling has an impact on the meaning or the interpretation the learner might have.

Example 3:

Hlubi:

isiXhosa	**Hlubi**
olu dongwe – this clay	**e**li dongwe – this clay
unyawo lwam – my foot	**i**nyawo lam – my foot
ebuhlanti – in the kraal	**eku**hlanti – the kraal
ebusuku – at night	**eke**suku – at night
inqconqoni – mosquito	umniyane – mosquito
umngxuma – a hole	isigodi – a hole

(Nyamende, 1994:205).

Example 3 shows that the Hlubi dialect differs in the first person prefix and has different vocabulary for some words from isiXhosa. Consequently, the different vocabulary and prefix can mislead a learner in understanding a meaning of a word.

Agreeing with Nyamende (1994), little has been published in the different isiXhosa dialects. On one side, the standard isiXhosa is generally associated with those that are educated and have had a Christian teaching, whilst on the other side are the numerous dialects which have been neglected in the country, associated with narrow-mindedness, ignorance and backwardness amongst Xhosa people

(Nyamenda, 1994). Indirectly, by standardising a dialect over others has also created the mind-set of inferiority and superiority amongst people, who are from the same ancestors, cultural and historical background (Nyamenda, 1994). One dialect is recognised as the official language therefore it is used in educational curriculum across different people with their own dialects.

The aim of this study is to investigate possible bias in using an international study prePIRLS 2011 passage which was translated from English into isiXhosa administered across in all Xhosa regions regardless of dialect differences. The translation of the instrument may have contributed towards bias in testing, where the isiXhosa learners could have experienced challenges in answering and understanding the passages due to translation issues. Evidently, this could have contributed to the achievement of the learners. Home language learning and teaching serves as a strong foundation to learning how to read (Cummins, 2001, Pretorius, 2014 & Probyn, 2001), however, in contrast to the HL learning and teaching theory is the low achievement in reading literacy assessments of the African languages in comparison to English and Afrikaans, in national as well as international studies.

3.10 CONCEPTUAL FRAMEWORK

The identified conceptual framework for this study is the curriculum process framework, designed by the IEA in 2005 (Mullis et al., 2007). It links the key role components in an educational system with regards to evaluating an education system (OECD, 2005).

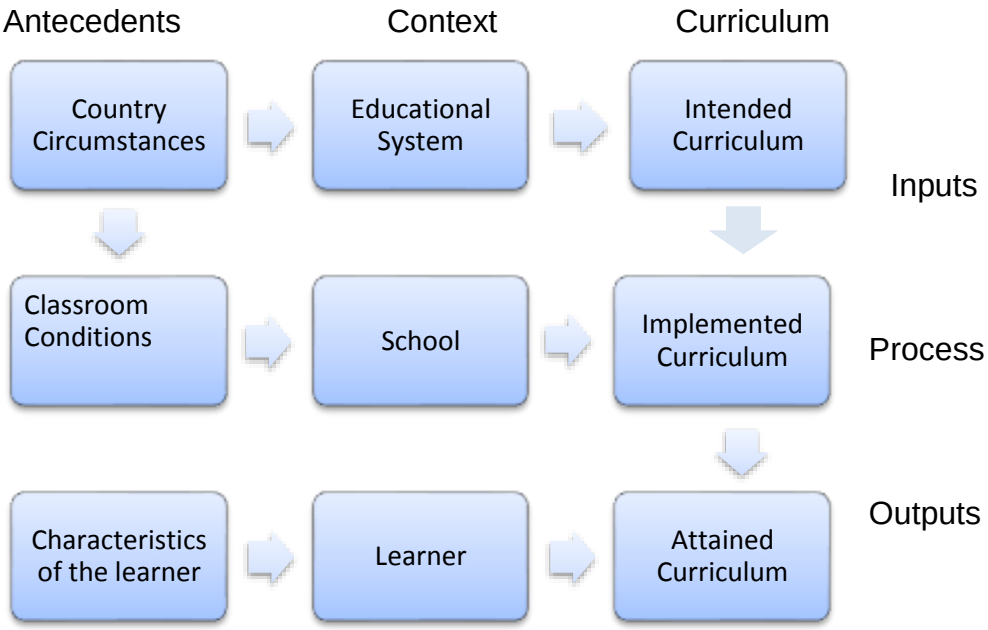

Figure 3.4: Curriculum Process (OECD, 2005)

The framework links the inputs, process and outputs on an antecedent, context and curriculum level. Antecedents refer to socio-economic factors, such as the country's economy, the school's management and the background of the learner. The context in this framework refers to the structure education system according to the OECD and the operation of the schools in different countries (OCED, 2005). The curriculum refers to the goals of the curriculum, how it is implemented in schools and what are its outcomes (OCED, 2005).

For the purpose of the study, the focus is on the Intended curriculum, implemented curriculum and attained curriculum. The following is the adapted conceptual framework:

Antecedents Context **Curriculum**

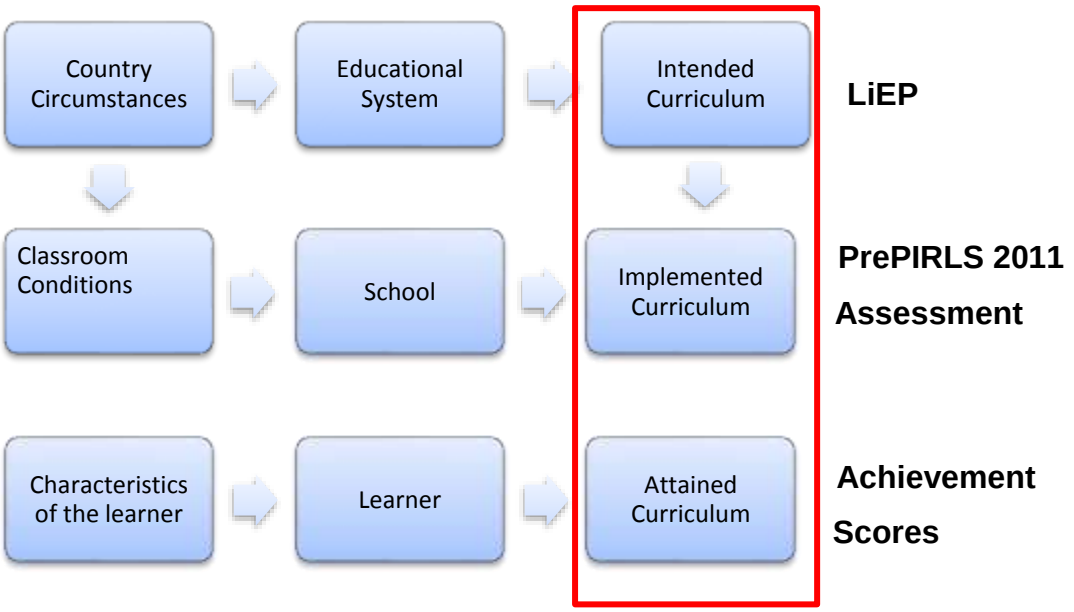

Figure 3.5: Conceptual Framework adapted from OECD, 2005

The intended curriculum in the study refers to what is intended by the education system by means of the LiEP, the educational policy implemented at the time the prePIRLS 2011 was conducted. The LiEP includes the objectives of the reading curricula and indicates that all 11 official languages are available for learners to be taught in from Grades 1 to 3. Additionally, learners should be provided with the opportunity to be taught in their home language as much as possible. In Grade 4 the curriculum instructs that learners should make the transition to being taught English as a home language and as LoLT.

The implemented curriculum refers to the prePIRLS 2011 assessment results as a gauge of what has been achieved by the intended curriculum. The prePIRLS 2011 assessment was designed to assess learners in all 11 official languages as per intended curriculum guidelines in the Foundation Phase to measure the reading literacy in the HL in which learners were taught over three years. As a result, the prePIRLS 2011 assessment is measuring the implementation of the LiEP. The assessment instruments were developed in English then translated into the 10 other official languages.

The attained curriculum refers to the prePIRLS 2011 learners' achievement scores. For purposes of the current analyses, the achievement scores will be analysed by means of differential item functioning (DIF). This particular analysis will predict any

item bias between languages for the same passage, suggesting items that are biased against a specific language sub-group. The study anticipates explaining such item bias as a result of the prePIRLS 2011 translations.

The conceptual framework (figure 3.5) is able to elaborate the process thinking of this study. The LiEP has its intended curriculum objectives, which the prePIRLS 2011 assessment is used to measure the implementation of the policy. The achievement scores reflect what the attained curriculum achieved.

3.11 CONCLUSION

The education landscape in South Africa has changed to promote a multilingual system. The shift from only two official languages to 11 is an attempt to redress language inequalities of the past and parent influences which school language children will be taught in through a uniform schools act. The introduction to the LiEP has given learners an opportunity to be taught in their home language from Grades 1 to 3. Generally, the LiEP has positive objectives that aimed to uplift the values of the Constitution, however, it has been shown to have challenges that prohibit success. It is fundamental that international studies ensure strict technical guidelines for the translation of assessment instruments. Studies, such as the prePIRLS 2011, put in place strict guidelines for translation procedures and several check points to ensure that content of the assessment is not lost. South Africa has made efforts to develop African languages since 1994. Although there is a lack of education materials that can enhance the implementation of the LiEP, researchers make a point that it is under-standardisation of the African languages that continue to be a challenge for African books being published. It is evident that the issue of dialects within African languages is one of the contributory factors amongst translators and writers.

CHAPTER 4: RESEARCH DESIGN AND METHODOLOGY

4.1 INTRODUCTION

The prePIRLS 2011 research methodology was addressed in chapter 2. For the purpose of this particular study, a quantitative secondary analysis was considered the most appropriate research method. Quantitative method is a process that is systematic and objective and consists of numerical data (Maree, 2013), following experimental and non-experimental designs (Creswell, 2008). The nature of the study is a quantitative secondary analysis making use of a non-experimental design.

Secondary analysis can be defined as second-hand analysis (McCaston, 2005) and can also be seen as a research design that is collected for a purpose different from the primary research (Sørensen et al., 1996). This study made use of existing data gathered for the purpose of prePIRLS 2011, to explore evidence of differential item functioning in the data gathered for the English and isiXhosa passages by means of a quantitative secondary analysis.

This chapter will discuss the research methodology relevant to this study and describe the sample size for this particular study and a discussion about the assessment instruments which include the passages and items. It includes how the data analysis was completed to answer each research question and will address validity and reliability of the data used as well as the translations procedures.

4.2 SAMPLE FOR THE CURRENT STUDY

The sampling required by the prePIRLS 2011 study was a target population of learners representing at least four years of schooling. In South Africa this meant Grade 4 learners, with a required sample of at least 150 schools (Mullis et al., 2009). A three-stage stratified cluster sampling design was used in the prePIRLS 2011 (Joncas & Foy, 2010). The schools were sampled at first stage, followed by a second stage of sampling of classrooms and a third stage of sampling of all learners in intact classrooms that were selected for participation (Joncas & Foy, 2011). In South Africa's case, schools were sampled according to language of instruction and school status. This sample refers to the language of learning and teaching of

schools in the first three schooling years. An intended number of 345 schools were sampled for prePIRLS 2011 although only 341 participated (Howie et al., 2012). The difference in intended and actual sampling was due to schools that no longer existed or that refused to participate.

The total number of learners who participated in the prePIRLS 2011 was 15,744, of whom 2,205 were tested in English and 1,090 in isiXhosa. For the aim of this study the sample size of 819 was included, comprising 539 learners who completed the selected passage in English and 279 learners who completed the selected reading passage in isiXhosa. Not every learner who participated in prePIRLS 2011 completed every passages. The matrix design as discussed in chapters 2 was a method used to assign passages to the booklets.

4.3 ASSESSMENT INSTRUMENTS

The reading assessment instrument comprised Grade 4 level fictional (literary) stories and non-fictional (informational) stories. The purpose of reading and the processes of comprehension formed the basis of the reading assessment. Learners had to engage in a wide range of strategies including retrieving and focusing on specific ideas, making simple and more complex inferences and examining and evaluating texts. The item types in these test booklets were comprised of multiple choice as well as free response questions (Howie et al., 2012). The mark allocation of a multiple choice item was one and the maximum mark for a constructed response item was three

For the purpose of this study, the focus is on "*The Lonely Giraffe*", a literary passage with a total of six free response questions and nine multiple choice questions. The passage is a story about a group of animals in a bushveld setting and how a lonely giraffe acts as a rescuer during a crisis to secure his place among the other animals (van Staden & Howie, 2014). The passage appears in test booklets three, four and twelve. Table 4.1 summarises the items for the passages:

Table 4.1: Item summary for ‘‘The Lonely Giraffe’’ and processes of comprehension. Adapted from Mullis et al., 2012

Item	Item format	Maxi-mum score	Process of comprehension
1	Constructed response	1	Focus on and retrieve explicitly stated information
2	Multiple choice question	1	Focus on and retrieve explicitly stated information
3	Constructed response	1	Focus on and retrieve explicitly stated information
4	Multiple choice question	1	Focus on and retrieve explicitly stated information
5	Multiple choice question	1	Focus on and retrieve explicitly stated information
6	Multiple choice question	1	Making straightforward inference
7	Multiple choice question	1	Making straightforward inference
8	[4]Not administered		
9	Multiple choice question	1	Focus on and retrieve explicitly stated information
10	Multiple choice question	1	Making straightforward inference
11	Constructed response	1	Making straightforward inference
12	Multiple choice question	1	Focus on and retrieve explicitly stated information
13	Constructed response	1	Examine and evaluate content, language and textual elements
14	Constructed response	1	Focus on and retrieve explicitly stated information
15	Constructed response	1	Interpret and integrate ideas and information

4.4 DATA ANALYSIS

This study aims to investigate how assessment instruments developed for an English population and then translated in African languages creates item bias.

The main research question that guided this research is:

- What is the difference in reading achievement between the English and isiXhosa Grade 4 prePIRLS 2011 passage “*The Lonely Giraffe*”?

For the purpose of answering the main question, descriptive statistics were used to identify and report differences in reading literacy achievement between English and isiXhosa responses. An overall performance of the passage between the two language sub-groups will be presented. The IEA’s International Database Analyser (IDB Analyser) software was used to report the descriptive statistics. IDB is a plug-

[4] Item 8 * not administered due to translation

in for the Statistical Package for the Social Sciences (SPSS) which was developed by the IEA (van Staden & Howie, 2014). The IDB Analyser was developed to combine and analyse data from large scale data sets such as PIRLS, in full (TIMSS) and in full (SITES).

Sub-question 1:

To what extent are the differences explained by providing evidence of bias in Differential Item Functioning (DIF) can be found between English and isiXhosa Grade 4 prePIRLS 2011 response to a reading passage "*The Lonely Giraffe*"?.

In order to answer sub-question 1, Rasch Item Response Theory (IRT) was used to analyse the secondary data from prePIRLS 2011. IRT works as a one-parameter model that measures learners' probability to answer a test item correctly (Smit, 2004). The probability of a learner being able to answer a test item depends on the item bias. The aim of the analyses would be to establish whether the item functions differently for learners of different abilities. According to Smit (2004), item bias is associated with differential item functioning (DIF), that is, the level of difficulty of a test item depends on some characteristics of a group (Cambridge, 1998). DIF is used when individuals of different backgrounds are tested and has an assumption that individuals have the same proficiency but different probabilities to answer the question correctly (Garmerman & Goncaluas & Siares, 2011). In this particular study the probability of answering the question correctly was dependent on the English and isiXhosa group differences, therefore differences in language. According to Gierl and Khaliq (2001), language differences can be associated with different probabilities of a learners answering an item correctly. RUMM2030 software was used to analyse the data.

The first analysis conducted is an overall DIF analysis summary of "The Lonely Giraffe" passage, displaying a person factor ANOVA of the 14 items, and the measurement of the main effect, meaning the effect of the independent variable (in this case the language sub-groups) on a dependent variable (the achievement scores). The second analysis used to answer sub-question 1 is an overall item summary presented in an item mapping graph to point out the distribution of the learners' scores to the item location. This item map provides information on which

items were too easy, too difficult or moderate by considering the persons plotting for each item location. The last analysis that to be used is the item by item DIF by means of an item characteristic curve graph, which shows the relationship between the value a person of a given location estimate is expected to obtain on that item.

Based on the outcomes of the evidence of bias, the hypothesis is that there will be differences in the item responses from the English and isiXhosa learners, explicable by how the language of the test could have affected the way in which the item was answered correctly. The following hypotheses statements for the study are:

$H0 = \mu_{English} = \mu_{isiXhosa}$ or

$Ha = \mu_{English} \neq \mu_{isiXhosa}$

Sub-question 2:

To what extent could any of the other isiXhosa dialects have provided alternative forms of the items to the passage ‘Lonely Giraffe’?

In order to provide alternative assessment items, the English passage from prePIRLS 2011 was given to three isiXhosa language Grade 4 teachers from the three isiXhosa regions, namely, Mount Frere to Umzimkhulu, Lusikisiski, and Mbashe to Kei river to translate into isiXhosa. This stage of the data analysis aims to add depth to any evidence of differential item functioning in presenting alternative scenarios for what the items could have looked like had more than one dialect of isiXhosa been used in the translation of the passage into standard isiXhosa. The differences or similarities of these alternative forms of the items can be used to provide alternative scenarios of what the items could have looked like across different dialects in attempts to discover reasons for differential item functioning.

4.5 Methodological Norms

This is a non-experimental study therefore validity and reliability are the main focus of methodological norms by firstly looking at how validity and reliability were ensured in the prePIRLS 2011 study.

There were several checkpoints during the preparations of the study, from the unpacking of the instruments to the dispatch of the instruments. The IEA set strict guidelines, standards and monitoring processes to which all participating countries had to adhere. The fieldwork monitoring involved members from the CEA visiting schools on the day of testing, unannounced, to observe and record adherence to guidelines and fieldwork administration. Additionally, an International Quality Control Monitor (IQCM) was appointed and trained by the IEA to serve as an external quality control measure that reported directly to the IEA on the data collection activities (Howie et al., 2012).

The CEA's strict quality control ensured validity and reliability for this study. For a secondary analysis, it is vital to ensure validity and reliability because the data remains objective and will not change based on the researcher's subjectivity. The aim of the study is to explore the translation validity in cross-language assessment. In the prePIRLS 2011 the instruments were developed in English then translated into the targeted language (Malak & Trong, 2007). According to Sperber, Devellis and Boehlecke (1994), Pène (2007) and Kucer (2009) the translating of assessment instruments could pose a threat to the validity of the research in terms of text meaning, difficulty levels and cultural equivalence. PrePIRLS 2011 underwent a strict translation verification process (Malak & Trong, 2007). The following procedure were the prePIRLS 2011 guidelines.

4.5.1 Identification of the target language, which is the LOLT.

- Identification of translators and the requirements for knowledge of English as well as the target language.
- Translation of instruments from English to the target language, if necessary adaptation in some cases were granted.
- Back-translation of the instrument from the targeted language into English.
- Comparison and reconciliation of the two independent translations.
- Documentation of all cultural adaptations (Malak & Trong, 2007).

In South Africa, the prePIRLS 2011 instruments were contextualised into South African English then translated into the 10 other official languages (Howie et al., 2012).

All translators were appointed on the basis that they were registered with the South African Translators Institute, and given flexibility to change (van Staden & Howie & Howie 2014) terms or expressions that were not familiar in their culture. Change was only permitted if the translations did not change the meaning of the text and all changes in the translations were recorded on the National Adaption forms, to keep record of all changes made. The back-translation stage involved two translators, the translator who would translate from source text (English) to target language, then a second translator who would translate the text from target language back to English (Howie et al., 2012). Any differences in meaning between the source text and the back translated text would be checked and if these two texts showed differences in meaning the first translator was requested to make adjustment to .maintain the meaning as in the source text.

The last stage of the translation process of the prePIRLS 2011 assessment was the international verification (Howie et al., 2012). All translated instruments were submitted to the IEA, who appointed an independent translator to assure quality and verify the translation instrument for each country participating in PIRLS 2006. The international verifiers' aim was to ensure:

- The difficulty or meaning of the text was not affected by the translation.
- Questions did not become more difficult or easy as a result of translation.
- Information was not added or omitted.
- All assessment booklets comprised the correct passage and al the items.
- All background questionnaires included all the original items (van Staden & Howie & Howie, 2014).

The methodological consideration of translating instruments could compromise the quality, linguistic equivalence and techniques used to analyse the data (Sperber et al., 1994). Supporting this argument is Rice, Pappamihiel and Lake (2004), for whom literacy should aim to be context-embedded and culturally appropriate to the learner's background, that is, when it is broken down it is supported by strategies of

cultural literacy transmission (Rice, Pappamihiel & Lake., 2004). In addition, being context-embedded gives learners a range of cues to the meaning of the text. As mentioned above, prePIRLS 2011 followed strict translation guideline to ensure in every way possible that translations retained the meaning of text across languages.

4.6 RESEARCH ETHICS

The participants identified will be kept confidential and protected at all times (Maree, 2013). The study will make use of the achievement scores of the prePIRLS 2011 Grade 4 learners who completed the reading test in English and isiXhosa. The researcher has no direct contact with the participants and no personal information will be needed. The researcher has been granted ethical clearance from the Faculty of education at the University of Pretoria to continue partaking in the study.

In conclusion, the methodology of the study is a secondary analysis of the prePIRLS 2011 Lonely Giraffe data. As mentioned above the data collection, assessment booklet are those administered under the original study. For the current study, I will extract the English and isiXhosa sub language groups of the passage. Thereafter, follow up consultations with Grade 4 isiXhosa teachers will be conducted to explore whether any mistranslation are identified. All the necessary UP ethics application processes have been followed and granted by the institution.

CHAPTER 5: DATA PRESENTATION AND RESULTS

5.1 RESULTS

Chapter 5 presents the results of the data analysis conducted in the study, mainly in three phases in accordance with the research questions of the study.

The first phase of data analysis is to answer the main research question: *"What is the difference in reading achievement between the English and isiXhosa Grade 4 prePIRLS 2011 passage 'The Lonely Giraffe'?"* For the main research question, a table will be presented which shows the frequency and the percentage of learners who answered items correctly for both English and isiXhosa.

The second phase of the data analysis is to answer the first sub-question: *"To what extent are the differences explained by providing evidence of bias in Differential Item Functioning (DIF) can be found between English and isiXhosa Grade 4 prePIRLS 2011 response to a reading passage 'The Lonely Giraffe'?"* To answer the question, a DIF table is presented with the ANOVA statistic to test the hypothesis statements about differential functioning, and demonstrate the item functioning between the English and isiXhosa. Additionally, an item characteristic curves (ICC) is included for the items which do not show uniform functioning between the two language sub-groups. The ICC makes use of the Item Response Theory (IRT) which depicts the probability of a learner answering the item correctly.

The third phase of data analysis is to answer the second sub-question: "*To what extent could any of the other isiXhosa dialects have provided alternative forms of the items to the passage 'The Lonely Giraffe'?"* This section of the data will illustrate teacher comments on the translations of the item that show some discrimination.

5.2 RESPONSES TO RESEARCH QUESTIONS

As response to the research questions the data analysis will only examine 14 items of *The Lonely Giraffe*, which included the sample of learners who completed the passage in English and isiXhosa. A total of 818 learners completed the passage, 539 of whom completed it in English and 279 in isiXhosa. The items consisted of eight multiple choice and six open response question types, details for each of which

have been detailed in Chapter 4. The following sections provide results according to each research questions of the study.

5.2.1 Evidence for answering the main research question

The main research question of the study is *"What is the difference in reading achievement between the English and isiXhosa Grade 4 prePIRLS 2011 passage 'Lonely Giraffe'?"* The total score learners could obtain for this passage was 14. The mean score obtained by learners who answered questions to the passage in English was 7.22 and for isiXhosa it was 4.08. This translates into the overall average percentage score for the English at 48.1% and 27.2% for learners who responded to the passage in isiXhosa. As percentage, learners who wrote the passage in IsiXhosa achieved considerably lower score than English. Table 5.1 (below) presents the percentage of learners across the two sub-groups that obtained individual items correctly.

Table 5.1: Number and percentage of learners who answered items in English and IsiXhosa correctly

	English = 539 Learners			isiXhosa = 279 Learners		
Item No	**N Completed**	**N Correct**	**% Correct**	**N Completed**	**N Correct**	**% Correct**
Item 1	531	411	76.3	257	123	44.1
Item 2	517	389	72.2	235	125	44.8
Item 3	530	406	75.3	246	139	49.8
Item 4	518	234	43.4	228	58	20.8
Item 5	504	296	54.9	224	43	15.4
Item 6	520	310	57.5	229	122	43.7
Item 7	517	325	60.3	225	103	36.9
Item 9	515	382	70.9	221	122	43.7
Item 10	512	358	66.4	218	106	38.0
Item 11	504	265	49.2	216	59	21.1
Item 12	499	60	11.1	220	41	14.7
Item 13	517	221	41.0	230	44	15.8
Item 14	511	284	52.7	224	56	20.1
Item 15	507	257	47.7	218	67	24.0

For learners who responded to the passage in English, items 4, 11, 12, 13, 15 were correctly answered by less than 50%. The highest percentage responded correctly to item 1 with 76.3%. The lowest correct responses were for item 12 with only 11.1% of the learners who answered the item correctly. Fewer than 50% responded correctly across all items, the highest correct response being obtained for item 3

(49.8%) and the lowest for item 5 (15.4 %). The results in Table 5.1 confirm that in the prePIRLS 2011 passage many more isiXhosa learners were unable to answer the items correctly. Sub–question one: Finding DIF evidence to explain differences in achievement.

5.2.2 Evidence for answering the research sub-question

Table 5.2 presents an overall DIF analysis summary of the data, consisting of an ANOVA test, which includes a person factor analysis of all 14 items in the passage. The ANOVA is conducted mainly for two purposes, firstly to compare mean scores of two independent groups and secondly to test a null hypothesis (Maree, 2013). In this study, the two independent groups refer to English and isiXhosa language sub-groups. The null hypothesis states that the English mean score is equal to the isiXhosa mean score (μEnglish = μisiXhosa). If the null hypothesis is untrue the alternative hypothesis is accepted, which states the English mean score is not equal to the isiXhosa mean score (Ha = μEnglish ≠ μisiXhosa).

When analysing an ANOVA, the most important value to look at is the f-value and the p-value. The former is a ratio that two quantities (English and isiXhosa means scores) are expected to be roughly equal under the null hypothesis (Maree, 2013). The latter (probability value) is the statistical model used to test a null hypothesis in order to put a figure on the statistical significance of evidence (Maree, 2013). Together these values are able to inform the statistically significant[5] differences among the mean score between English and isiXhosa languages sub-group for each item.

[5] Statistically significant is the likelihood that a relationship between two or more variables is caused by something other than random chance.

Table 5.2: DIF Summary for The Lonely Giraffe

Language			
Item	**Mean Squared**	**F-ratio**	**p-value**
1C	9.11	13.269	0.000304
2M	3.89	4.523	0.033798
3C	0.15	0.276	0.599406
4M	0.47	0.433	0.510578
5M	21.57	20.895	0.000000
6M	22.33	18.503	0.000013
7M	2.72	2.784	0.095688
9M	0.03	0.032	0.859100
10M	0.44	0.565	0.452536
11C	0.64	0.783	0.037657
12M	0.84	1.342	0.247188
13C	0.36	0.306	0.580223
14C	5.43	7.633	0.005902
15C	0.57	0.852	0.356362

In table 5.2, a small p-value is typically <0.05, which indicates strong evidence against the null hypothesis, therefore the null hypothesis can be rejected. A large p-value of >0.05 indicates weak evidence against the null hypothesis, consequently failing to reject the null hypothesis (Cohen, 1988). In the current study, the mean scores are not the same across English and isiXhosa language sub-groups. By using DIF one can calculate the p-value and determine the functionality across the two language groups.

Table 5.2 shows a summary of the differential functional item of the passage for each item as evidenced by ANOVA statistics. In other words, the table presents the results of each item for: 1) compared mean scores between English and isiXhosa (Mean squared); 2) the f-value, which is the expected equal score under the null hypothesis testing (f-ratio) and: 3) the p-value, which is the probability value used to quantify the statistical significance of evidence. The statistically significant results at 5% level are highlighted in grey. These items are significant because the p-values are < 0.05 and therefore present strong evidence against the null hypothesis. This results in the null hypothesis for items 2, 5, 6, 7, 14, 1, 11 to be rejected. Additionally, these items are also reported in terms of non-uniform DIF where the ability differences in the responses to items are inconsistent among the groups (Andrich,

D., & Luo, G., 2003). The small p-value (< 0.05) is also able to infer in a DIF analysis that the item responses are not the same between the English and isiXhosa language sub-groups. The small p-value in DIF between the two groups are correspondingly interpreted as an existence of some discrimination in the items.

The DIF will be presented for each item on a graph, consisting of three line graphs: a) the IRT depicted model; b) the performance of English learners who answered that item; and c) the performance of isiXhosa learners who answered that item. In order to show the uniform functioning of the two groups, graph b) and c) should demonstrate a similar pattern to graph a), to represent a non-discriminative functioning between the two languages sub-groups. However, if the graphs show some sort of a discriminative functioning by not following the predicted graph a) a third phase of data analysis is applied.

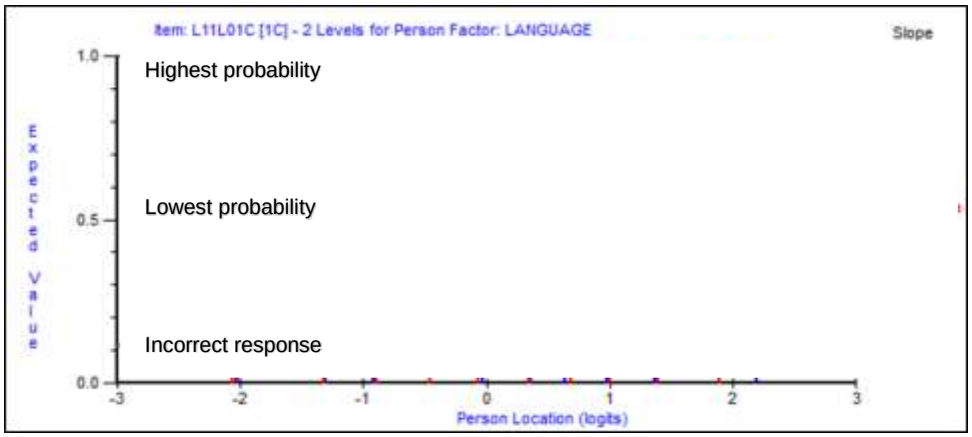

Figure 5.1: Y-axis expected value in an item characteristic curve labels

Figure 5.1 (above) presents an ICC graph, with the y-axis labelling *expected value,* also known as the probability score. The probability of a correct response starts from 0.0 as the lowest probability and incorrect response to 1.0 as the highest probability and correct response. The x-axis is labelled *person location*, which also means the location of the learner's ability. The assumption here is that each examinee has some amount of underlying ability, and is placed on the ability scale ranging from -3 to 3. The scale is divided into two parts, the lower class interval and upper class interval. The former, between points -3 and 0 on the x-axis of the graph, are the examinees with a lower ability to respond correctly to an item. The upper

class interval, between points 0 and 3 on the x-axis of the graph, are the examinees with a higher ability to answer an item correct (Figure 5.2, below).

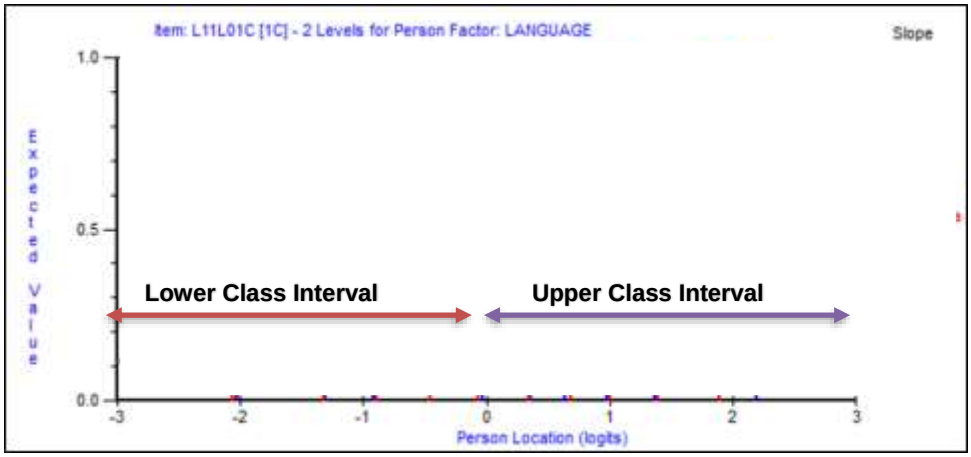

Figure 5.2: X-axis expected value in an item characteristics curve labels

The IRT generates a model curve for each item that depicts a person's ability in relation to probability to respond correctly to an item, plotted on the graph.

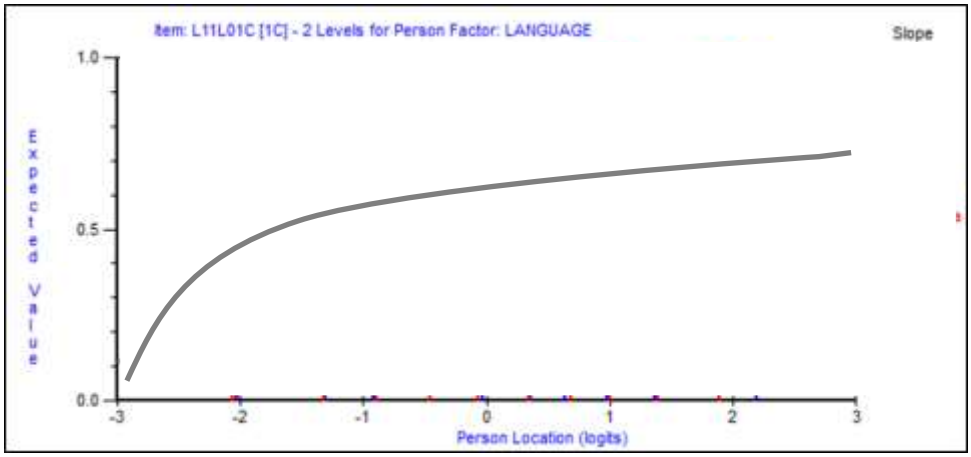

Figure 5.3: IRT model curve

Lastly, the ICC presents a line graph with the obtained score (y-axis) to an ability score (x-axis). Together the ICC graph and the modelled curve can be compared to measure the accuracy of the predicted graph (model) to the obtained graph (ICC). For the purpose of this study, the graphs consist of two ICC's, with the English and isiXhosa sub-group compared to the modelled curve as indicated below.

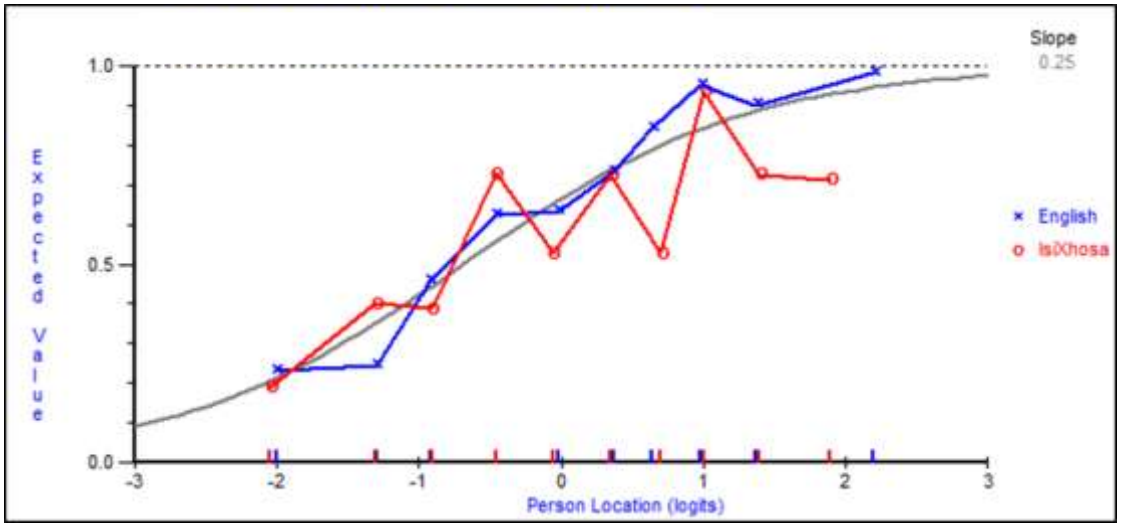

Figure 5.4: Example of an ICC graph English and isiXhosa sub groups

As mentioned previously, the ICC graphs will only be analysed for the problematic items identified from the DIF summary Table 5.1. The items that showed a p - value of < 0.05, show an existence of a non-uniform functioning of the two English and isiXhosa language sub-groups. A p-value < 0.05 indicates that ability to answer the item correctly was not the same between English and isiXhosa sub-groups.

5.2.2.1 Item Characteristic Curve for Item 1

Item 1 is a constructed response item that measures learners' ability to focus on and retrieve explicitly stated information. Below, the item reads both in English and isiXhosa as:

1. What did the animals talk about every morning?

1. Zazithetha ngantoni ntsasa nganye izilwanyana?

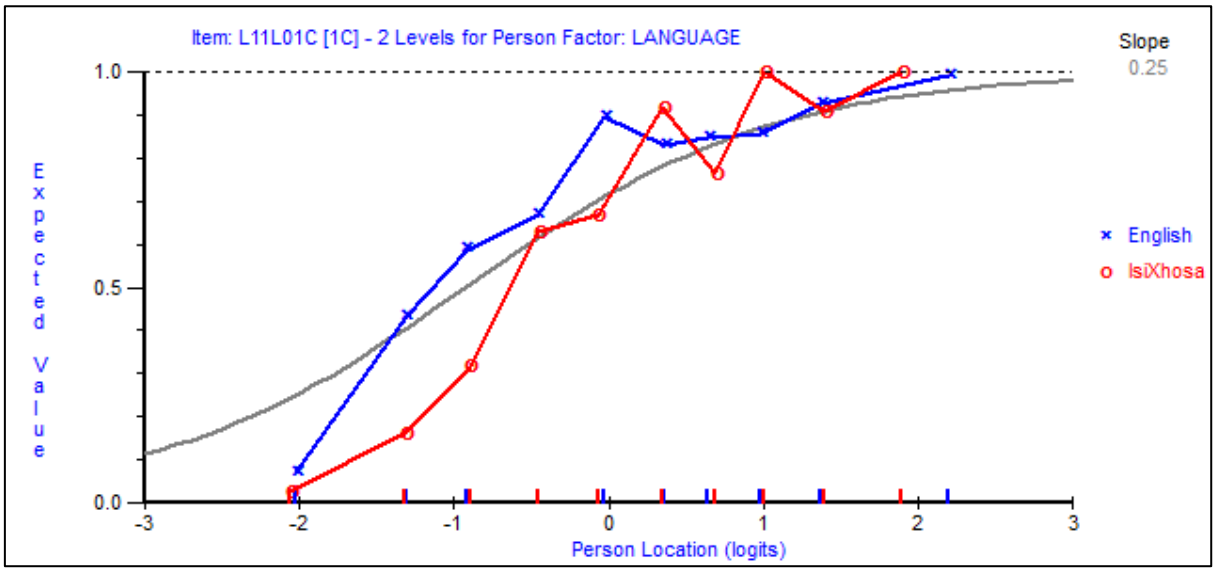

Figure 5.5: Item 1 characteristic curve

Figure 5.5 (above) illustrates the ICC graph for English (blue) and isiXhosa (red) language sub-group responses to item 1 as well as the IRT model (grey). Both English and isiXhosa sub-groups at -2 person location are below the model curve, which means the learners in the -2 ability scale had found item 1 difficult. The English sub-group follows a similar pattern as the model curve, between -2.5 and 0.7 person location above the model curve. When a sub-group ICC is above the model, this means the probability to respond to the item correctly was higher than the expected value indicated in the model curve. The isiXhosa lower class interval (between points -3 and 0 on the x-axis of the graph) is below the model (grey), which reveals that the item was more challenging for learners who were tested in isiXhosa.

5.2.2.2 Item Characteristic Curve for Item 2

Item 2 was a multiple-choice question, the process of comprehension that was measured was to focus on and retrieve explicitly stated information. The item is presented in both in English and isiXhosa below.

2. Why didn't anyone listen to the giraffe?

He did not wait his turn to speak.

He spoke too quietly to be heard.

He was too tall.*[6]

He was not friendly.

2. Kwakutheni kwakungekho silwanyana siyimamelayo indlulamthi?

Yayingalindeli ithuba layo lokuthetha.

Yayithethela phantsi, ingvakali.

Yayinde kakhulu.*

Yayingenabubele.

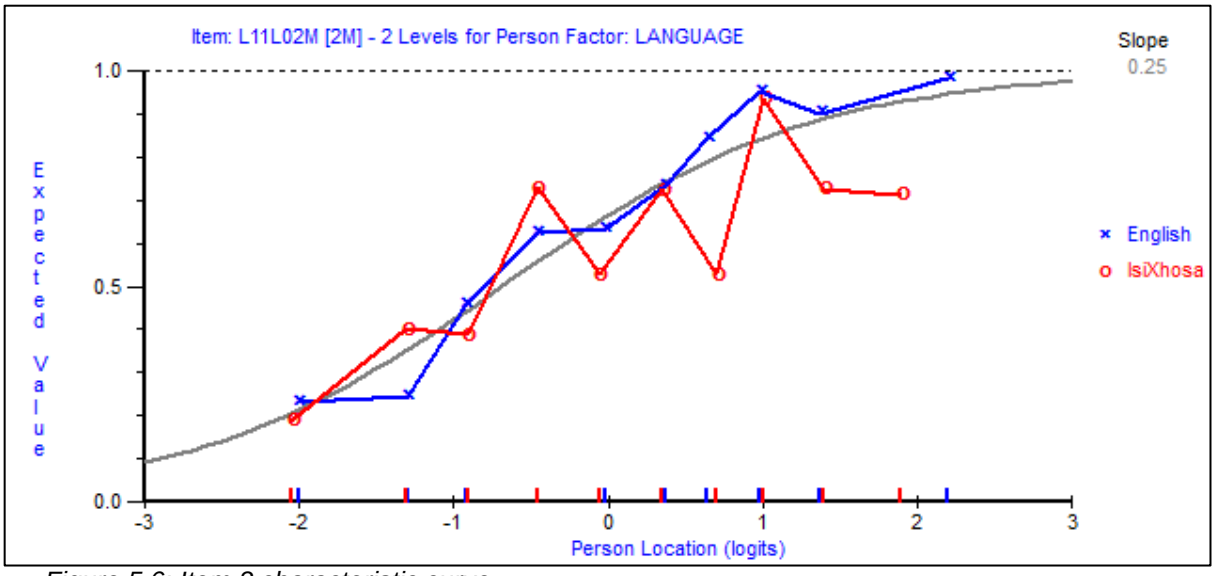

Figure 5.6: Item 2 characteristic curve

Figure 5.6 (above) points out that item 2 for both English and isiXhosa sub-groups is inconsistent. For the English sub-group (blue), the lower class interval (between points -2 and -1.7 on the x-axis of the graph) the curve is below the model curve and the isiXhosa curve. The curve implies that the learners between -2 and -1.7

[6] *Indicated the correct answer for the Item

person location English sub-group found the item more difficult than those who completed the passage in isiXhosa. The English learners on person location was between -1 to - 0.4 and 0.6 to 1.3 who experienced the item as less difficult. The person locations' curve is above the model curve. The isiXhosa sub-group curve (red) is inconsistent through the different person location points. In person location -1.8 to -1.3 and -1.1 to -.0.9, the curve is above the model curve and the English sub-group curve, which means the item was less challenging for these particular learners. However, the isiXhosa learners within the upper class intervals (between points 0 and 3 on the x-axis of the) found the item considerably more difficult than did the English sub-group. The isiXhosa curve in the upper class intervals is considerably lower than the model curve and the English curve. The results in figure 5.2's item graph characteristics curve can be explained as item discrimination towards the learners who completed the passage in isiXhosa in upper class intervals.

5.2.2.3 Item Characteristic Curve for Item 5

Item 5 was a multiple-choice question, aimed at the process of comprehension to focus on and retrieve explicitly stated information. The item is presented in both in English and isiXhosa below:

5. What did the giraffe stop doing over the summer?

wandering off

frightening the birds

appearing in the treetops

speaking to anyone*

5. Yintoni eyayeka ukuyenza indlulamthi ngexesha lehlobo?

ukuhamba

ukoyikisa iintaka

ukuvela phezulu emithini

ukuvela phezulu emithini*

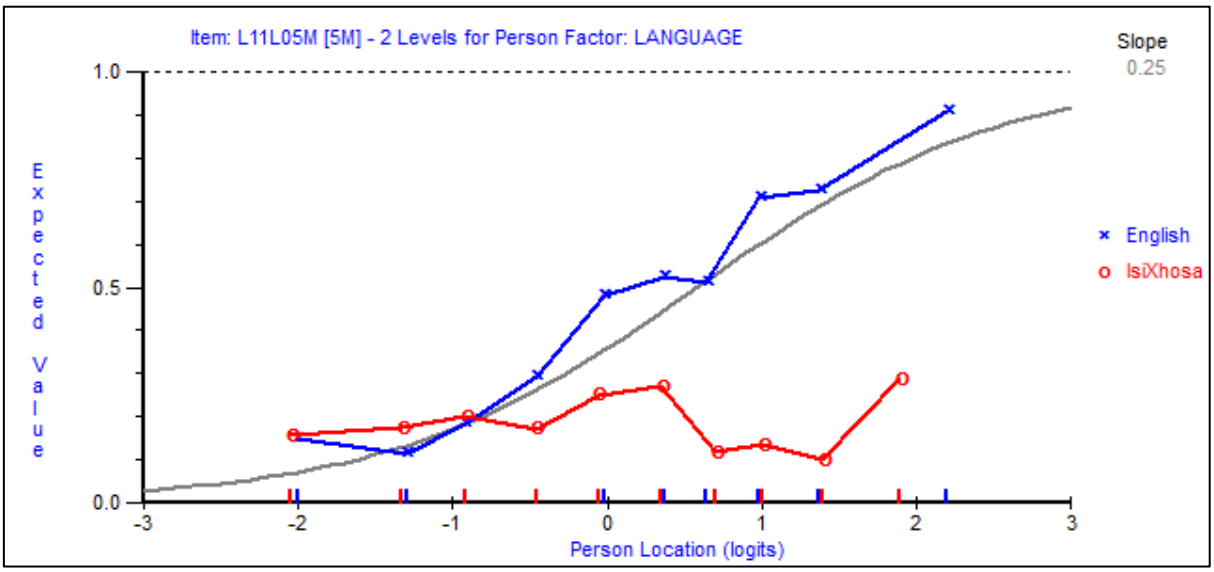

Figure 5.7: Item 5 characteristic curve

Figure 5.7 (above) reveals the ICC for item 5 in the passage between English and isiXhosa sub-groups. Both begin at the same point of -2 person location with the obtained value of 0.18 and the obtained value above that expected. The significance of this point is that for learners situated at -2 person location the item was easier than predicted by the model curve (grey). On one hand, the English curve follows the pattern and mostly is above the model curve. The curve can be interpreted to say that person location -0.5 to 2 (upper class interval) experienced the item as easier than expected. On the other hand, the isiXhosa curve decreases below the model curve. The isiXhosa curve means that the obtained values were much lower than the expected ones, which indicated the learners had trouble in answering the item. Additionally, because the English (blue) curve proved easier and the isiXhosa (red) more difficult, it can be concluded that item 5 discriminated against the isiXhosa language sub-group, so the ICC curve shows that item 5 carried much more cognitive load for the isiXhosa sub-groups than the English sub-group.

5.2.2.4. Item Characteristic Curve for Item 6

The item 6 was a multiple choice response that measured the reading skill of making straightforward inference. The item was completed by both English and isiXhosa learners as presented below:

6. Why did the animals huddle together beneath the bushes?

It was raining.

They were scared of the giraffe.

They heard a roar.

It was hard to climb the trees.

6. Kwakutheni izilwanyana zazibuthelene phantsi kwamatyholo?

Kwakunetha.

Zazisoyika indlulamthi.

Zeva umgqumo.

Kwakunzima ukugwencela emithini.

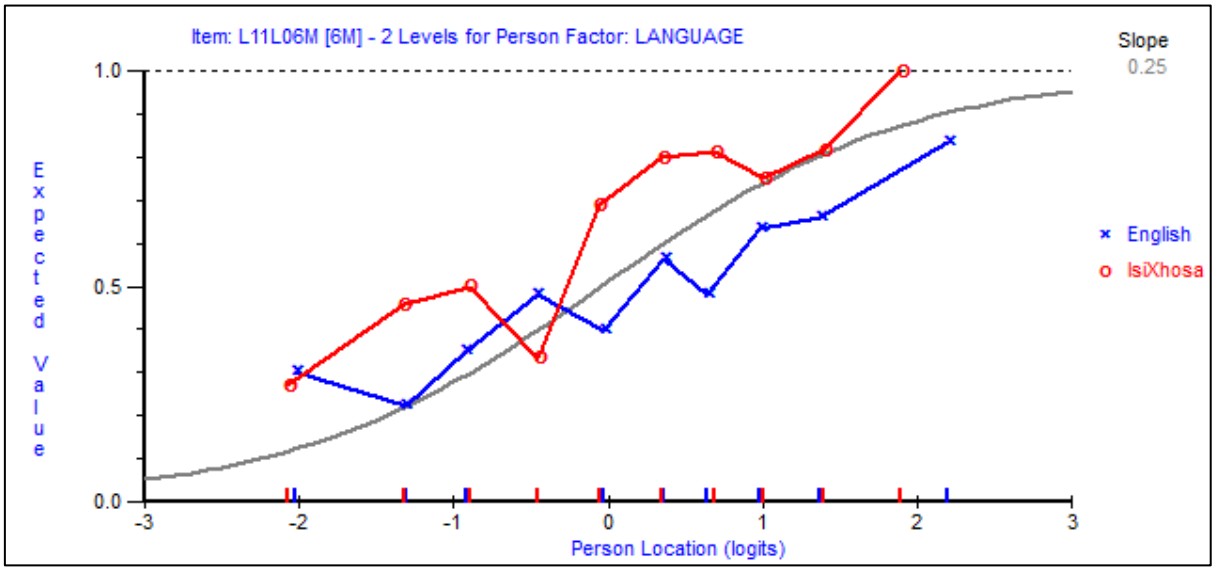

Figure 5.8: Item 6 Characteristics Curve

Figure 5.8 (above) exhibits the ICC for item 6. The characteristic curve graph shows the item functioning for the learners who completed the passage in English and

isiXhosa. In person location -2 to 0 (lower class interval) the isiXhosa curve (red) and English curve (blue) are both above the model curve (grey), so that for both sub-groups the obtained value is more than the expected one. From that, it can be deduced that there were no difficulties in answering the item for persons in the lower class. However, the isiXhosa curve is above both the English curve and the model curve, implying that for isiXhosa learners at location -2 to 0 the item was far easier than how the English learners experienced the item. In the upper class interval (person location 0 – 3), the isiXhosa sub-group followed the pattern of the model curve and in some instances is above the model curve. The curve suggests that the item was less challenging for the isiXhosa sub-group. For the English sub-group in the upper class interval, the curve decreases below the model curve, so that the item was challenging for the English sub-group Because of the two-sub-group curves, the ICC indicate that item 6 discriminated against the English sub-group. In this case, the item it was more difficulty for the English sub-group than it was for the isiXhosa sub-group.

5.2.2.5. Item Characteristic Curve for Item 7

Item 7 was a multiple choice response question to measure the reading skill of making straightforward inference. The item appeared in the booklet in the following written form in English and isiXhosa:

7. “His big eyes widened like saucers.”

What do these words from the story tell you about the giraffe?

He was glad.

He was shocked.

He was angry.

He was excited.

7. “Amehlo ayo amakhulu atwezeka okweesosari.”

Akuxelela ntoni la magama asuka ebalini ngendlulamthi?

Yayonwabile.

Yayothukile.

Yayinomsindo.

Yayinehlombe.

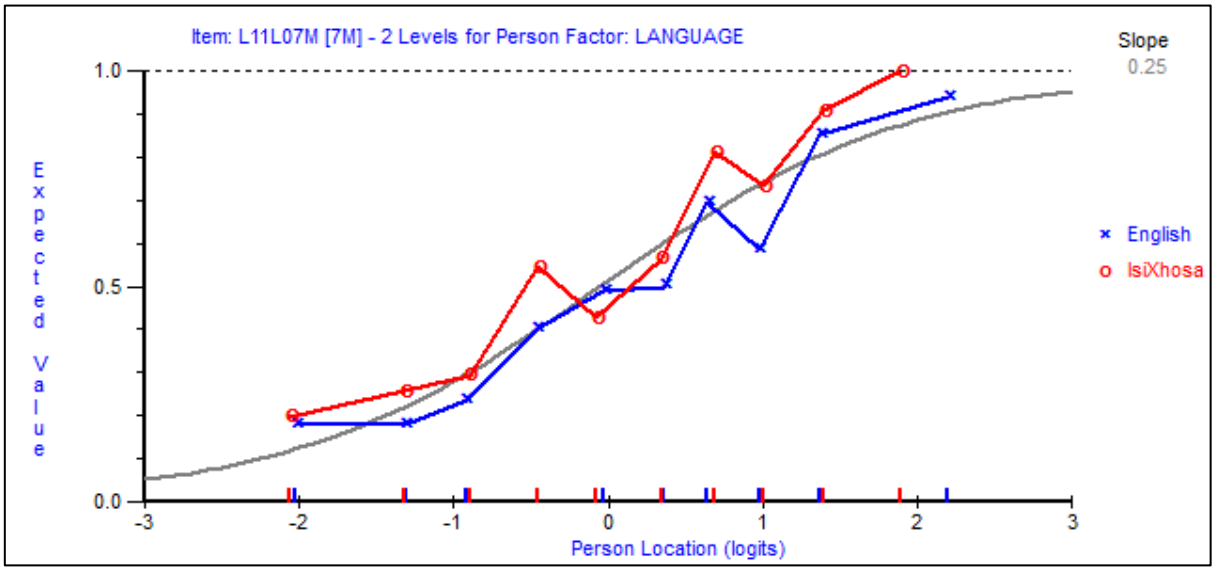

Figure 5.9: Item 7 Characteristics Curve

Figure 5.9 (above) is item 7's item characteristic curves for both English and isiXhosa sub-groups. At person location -2 the obtained value for both English (blue) and isiXhosa (red) is above the expected value. This location suggests that the learners at -2 person location had found the item less challenging. Overall, the isiXhosa sub-group curve is above the model curve in particular in location -1.5 to -0.8 and 0.5 to 2. The illustrated isiXhosa curve leads to understanding that at the mention person location the item was easier than expected. The English sub-group curve in most locations is below the model curve, in person location -1.7 to -0.5 and 0 to1.5. When an ICC is below the model the item is shown to be difficult for the sub-group. However, if one considers the closeness of the gap between the English and isiXhosa curves it shows little differences in obtained values. Due to the small difference between the two curves the item is not seen to discriminate against any sub-group.

5.2.2.6 Item Characteristic Curve for Item 11

Item 11 is a constructed response item, which measures the reading skills making a straightforward inference. It is presented in both English and isiXhosa below:

11. Why couldn't some of the animals climb up the slippery tree trunks?

11. Kwakutheni ukuba ezinye izilwanyana zingakwazi ukukhwela kwiziqu zemithi ezimtyibilizi?

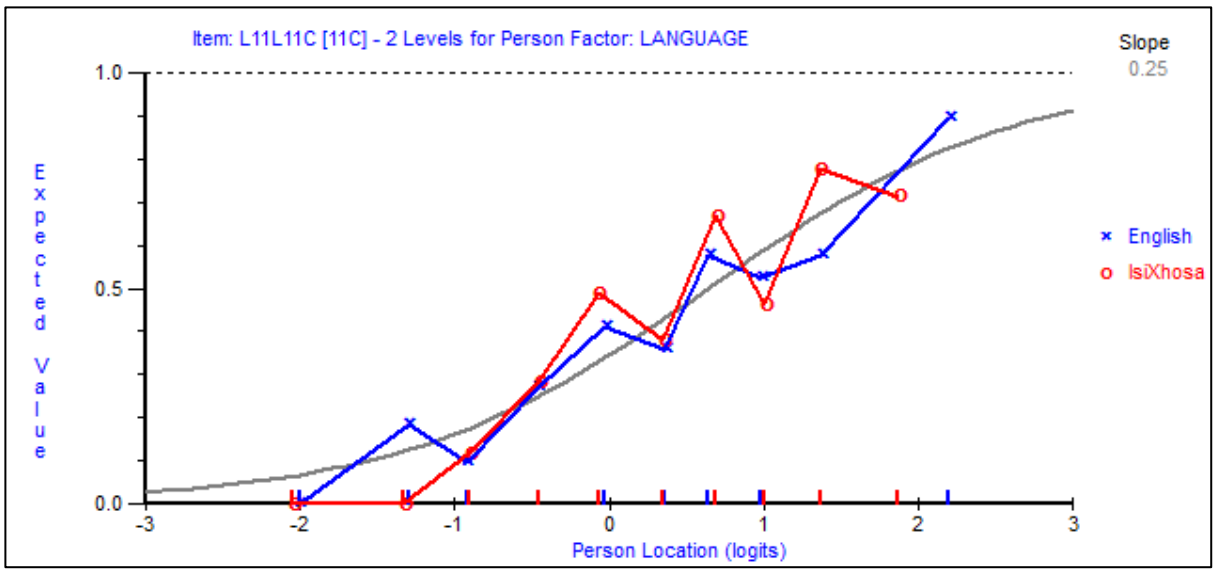

Figure 5.10: Item 11 Characteristics Curve

Figure 5.10 (above) is the ICC of item 11 for both English and isiXhosa sub-groups. The starting point for both English (blue) and isiXhosa (red) curve at -2 are below the model curve. In line with the illustration, it infers that for learners located in -2 person location the obtained value was less than the expected value, meaning it was difficult. For the isiXhosa curve the obtain value continues to be 0 from person location -2 to -1.8, however gradually progress to above the model curve from point -1.9 to 1.1. The English curve follows a simaliar pattern to the isiXhosa curve but remains slightly below it and above the model curve in person location -0.9, 0.5 and 1 to 2. As in figure 5.9 item 7, the gap between the English and isiXhosa curves is of slight difference, so one does not deduce any discriminative patterns for either two sub-groups.

5.2.2.7 Item Characteristic Curve for Item 14

Item 14 is a constructed response item which measures the reading skills to focus on and retrieve explicitly stated information. Below is the item presented in English and isiXhosa:

14. What did the animals do when the sun came out again?

14. Zenza ntoni izilwanyana lakuphuma ilanga kwakhona?

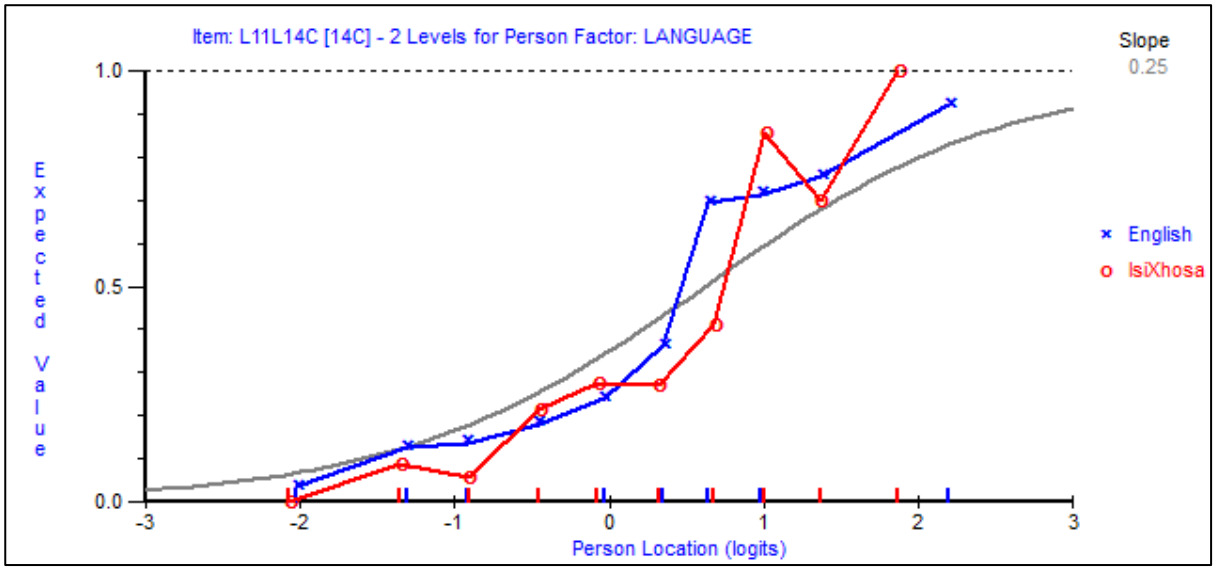

Figure 5.11: Item 14 Characteristics Curve

Figure 5.11 (above) show both English and isiXhosa and illustrates the lower class interval (between points -1 and -2 on the x-axis of the graph) as being below the model curve, which means the item was difficult for both sub-groups. In addition, the isiXhosa curve is below the model and English curve in person location -2 to -0.8 and 0.2 to 0.9. Although both groups are below the model curve, the isiXhosa sub-group of learners found the item slightly more difficult than the English sub-group. In the upper interval (between person location 0 to 2) both English and isiXhosa sub-group curves are above the model curve, which indicates that the obtained value was more than the expected value. In DIF this pattern shows that the item was less challenging than expected for the learners in that specific location. The pattern between English and isiXhosa is very similar, and as with items 7 and 11 the gap between two curves is narrow. Because of the results for this item there is no evidence of discrimination in testing any of the language sub-groups on this item.

Overall, item characteristic curves shown above only item 1, 2 and 5 point out non-uniform functioning between the English and isiXhosa sub-group and denote some discrimination of the isiXhosa sub-group. Items 6,7,11 and 14 according to the item characteristic show none or very little discrimination for any sub-group. The identified items with non-uniform functioning will form the third phase of the analysis as part of sub-question two.

5.3.1 Evidence for answering the research sub-question two

The second sub–question to the current study asks: "*To what extent could any of the other isiXhosa dialects have provided alternative forms of the items to the passage 'Lonely Giraffe'?"*. In order to answer this question, items 1, 2 and 5 proved to be problematic and provided evidence of DIF between the English and isiXhosa sub-groups of Grade 4 learners who responded to these items.

Subsequently, these items, as presented in the prePIRLS 2011 test, were given to isiXhosa first language speaking teachers from specific dialect areas. The teachers were on Foundation Phase in their respective schools and have more than five years of teaching experience in the Intermediate Phase classrooms. Teacher A was from between Mount Frere and Umzimkhulu, an area that predominantly speaks the isiBhaca dialect. Teacher B was from Lusikisisi, an area where isiMpondo is mostly spoken, and Teacher C was from the Mbashe area where isiHlubi is mostly spoken. The teachers were asked to provide possible alternatives or comment on the translations to these three items based on what they could have looked like in their dialects. For each item, a table with each teacher's response will be presented, and followed by a discussion.

Table 5.3: Teacher's responses to Item 1

prePIRLS Item 1 English	**prePIRLS Item 1 isiXhosa**	**Teacher) A (isiBhaca**	**Teacher B (isiMpondo)**	**Teacher C (isiHlubi)**
What did the animals talk about every morning?	Zazithetha ngantoni ntsasa nganye izilwanyana?	"Zazi**bhobha** ngantoni ntsatsa nganye **ti**lwanyana"	"Zazithetha ngant**r**oni **nge**tsatsa nganye izilwanyana"	"Zazithetha ngantoni **qho ku**sasa izilwanaya"

The following are the comments and feedback from the teachers with regard to item 1:

Teacher A indicates that the word "*talk"* (English) in the prePIRLS isiXhosa item 1 is *"thetha"* (isiXhosa). She refers to the word "talk" as "*bhobha"* (isiBhaca) which is the word used in her dialect. Teacher A therefore provides an alternative word, which she explains as commonly used as a synonym for the verb "talk". Additionally, she highlights that this synonym is the word she uses in her classroom and a word that refers to "talk" in their dialect spoken in their community. Teacher A also shows a different way to spell *"animals"* (English) *"izilwanyana"* (isiXhosa) in her response, as illustrated by the description below:

Original item Teacher A

Izi*lwanyana* ***Ti****lwanyana*

Teacher A indicates that, in the isiBhaca dialect, the phoneme ***izi*** does not exist, which indicates plurality, but instead uses a different prefix and phoneme that is ***ti***. This means that the prefix ***izi*** does not exist in isiBhaca, and perhaps if learners have not been taught prefixes well enough it could cause confusion in the text.

Teacher B made use of different prefixes for the word *"morning"* (English) in the isiXhosa "*ntsasa"* prePIRLS item 1 in the following way:

Original item Teacher B

ntsasa ***nge****tsatsa*.

According to teacher B, *nge* is a word she uses in her classroom to emphasise *"for every morning this is what happens…"*. Teacher B also points out that using *ngetsatsa* is not necessary linked to her dialect, but a prefix that is used for emphasis and in her opinion is regularly used in her community. Learners are likely to be more familiar with the word as presented in table 5.12 than as it was presented in the prePIRLS 2011 passage.

Lastly, teacher C used a different word (or synonym) to emphasise the notion of *"every morning this is what happened…"* in the following manner:

Original item Teacher C

Ntsatsa nganye **Qho kusasa**

Teacher C suggests that instead of using "*ntsatsa nganye",* she would present it to her learners as "*qho kusasa".* Teacher C supported her phrasing as being cognitively appropriate for Grade 4 learners in her classroom.

The responses from the teachers is a combination of dialect vocabulary used in the classroom as well as the use of low frequency words used in item 1 as presented by the prePIRLS 2011 passage. Additionally, the representation of the item structure is an alternative way the teachers felt the item could have been asked in order to be more comprehensive for the learners in their respective classrooms. Lastly, teachers' comments were based on the dialect use of high frequency words that are commonly spoken in their specific areas.

In terms of item 2, the following were identified:

Table 5.4: Teacher responses to Item 2

prePIRLS Item 2 English	**prePIRLS Item 2 isiXhosa**	**Teacher) A (isiBhaca**	**Teacher B (isiMpondo)**	**Teacher C (isiHlubi)**
Why didn't anyone listen to the giraffe?	*Kwakutheni kwakungekho silwanyana siyimamelayo indlulamthi?*	**Yini eyenta kungabiko tilwanyana timamela indlulamthsi?**	Kwakutheni **ku**ngekho silwanyana **e**siyimamelayo indlulamthi?	"**Kutheni le nto kungazange kube** silwanyana siyimamelayo indlulamnthi?"

Considering Table 5.13, teacher A rephrased the entire sentence and spelled some words differently from the original item 2. For example:

Original Item Teacher A

Silwanyana **Ti**lwanyana

Siyamamelayo **Ti**mamela

Indlulamthi Indlulam**thsi**

Teacher A explains the differences in spelling as dialect phonemes. Further, she clarified that in her dialect the letter ***"S***" is non-existent and replaced with the phoneme "***Ti"***. The phoneme "***THI"*** is pronounced and spelt as "***THSI***". Additionally, she mentioned that usually

learners in foundation phase struggled with the differences in the pronunciation of these phonemes. In the rephrasing of the sentence, teacher A provided an alternative sentence construction and explained it by saying it was a *"better translation…"* and not too complex for learners in Grade 4. Teacher A pointed out a constant struggle in teaching "standardised" isiXhosa in dialectal isiBhaca, by which she expressed that in early literacy years she experienced having to teach "standardised" isiXhosa in her dialect as a form of code switching in her classroom.

Teacher B removed a prefix of the word in the below demonstration:

Original item	Teacher B
Kwakungekho	_____kungekho

Teacher B removed the prefix of *"**kwa**kungekho"* to *"kungekho"*. The motivation here is that she has taught her learners when there was the same prefix in two words after one another, for example as illustrated in the isiXhosa prePIRLS 2011 "*Kwakutheni kwakungekho"***.** To remove the prefix of the second word, an example from teacher B response *"Kwakutheni kungekho"* is provided. She noted that in her dialect that is how they speak and to her makes the most sense of removing the prefix of the second word.

Teacher C has represented first part of the item in the following way:

Original item	Teacher C
Kwakutheni kwakungekho	**Kutheni le nto kungazange kube**

Teacher C rephrased the first part of the item from *"Kwakutheni kwakungekho"* to *"Kutheni le nto kungazange kube"*. Teacher C's justification of the change is that the sentence of the original item would be at a difficult level for the learners in her Grade 4 classroom, quoting from the field note: "…lentoni, sisXhosa esinzulu, apha asifiki apha..." translates to "…this is deep Xhosa, here!!, we do not even get there…".

The teachers' responses presented a mix between dialect use in classroom and the use of low frequency words or unfamiliar sentence structures. Teacher C in particular highlighted that the item was written in "too" formal isiXhosa, which the learners in her classroom were not familiar with and would struggle to understand at their level.

When scrutinising the possible versions of item 5, the following was identified*:*

Table 5.5: Teacher responses to Item 5

prePIRLS Item 5 English	**prePIRLS Item 5 isiXhosa**	**Teacher) A (isiBhaca**	**Teacher B (isiMpondo)**	**Teacher C (isiHlubi)**
What did the giraffe stop doing over the summer?	Yintoni eyayeka ukuyenza indlulamthi ngexesha lehlobo?	Yintoni eyayeka ukuye**nta** indluma**thsi** ngexesha lehlobo? "The correct answer which was option (d) was not included. Distractor © and (d) we the same. Mistranslation"	**Yayeyeka ukwenzani ngexesha lehlobo indlulamthi?**	*Yintoni eyayeka ukuyenza indlulamthi ngexesha lehlobo?*

Similar to item 2, teacher A spelled some of the words slightly differently from the original item. For example;

Original item Teacher A

*Ukuyen***za** *Ukuyen***ta**

*Indlulam***thi** *Indluma***thsi**

Similar to items 1 and 2, the teacher explained that this is a dialect pronunciation and the learners in Grade 4 battle with the differences from "standard" isiXhosa and what the learners know to be their home language isiBhaca. The phoneme ***"za"*** in isiXhosa is pronounced and spelled as ***"ta"*** in isiBhaca*.* Similar to items 1 and 2 the phoneme ***"thi"*** in isiXhosa is pronounced and spelled as ***"thsi"*** in isiBhaca. Teacher A also highlighted that the correct answer for this item was not even one of the options. Teacher A said: *"The correct answer which was option (d) in the English version, was not included in the isiXhosa version. Distractor (c) and (d) are the same this could be a mistranslation error".* This finding implies that item 5 could have been more difficult for the isiXhosa sub-group because the correct distractor was not provided according to teacher A.

Teacher B has rephrased the entire sentence to:

Original item Teacher B

Yintoni eyayeka ukuyenza **Yayeyeka ukwenzani**

indlulamthi ngexesha lehlobo? **ngexesha lehlobo indlulamthi?**

Teacher B's explanation for rephrasing the sentence was that the original item would be too challenging for learners in her classroom. Teacher B highlighted that at Grade 4 level the learners have not yet grasped the sentence complexity of the "standardised" isiXhosa.

Teacher C simply stated that the original item was appropriate for Grade 4 learners in her classroom and had no comments.

For item 5, the pattern of using a dialect to teach the "standardised" isiXhosa is evident. In addition, teacher B felt strongly about the level of difficulty of the item in reference for the learners in her classroom. Surprisingly, teacher C had no comment on this particular question.

5.4 SUMMARY OF RESULTS

The results of the present study may be summarized by pointing out that, firstly, evidence was found for statistically significant differences between English and isiXhosa when comparing mean scores obtained across the 14 items. The overall percentage score for the English sub-group is 48.1% and the isiXhosa sub-group is 27.2%. Both sub-groups achieved below 50%, however, isiXhosa performed considerably lower than English the language group. Having said that, Table 5.1 also presents the percentage score for each item of *The Lonely Giraffe*. It is important to point out that isiXhosa performed lower than English for each of the 14 items. To be specific, items 4, 11, 12, 13 and 15 were typically the lowest percentage score for the isiXhosa sub-group.

Secondly, the DIF analysis revealed items 1, 2, 5, 7, 11 and 14 as problematic. As displayed in Table 5.2, the problematic items provide evidence that the mean scores between the two sub-groups are not equal for all 14 items. Therefore, the null hypothesis which states English language sub-group scores are equal to isiXhosa languages sub-group score for prePIRLS 2011 "*The Lonely Giraffe*" ($H0 = \mu English$

= µisiXhosa) is rejected. Thirdly, these problematic items were further investigated by means of an item by item analysis and only items 1, 2 and 5 provided substantial evidence of DIF. By examining figures 5.6 to 5.11 these items were more difficult to complete for the isiXhosa sub-group than the English sub-group.

The chapter concludes with possible alternative forms of these three items based on what teachers in FP classrooms know to use in their dialects. In summary, the teachers' responses were a combination of translation issues used in the items as well as the use of dialect code switching in their classrooms. The teachers provided synonyms to words they felt to be too difficult for learners in Grade 4. Additionally, they presented alternative translations to the items for language level appropriateness for the learners in Grade 4.

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

This last chapter summarises the research approach in the study, with discussions of the findings as presented in Chapter 5 as well as the methodological reflection. It also includes the limitations of the study and concludes with recommendations emanating from the evidence presented.

6.1 SUMMARY OF THE RESEARCH APPROACH

The research methodology has been discussed in detail in Chapter 4, however, in the following section the data source, data preparation and data processing are discussed before providing a summary of the results.

6.1.1 Data Source

The current study is a secondary analysis of the prePIRLS 2011 South African data. As outlined in Chapter 2, it assessed Grade 4 learners in all 11 official languages, namely, Afrikaans, English, isiNdebele, isiXhosa, isiZulu, siSwati, Sesotho, Setswana, Sepedi, Tshivenda and Xitsonga (Howie *et al*., 2012). The prePIRLS 2011 study had a total of eight passages that were translated into all official languages. These passages were compiled to form 14 booklets by using the matrix method as described in chapter, each of which had two reading passages accompanied by 13-15 items (Howie *et al*., 2012). For the purpose of this study, the data consisted of responses from the passage *'The Lonely Giraffe'* passage, in particular data responses from the English and the isiXhosa learners. The passage had 15 items, of which seven were constructed responses and eight were multiple choice questions.

6.1.2 Data preparation

The passage *'The Lonely Giraffe'* is one of the four released passages and the data is available on a public domain. The full dataset and the isiXhosa version of the passage was obtained from the Centre of Evaluation and Assessment. The data

had to be prepared for the use of only *'The Lonely Giraffe'* and responses in English and isiXhosa from the entire dataset. The demographical variables were removed, since only the UIN (unique identification number) and the achievement item responses were applicable to this particular study. The IDB Analyzer was used for the data preparation, which is an SPSS plug in software for large dataset.

6.1.3 Data processing

In order to conduct the analysis, which included descriptive statistics and a DIF analysis, quantitative analyses were conducted. Based on the results, three teachers from different isiXhosa dialectal areas were consulted for further insights on the items and how they performed. SPPS was used for the descriptive statistics, which calculated firstly the overall achievement score of the English and isiXhosa sub-groups in percentages for the passage. Secondly, the number of learners who answered each item correctly were also calculated in percentage scores. The descriptive statistics presented the sub-group that performed higher in *'The Lonely Giraffe'*, as well as demonstrated the sub-group that achieved the highest correct responses per item.

The second phase of data processing was the DIF analysis in two parts, the summary of DIF by means of ANOVA and the item characteristic curves. The ANOVA is a statistical test for two independent groups' means score (Maree, 2013). The p-value illustrates the significant difference in the means scores between the two groups. Identifying the items with a low p-value, the second part of the analysis was applied. Each of the items with a p-value <0.05 was presented with an item characteristic curve that demonstrated how the item functioned between the two groups. Only three items produced significant non-uniform functioning between English and isiXhosa. These items were then presented to three isiXhosa teachers from different dialectal areas in the Eastern Cape. The teachers were given both English and isiXhosa prePIRLS 2011 versions of the items to scrutinise and give any comments on how the items were translated. The teachers provided their comments and these were presented as a summary of how each teacher responded to each item.

6.2. DISCUSSION ON MAIN FINDINGS

The main research question of the current study asked *"What is the difference in reading achievement between the English and isiXhosa Grade 4 prePIRLS 2011 passage 'The Lonely Giraffe'* passage?" The evidence to answer the question is presented in Table 5.1 in chapter 5, with overall percentage score for English of 48.1% and isiXhosa of 27.2%. The significant difference between the two leads to the scrutiny of each item in the passage, and firstly, the isiXhosa sub-group performed significantly lower across all 14 items of the passage and scored below the mean score for all. These results confirm earlier findings by Howie et al. (2012) presented in Chapter 2 that, overall, the African languages performed below the international benchmark as stipulated by the IEA in the prePIRLS 2011 South African study. Also of relative importance, the English sub-group performed generally higher than the isiXhosa sub-group, but scored below the mean score for items 4, 11, 12, 13 and 15. Having said that, the data in Table 5.1 led to a second phase of the analysis in attempts to further investigate the items by investigating differential item functioning between English and isiXhosa.

Sub-question 1 asked: "*To what extent are the differences explained by providing evidence of bias in Differential Item Functioning (DIF) can be found between English and isiXhosa Grade 4 prePIRLS 2011 response to a reading passage 'The Lonely Giraffe'* passage*?"* Table 5.2 demonstrated the results to test the null hypothesis statement that the English language sub-group scores were equal to the isiXhosa sub-group score for prePIRLS 2011 *'The Lonely Giraffe'* passage (H0 = μEnglish = μisiXhosa). The ANOVA statistical analysis was used to test the mean scores of the two language groups. Table 5.2 confirmed that the null hypothesis was rejected since the mean scores of English and isiXhosa language sub-groups were not equal. In particular, items 1, 2, 5, 7, 11 and 14, according to statistically significant p-values, showed non-uniform functioning between the two language sub-groups. Hence, the variations in the p-values provided evidence that the items in the passage functioned differently between English and isiXhosa language sub-groups. The ANOVA analysis can account for the mean scores differences and non-uniform functioning. However, for further DIF analysis, an item-by-item characteristics curve was conducted for the problematic, non-uniform items.

As mentioned above, the ICC curve makes use of an expected value predicted by the IRT and the obtained values, together with a person location that indicates a latent ability. Data from figure 5.2.6 to 5.2.11 illustrated the ICC for items 1, 2, 5, 6, 7 and 11. Of the problematic items as identified in Table 5.2, only items 1, 2 and 5 provided substantial evidence of DIF. The items were found by displays of ICC to be more difficult for the isiXhosa sub-group than the English sub-group.

Sub question 2 asked: "*To what extent could any of the other isiXhosa dialects have provided alternative forms of the items to the passage 'The Lonely Giraffe'?"* Items 1, 2 and 5 were given to three isiXhosa Home Language (HL) teachers to examine the translation. These three items underwent the third phase of analysis due to the non-uniform functioning between English and isiXhosa sub-groups. Additionally, these items were explored to establish whether the discrepancies could be explained by means of translation issues and/or the use of dialects in isiXhosa teaching in classrooms. In summary, the differences in the dialects as described by the respondents are that isiBhaca (teacher A) had different phonemes, therefore, words were spelled and pronounced differently from the "standardised" isiXhosa as presented in the prePIRLS 2011 study. IsiMpondo (teacher B) seemed to have slightly different ways of constructing sentences to the "standardised" isiXhosa. As with isiBhaca, isiHlubi (teacher c) also presented on a few occasions different ways of presenting the item. Both these dialects in most cases made use of synonyms that the teachers felt were most familiar to the learners. According to the teachers' comments, non-uniform item functioning could possibly be justified by issues of translation and teacher dialect code switching in classrooms.

6.2.1 Discussion on Sub-question 1 findings

Due to the growth in cross-languages assessment globally, during the last decade scholars have started exploring ways to ensure high quality assessments which include good translations across different languages. In South Africa, cross language literacy assessments have their challenges with 11 official languages that need to be accommodated. The transition from assessment in source text English into the targeted agglutinating African languages has its complexities, therefore

strict translations procedures need to be applied in any educational achievement studies.

According to Arffman (2013), when translating international achievement assessments for the purpose of comparison it is vital that the different ones are equivalent, in four main ways, namely, linguistic, functional, cultural and metric (Pena, 2007). *Linguistic* equivalence refers to the meaning of text in both assessment languages being the same in both versions (Grisay, 2003; Sireci & Berberoglu, 2000). In the IEA procedures, the back-translation insured this measure by providing direct English translation of the translated isiXhosa passages and items by a different translator. *Functional* equivalence entails ensuring the two language versions of the assessment are measuring the same construct (Pena, 2007; Rogler, 1999). As in linguistic equivalence, the back translation procedure in the IEA guidelines ensures that the constructs are the same across the languages. *Cultural* equivalence refers to items that could possibly have different saliences for different cultural and linguistic groups (van der Veer, Ommundsen, Hak & Larsen, 2003; Pena, 2007). Additionally, the cultural equivalence focuses on how different cultures and languages interpret the underlying meaning of an item (Pena, 2007). The IEA procedure in addressing this equivalence is by including a process of contextualisation for each country participating in prePIRLS 2011 (Howie *et al*., 2012). Lastly, *metric* equivalence is the item or question text difficulty level (Pena, 2003), which Pena (2003) suggests can be measured in two ways, namely, by conducting a DIF analysis or piloting and refining the instrument. Unlike the other equivalences this step only included in piloting the English items before the main prePIRLS 2011 study was undertaken in South Africa. Hence, the aim of the study to measure item difficulty by means of differential item functioning makes a further contribution in assuring metric equivalence.

By conducting a DIF analysis, the study examined whether any items held heavier cognitive load for one language sub-group over the other. As presented in Chapter 5, three items provided evidence of DIF, meaning that some were harder for the isiXhosa sub-group than for the English sub-group. Thus, DIF can possibly serve as source of item bias (Solano-Fores, Backhoff & Contreras-Nino, 2009), however not for the majority of items that were presented to learners who responded to the passage. Since only three items out of 12 items showed DIF, there is not substantial

argument, in this case, to assume that it applies to all African languages. Additionally, since there are a few items with DIF, the strict guidelines set by the IEA are valid and assessments in the different languages can be comparable. The importance of the IEA's recommended steps should not be underestimated, namely:

- Step 1: One translator translates the first target language version on the basis of the English source version.
- Step 2: The national version is reviewed by a translation reviewer.
- Step 3: The reviewed version is verified by an independent translator appointed by the IEA, while the verifier makes suggestions for the corrections and improvements.
- Step 4: The national translator decides the final versions and have them compiled into test booklets.
- Step 5: The verifier checks that the obligatory corrections have been made. (Arffman, 2013).

A well-rounded approach should be seen as multiple sourced that from a judgemental perspective affects the equivalence of tests rather than examining the correctness thereof. This means that translation procedures should include processes that consist of checkpoints that will provide different inputs and perspectives on the texts and items. If achieved, as in the prePIRLS 2011, it links to the aim and purpose of cross languages assessments.

6.2.2 Discussion on Sub-question 2 findings

Erikan (2002), Gierl and Khaliq (2001), and Erikan, Gierl, McGreith, Puhan and Koh (2004) argue that an incorrect item translation may affect its DIF. Based on this theory, the third analysis of the study consisted of understanding the item and its translation. Although only three items indicated non-uniform item functioning, it is as important to explore these three items to understand the DIF in greater depth.

Solano-Flores, Backhoff and Contrera-Nino (2009) have summarised a Theory of Test Translation Error into ten main languages dimensions of the item design, as illustrated by Table 6.1:

Table 6.1: Test Translation Error Dimensions according to Salano-Flores et al., 2009

Test Translation Error Dimensions	
Item Design	
Style	The item in the target language is written in a style that is not in accord with the style used in textbooks and printed materials in the country. Error types: *incorrect use of accents; incorrect use of uppercase letters; incorrect use of lowercase letters; subject-verb inconsistency; spelling mistakes; incorrect punctuation; other.*
Format	The format or visual layout of the translated item differs from the original. Error types: c*hange of size, style, or position of tables, graphs, or illustrations; change of font style; use of narrower or wider margins; omission of graphic components; insertion of graphic components; other.*
Conventions	The translation of the item is not in accord with accepted item writing practices in the target language or country or with basic principles of item writing. Error types: *grammatical inconsistency between stem and options in multiple choice items; inappropriate use of punctuation to denote continuity between stem and options; change in the order of options; grammatical inconsistency between options; inappropriate use of uppercase letters at the beginning of options; other.*
Language	
Grammar and Syntax	The translation of the item has grammatical errors or the syntax is unnecessarily complex or unusual in the language usage of the target population. Error types: *literal (word-by-word) translation; unnatural syntactic structure; inappropriate use of prepositions; inappropriate use of tenses; collapsing of sentences; other.*
Semantics	The ideas and meaning conveyed in the translated item are not the same as in the item in the source language. Error types: *use of false cognates; inappropriate adaptation of idiomatic expressions; change in meaning; insertion of words; omission of words; change of gender of characters; combining statements; imprecise use of terms; use of terms with multiple meanings; other.*
Register	The translation of the item is not sensitive to the target population's word usage and social contexts. Error types: *use of terms in ways that differ from the intended curriculum; use of terms in ways that differ from the enacted curriculum; other.*
Content	
Information	The translation changes the amount, quality, or content of information critical to understanding what the item is about and what has to be done to respond to it. Error types: *inconsistent translation of the same term; change in the way in which numbers are written; use of a key term more or fewer times than in the original; insertion of non-technical terms, sentences, or explanations; omission of non-technical terms, sentences, or explanations; other.*

Construct	The translation changes the knowledge or skills needed to respond to the item correctly. Error types: *possible alteration of the cognitive demands of the item; possible alteration of the ways in which the content of the item is interpreted; inaccurate use of technical terms; omission of technical terms; insertion of technical terms; other.*
Origin	The item in the source language has flaws that are carried over to the version in the target language. Error types: *more than one correct option; none of the options is entirely correct; other.*
Curriculum	The item does not represent the curriculum of the country of the target language. Error types: *the target knowledge or skill is not taught at the corresponding grade level; the discursive style of the item is not used in the curriculum; other.*

The errors have been categorised according to three main sections, namely, item design, languages and content. Each category has a list of types of errors with its definition. When relating the teachers' responses of the translations in the prePIRLS 2011 *'The Lonely Giraffe'* passage, the main conclusions of the current study can be linked to the test error dimensions as described in Table 6.1.

Item 1 responses seem to be an issue of dialect use in the classroom and the use of low frequency or unfamiliar words in the text. By observing the test errors, the error dimension for item 1 can be identified in language test translation as a register error since the original translated isiXhosa prePIRLS 2011 item contained unfamiliar and complex for the learners.

Item 2 consisted of responses that summed up low frequency words being used in the item and the correct distractor was not included. In the test error theory, these comments can be interpreted as a type of origin and register error. The item is an origin error because none of the options provided were correct. Additionally, from the teachers' perspective the use of unfamiliar terms and words make the item a register error.

Similar to item 1, item 5 teachers' responses reflected dialects used in the classroom and the use of unfamiliar words in the item. According to Solano-Flores *et al.* (2009), this error is recognised as register test error because the words are different from those to which the learners are exposed.

Using the theory of test error dimension to disseminate the meaning of the teachers' comments on *'The Lonely Giraffe'* passage translations adds to researched meaning of errors against evidence of DIF.

6.3 METHODOLOGICAL REFLECTIONS

The study followed a secondary analysis research method that is designed to be conducted in a feasible timeframe and one that would be suitable to answer the research questions. The performance between English and isiXhosa achievement in *'The Lonely Giraffe'* was presented in percentage scores instead of points as in the original study because percentages are widely understood, even by people with little or no statistical knowledge. The software selected for the data analysis was RUMM2030, on the basis that it is the most accessible to analyse the IRT and DIF. After discussion with teachers and identification of the strong themes that appeared in the translations, maybe more teachers could have been consulted to examine the item translation as mean of quality assurance or to conduct crosschecks. However, the purpose of the study was not to retranslate the items but simply to identify any item DIF and possibly explain the DIF as possible source of translation bias.

6.4 LIMATATIONS OF THE STUDY

The limitation of the study is that only one passage out of eight possible ones was explored. This is mainly because the IEA only released four prePIRLS 2011 passages into the public domain, and of these '*The Lonely Giraffe*' has a context and plot that are mostly familiar to learners in South Africa. The bushveld settings, animals, such as the bird, lion, elephant and giraffe, are all common animals to which learners would be able to relate.

The second limitation of the study is the choice of languages examined. IsiXhosa was a more convenient language choice, as the researcher is an isiXhosa mother tongue speaker. Also, it is the second most widely spoken language in South Africa yet performed below average in the prePIRLS 2011 study. English is used as a point of comparison mainly because the passage was developed in English and no translation procedures were applied to the English assessment (apart from national adaptations from US English to UK English). Since the aim of the study was to explore any translation bias in the prePIRLS passages it was perceptible that the English passage would be comparable to the translated isiXhosa passage.

The last identified limitation of the study is the number of respondents interviewed for the translation and dialect phase of the study. Only three teachers were identified to examine the translation and provide any feedback, because they were conveniently available and more would have meant a more elaborate analysis.

6.5 RECOMMENDATIONS

In light of the results discussion, only three items of '*The Lonely Giraffe'* prePIRLS 2011 passage showed some evidence of DIF. On the one hand, despite the DIF, it is still a minority of the items and therefore it is not sufficient in this case to explain differences in learner performance between English and isiXhosa sub-groups by means of DIF. It is recommended that as cross-cultural assessment increases, studies should insist on implementing strict translation guidelines as those used in the IEA studies. Such practises affect issues of validity as well as aid in minimising sources of test bias.

On the other hand, the teacher's responses to the item were concerning. According to the responses, a dominating theme was found in the discrepancies in teaching isiXhosa HL in the three teacher's classrooms. Every teacher has his or her own teaching method, and different ways of teaching the same content. In this study, the three teachers from the different dialect areas often taught isiXhosa in their dialects. We may consider this as a code-switching strategy within the language (as opposed to switching between different languages). However, vocabulary and orthography of dialect and standard isiXhosa often differ. Further, if teachers are going to apply dialect language principles in isiXhosa this could potentially create confusion for the learners. Until now, the possible role of dialects have largely been unexplored and while discussions on code switching and translanguaging exist, the dialectic differences within a language should be explored. A second recommendation is therefore for further work to be done on dialect use within the same language as part of teachers' classroom practice. Building on this study's observation an interesting follow-up study would be to explore the teacher's content knowledge in early reading literacy across different African languages.

In conclusion, the crucial factor in academic performance is that it goes hand-in-hand with language proficiency (Cummins, 2001). Furthermore, in a country such

as South Africa, with a multilingual society, language proficiency not only requires fluency in English but also strong foundation skills in African HL. This means good early literacy foundation skills to enable easier acquisition of any additional languages (Cummins, 2001, Pretorius 2014), a premise of the current Language in Education Policy. As noted in Chapter 3, African languages consistenly perform lower than English and Afrikaans in literacy assessments such as the prePIRLS 2011, SACMEQ 2007 and the ANAs. Inevitably, this means that if learners struggle with their HL, their acquisition of English as LoLT is also at risk. English is used as LoLT from Grades 4 to 12 as well as in tertiary education and dominates the workplace.

The policy intention of the Language in Education policy is to give recognition to 11 official languages in Foundation Phase in order for learners to learn from a strong mother-tongue base. This policy issue means that large-scale assessment in primary schooling has to take place across all 11 official languages. At the implemented level, the current study found that translations in at least two languages are valid; therefore performance at the attained level should be an accurate reflection of learners' abilities. However, reliance on translations as valid method of assessing a multi-lingual population means that strict translation and quality assurance procedures have to be in place. Thus, the main conclusion from the findings of the study suggests that strict translation guidelines, as followed by the IEA, indicate very little error for test translation bias. With the availability of data from such studies, results can be used to re-evaluate the teaching of African languages, in particular in the early grades. Additionally, teaching in African languages has its challenges (Murray, 2011), which necessitate the further use of data to train African language teachers in crucial early literacy skills and how to teach it in early grades.

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