

**EXPLORING LINGUISTIC THRESHOLDS AND READING
COMPREHENSION SKILLS-TRANSFER IN A GRADE 6,
ISIXHOSA-ENGLISH ADDITIVE BILINGUAL CONTEXT**

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the degree of

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ABSTRACT

Reading is the key to knowledge and learning and by implication, life success. Most South African children „learn to read“ in their home languages (HL), such as isiXhosa in the Eastern Cape, and then at the beginning of Grade 4 are expected to make two significant transitions: they must begin to „read to learn“ *and* they must do so in an additional language (usually English). The research evidence is damning: Intermediate Phase children are failing to read and failing to learn. This study is concerned with two of the possible, and often conflicting, reasons for the reading problem: 1) that too little time is spent developing learners“ English language proficiency and 2) that the development of learners“ reading comprehension skills in the HL is neglected, preventing the transfer of skills to reading in English additional language (EAL).

This thesis explores the relations between English Language Proficiency (ELP) and isiXhosa Reading Comprehension (XRC), and between ELP and English Reading Comprehension (ERC), in a unique, additive bilingual context in the rural Eastern Cape, where isiXhosa is maintained as part-LoLT (language of learning and teaching) to the end of Grade 6. The Linguistic Threshold and Linguistic Interdependence Hypotheses constitute the theoretical framework of the study.

The design of the research is exploratory and descriptive. The Woodcock-Muñoz Language Survey was used to measure the language proficiency (English relative to isiXhosa) of the sixteen Grade 6 learners in the study, while two sample, expository passages from the Progress in International Reading Literacy Study (2006) were used to measure the reading comprehension abilities of learners, in both isiXhosa and English. A questionnaire provided additional information – about the learners“ perceptions of reading – which assisted in the interpretation of the statistical data.

„Mean scores“ and „standard deviations“ were used to describe the ELP (relative to the isiXhosa language proficiency) of the participants, while „frequency“ was used to describe the reading comprehension scores. Correlational statistics were then employed to test the strength of the relationships between the variables, while regression analyses were used to predict the relative contribution of each of ELP and XRC to ERC.

The study reveals that while the learners“ isiXhosa language proficiency far exceeded their English language abilities, their reading comprehension scores in both languages were equally poor. ELP correlated significantly with ERC; and XRC and ERC were also co-varied, thus corroborating the findings of international research: that in this particular context, second language (L2) reading is a consequence of both ELP and first language (L1) reading ability. The regression analyses showed that while the potential for reading comprehension transfer in the direction L1 to L2 existed, this possibility was short circuited, both by learners“ poor ELP and their poor L1 reading skills.

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ACRONYMS

AL	Additional Language
BICS	Basic Interpersonal Communicative Skills
CALP	Cognitive Academic Language Proficiency
CR	Question Format: Constructed Response
EAL	English Additional Language
EDICT	English Dictation (WMLS subtest)
ELP	English Language Proficiency
ELWI	English Letter Word Identification (WMLS subtest)
EPV	English Picture Vocabulary (WMLS subtest)
ERC	English Reading Comprehension
ESI	Reading Comprehension Process: Focus on and Retrieve Explicitly Stated Information
EVA	English Verbal Analogies (WMLS subtest)
EVAL	Reading Comprehension Process: Examine and Evaluate Content, Language and Textual Elements
HL	Home Language
HLbBE	Home Language based Bilingual Education
IH	Linguistic Interdependence Hypothesis
INT	Reading Comprehension Process: Interpret and Integrate Ideas and Information
L1	First Language
L2	Second Language
LiEP	South African Language in Education Policy (1997)

LoLT	Language of Learning and Teaching
MC	Question Format: Multiple Choice
PIRLS	Progress in International Reading Literacy Survey
RC	Reading Comprehension
SIN	Reading Comprehension Process: Make Straightforward Inferences
TH	Linguistic Threshold Hypothesis
XDICT	isiXhosa Dictation (WMLS subtest)
XLP	isiXhosa Language Proficiency
XLWI	isiXhosa Letter Word Identification (WMLS subtest)
XPV	isiXhosa Picture Vocabulary (WMLS subtest)
XRC	isiXhosa Reading Comprehension
XVA	isiXhosa Verbal Analogies (WMLS subtest)
WMLS	Woodcock-Muñoz Language Survey

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CHAPTER 1: INTRODUCTION

1.1 OVERVIEW

Reading is the key to academic achievement and socio-economic success and it is in the Intermediate Phase (Grades 4-6) that children must develop the higher order, reading comprehension skills necessary to acquire new knowledge and develop abstract concepts across a range of subjects. „Reading to learn“ is in itself cognitively demanding and yet the majority of children in South Africa must manage this cognitive hurdle in an additional or second language (AL/ L2), usually English. The research evidence is overwhelming: Intermediate Phase learners in South Africa are failing to develop reading skills beyond the most basic levels, leaving them with limited prospects for the future. Factors that have contributed to the South African reading crisis are outlined in this chapter, with the language-oriented explanations being of particular interest for this study.

Proponents of „subtractive bilingual“¹ and „early-exit transition“ language in education models subscribe to the view that timely and extended work on learners“ English language proficiency (ELP) will in itself effect improved L2 reading outcomes (Vinjevold, 1999). Advocates of „additive bilingualism“ argue, on the other hand, that the solution to the L2 reading crisis lies in home or first language (HL/ L1) reading (Desai, 2006). If learners“ reading skills are well-developed in the language they are most proficient in, usually the HL, transfer to the L2 will follow. It is the latter view that has informed the South African Language in Education Policy (LiEP) of 1997. However, there are in reality significant „gaps“ between the LiEP and school/ pedagogical practices (Probyn, et al., 2002). Wright (2002) contends for example, that additive multilingualism is not being implemented because of the lack of economic value associated with African languages. Moreover, Wright argues that “the case for African languages cannot be made merely on the basis of pedagogical appropriateness ... (as the) „skills-transfer“ model cannot justify concentration on African languages beyond the stage where its educational validity expires. Just where that point might lie, in the South African context, is difficult to estimate...” (*ibid.*, p. 7).

This study contemplates transfer theory and more specifically, the L1-L2 reading relationship, which has not been tested in a South African context. Similarly, the

¹ Refer to Section 1.2.3.2 for an explanation of terms: *subtractive bilingual*, *early-exit transition*, *additive bilingualism*

contribution of ELP relative to L1 reading in the L2-English reading process has not been explored. It is in these spaces that the rationale for this study is located. The overall aim of the study is to explore the relations between L1-isiXhosa reading, L2-English proficiency and L2-English reading in one context in the rural Eastern Cape.

In the final sections of this chapter, I describe a unique Eastern Cape context in which isiXhosa-L1 „reading for learning“ is developed to the end of Grade 6, while English as an additional language (EAL) is introduced incrementally and developed alongside the HL, so that a full transition to English as the language of learning and teaching (LoLT) in Grade 7 is feasible. It is in this context that the research aims outlined in Section 1.5 are explored.

1.2 LITERACY LANDSCAPE

1.2.1 *Reading to Learn*

Reading is probably the single most important skill children must learn at school, necessary for them to lead happy, successful and productive lives in modern society. It is widely accepted that good reading has many positive outcomes particularly for acquiring language skills and for the acquisition of knowledge. Indeed, educational researchers have consistently found a strong correlation between reading and academic success, at all ages, both for those who study through their first or home language (L1/ HL) and those who study through a second or additional language (L2/ AL) (Pretorius, 2000, p. 35). Moreover, and of particular relevance in this study, Fleisch (2008) cites South African research in which “there is almost complete unanimity about the covariance of under-achievement and having being taught and assessed in a second or additional language” (p. 99).

Reading is a complex activity involving two related and multifaceted processes, perception and thought, or word recognition and comprehension. Although the decoding process, in which written symbols are matched to sounds in spoken language, is important and enables children to „learn to read“, *comprehension* is the aim of reading. Good readers are those who are able to understand and integrate information from the texts they decode. Good readers are in other words, proficient comprehenders who are able to „read to learn“ (Pretorius, 2000, p. 34).

In South African schools children „learn to read“ during the first three years (Grades 1-3) and in Grade 4, when the content demands of the curriculum increase considerably, are

expected to make the transition from decoding to reading with comprehension. The texts learners are required to read “change from primarily narrative to more expository types of text which are often conceptually dense and, unlike narrative texts, tend to deal with topics and issues that are unfamiliar to the readers” frame of reference” (Pretorius, 2002, p. 189). This involves a significant cognitive leap for most children even when it happens in the HL.

In addition to the first difficulty described, the majority of children in the country (the Eastern Cape Province is of interest in this study) are simultaneously expected to make a second, extraordinary transition: while most „learn to read“ in their L1, usually isiXhosa in the Eastern Cape, they must in Grade 4 „read to learn“ through the medium of an AL, commonly English (Probyn, et al., 2002, p. 33). Heugh (2006) points out that “even if they have had a year or two of early literacy exposure to rudimentary L2 narratives, the cognitive distance is simply too far for the majority of learners. Most will „sink“; few will be able to „swim“ under such circumstances” (p. 65). The findings of the two large-scale studies presented below, provide evidence that South African children are struggling to make these transitions. They are for the most part poor readers who therefore lack the basic academic competencies needed to succeed at school.

1.2.2 Failing to Read – Failing to Learn

1.2.2.1 PIRLS 2006

South Africa was one of forty countries (or forty five education systems) that participated in the Progress in International Reading Literacy Study (PIRLS), 2006. While 16,073 Grade 4s participated in the study, a large sample of 14,657 South African Grade 5 children was also included “because of the challenges presented by multiple native languages and languages of instruction” (Mullis, et al., 2007, p. 29). The Grade 5 data would also potentially allow for measurements of progression from Grade 4 to Grade 5, important in the South African education system where Grade 4 is considered a transitional grade. However, even when the reading scores of the 5th grade learners were compared to those of the younger 4th graders in other education systems, South Africa was the lowest performing of the forty five education systems that participated in the PIRLS, 2006. With an average performance score of only 302 the South African Grade 5s did not reach the international average score of 500 points and only 22% of Grade 5s reached the low international benchmark (400 points) which describes basic reading skills and strategies,

such as the reproduction of information explicitly stated in a text (Howie, et al., 2008, p. 26).

According to the *PIRLS 2006 Summary Report of South African Children's Reading Literacy Achievement* learners performed best (albeit below the international average) when the language of the test coincided with language of the home. This was glaringly apparent for English home language (HL) and Afrikaans HL learners who were assessed in English and Afrikaans respectively. The distinction between HL as test language, and HL different to test language, was smallest for the African language groups (*ibid.*, p. 22). This finding might be anticipated in a context where English and Afrikaans speaking children have the opportunity to be educated in their HLs, but African language speakers do not. African languages have not been developed as languages of learning and teaching (LoLTs) and children do consequently not develop academic literacy in their HLs. Howie et al. further demonstrate that “80% of African language speakers in South Africa, (did) not even reach the lowest international benchmark, leaving these students without basic reading skills and strategies to cope with academic tasks” (*ibid.*, p. 29). The isiNdebele and isiXhosa speaking groups were the worst performing of the African language groups – both when they were tested in their HLs and when they were tested in a LoLT which was different to their HL (*ibid.*, p. 22). In most cases the LoLT would have been English.

1.2.2.2 SACMEQ III

The report of the Southern and Eastern Africa Consortium for Monitoring Education Quality survey of 2007 (SACMEQ III) provides further alarming data on the state of primary education in South Africa and specifically, learner achievement levels in mathematics and reading literacy. The data reflects that in reading, South African Grade 6 learners performed below the 500 mean score for participating SACMEQ countries. Of further concern was the fact that they made no significant gains on the SACMEQ II mathematics and reading scores measured in 2000 (“SACMEQ III”, 2011).

It should be noted that the SACMEQ reading test was made available to South African learners in either English or Afrikaans (Spaull, 2011). Although the majority of learners were not tested in their home languages (HLs) and may have been at a linguistic disadvantage when compared to their counterparts whose primary languages were English or Afrikaans, the test did provide an important measure of the learners’ reading literacy levels in the language of learning and teaching (LoLT) - usually English as an additional/

second language (EAL/ L2). The reading data, based on narrative, expository and documentary texts, was analysed according to eight different competency levels, ranging from “Pre-Reading” at Level 1 to “Critical Reading” at Level 8 (“SACMEQ III”, 2011, p. 20). The majority of Grade 6 learners tested did not perform beyond the “Basic Reading” Level 3, although the differences between low and high socio-economic status learners; and between rural and urban learners, were significant. Close to 80% of the country’s poorest children – who live mostly in rural areas - were unable to read except at the most rudimentary level. In the Eastern Cape Province a mere 35.6% of children could read for meaning (Levels 4-8) while the 64.4% majority performed at only a basic reading competency level (Levels 1-3) and were therefore unlikely to succeed at school (*ibid.*, pp. 17-20).

1.2.3 Reasons for Failure

Numerous complex factors have contributed to the reading crisis in South Africa including for example, the low socio-economic backgrounds of learners, access to and the quality of resources, teacher pedagogical content knowledge related to literacy, the allocation and use of instructional time, community values and attitudes to literacy and so on (Pretorius & Mampuru, 2007; Fleisch, 2008; Howie et al., 2008; Spaul, 2011). The PIRLS and SACMEQ studies have usefully highlighted issues that require closer investigation. Further research into the source and nature of the reading problem is sorely needed in South Africa so that informed, urgent plans towards improved reading achievements and educational outcomes for all can be developed.

1.2.3.1 A ‘language problem’ or a ‘reading problem’?

The fact that South African children are failing to „read to learn“ in English Additional Language (EAL) is most often ascribed to their poor proficiency in English language. As reading involves the processing of linguistic data, there is of course an important relationship between language and reading. Proponents of this view would prescribe what Cummins (2000) refers to as a „time-on-task“ remedy, viz. that increasing the instructional time in the second language (L2), often at the expense of time spent in the first language (L1), will lead to improved reading outcomes (p. 174). There is though, as Pretorius (2002) so appositely argues, more complexity in reading than purely linguistic knowledge:

If language proficiency and reading ability were basically „the same thing“, then improving language proficiency of students should improve

their reading comprehension. Research shows that this does not readily happen ... It is attention to reading that improves reading skill, and in the process language proficiency also improves (pp. 174-5).

Many L2 reading researchers would argue that the „reading is a language problem“ argument does not take into account the cognitive processing involved in skilful reading. They would posit instead that a more powerful influence in L2 reading is L1 reading - in other words, that L1 reading abilities, if well-developed, transfer to the L2. Kathleen Heugh (2006) and others purport that it is because learners do not have the opportunity to develop high levels of literacy in their L1 that their L2 reading comprehension breaks down. This principle, that there is „interdependence“ or a „common underlying proficiency“ between the first and second languages, constitutes the theoretical underpinning of arguments in favour of bilingual education (Cummins & Swain, 1986). It is in turn this linguistic theory which has informed the South African Language in Education Policy (LiEP) of 1997.

1.2.3.2 A Gap between Policy and Practice

The LiEP advocates “additive multilingualism as an approach to language in education” (South Africa, Department of Education, 1997, Section 5.2). Kathy Luckett, an early proponent of the language policy, defines „additive bilingualism“ as “the gaining of competence in a second language while the first language is maintained ... (which) is based on the assumption that the skills and knowledge acquired in one language are easily transferred to another” (1993, pp. 46-47). The „transfer“ concept with its promise of positive cognitive, academic and linguistic outcomes for bilinguals is based on Jim Cummins“ „Linguistic Interdependence Hypothesis“. This theory is discussed in depth in Chapter 2.

Heugh argues in favour of late-exit transitional models for African contexts, based on the “second language acquisition research (which) shows us that it takes at least 6 years to learn enough L2 [second language] to learn through the L2”. She goes on to caution though that because of generally poorly resourced learning conditions, optimal provision of English language teaching is unlikely and therefore that “6 years of L2 learning may not be enough to facilitate successful transition to L2 medium instruction” (Heugh, 2006, p. 61). Nonetheless, a „strong“ interpretation of additive bilingualism would see the home language (HL) maintained as language of learning and teaching (LoLT) for at least six to

eight years, with competent teaching of the L2 during these years – in other words, a late-exit transition model (*ibid.*, p. 64).

Probyn et al. provide evidence that “very few schools [in the Eastern Cape] have developed school language policies in line with the LiEP” (2002, p. 30). Rather than additive bilingual models most schools have, due to socio-economic and political pressure in favour of English, opted for weak bilingual models where “the bottom line is the use of L2 mainly or only for teaching and learning” (Heugh, 2006, p. 60). In some schools learners may be immersed in the L2 from the beginning (subtractive models); in other schools they may be required to transition from the L1 to the L2 any time before or at the beginning of Grade 4 (early-exit transition models) (*ibid.*, p. 61). These schools have bought into the view previously mentioned, that „time-on-task“ is the route to the acquisition of English, the language of perceived access to economic opportunities.

The complex range of reasons (see Probyn, et al., 2002; Wright, 2002) for why it is that schools have failed to implement the LiEP is beyond the scope of this study. It is however important to note that there is often a dramatic gap between the stated LoLT in schools and the actual language practices in classrooms. In many rural Eastern Cape schools “the socio-economic and linguistic circumstances are unable to sustain the (early) introduction of English as LoLT” (Probyn, et al., 2002, p. 42). Fleisch (2008) writes that it is the „English language infrastructure“, the “language resources both in the home, the community and the school ... that make the critical difference between academic success and failure” (p. 111). In rural communities of the Eastern Cape children generally have very little exposure to English, and their rudimentary exposure to the language in the first few years of school provides them at best, with emergent, limited reading and writing competencies. In these situations extensive, unsystematic code-switching practices inevitably become the norm, “which in many cases build neither the mother tongue nor the additional language” (*ibid.*, p. 106). The classroom reality is an oral mishmash of isiXhosa and English while assessment and the written texts to support learning are available in English only. “One of the consequences of this is ... rote learning rather than conceptual understanding, which impedes children’s educational progress” (Probyn, et al., 2002, p. 42). The early transition to English at Grade 4 is thus not proving successful in these schools. They are paradoxically, not in fact spending more time-on-task in English and are instead widening rather than closing the gap between literacy and achievement.

1.3 RATIONALE

From the results of the PIRLS and SACMEQ III (Southern and Eastern Africa Consortium for Monitoring Education Quality) studies previously examined, it is plain that the isiXhosa-speaking, Intermediate Phase learners of the rural Eastern Cape are the „poorest of the poor“ readers in South Africa, whether they are reading in the isiXhosa home language (HL) or when their comprehension skills are assessed in English the second language (L2) and language of learning and teaching (LoLT). Based on the preceding discussion, there is little doubt that neither the current (mis)interpretations of the South African Language in Education Policy (LiEP), nor the frequently, policy-incompatible classroom practices are supporting skilled reading and by implication, successful learning in rural Eastern Cape schools.

It has earlier in this chapter been shown that isiXhosa-speaking children at Grade 4 level have insufficient competence in the L2 to support effective reading in the language. This argument, that „reading is a language problem“, has its origins in the Threshold Theory (to be discussed in Chapter 2) which suggests that children have not reached the „threshold“ of language proficiency needed to cope with the cognitive and language challenges presented by reading and cross-curricular learning in the additional language (AL). It has also been suggested that learners have by Grade 4 not developed their first language (L1) literacy skills to a level which will enable transfer of these skills to reading in the AL. Pretorius (2000) confirms this by stating that “the problem with many of our L2 students is that they never properly develop reading skills in their L1 so that they cannot transfer reading skills to the L2 when they switch to English as medium of tuition” (p. 37). This argument suggests that English-L2 reading is an „isiXhosa-L1 reading problem“ and that current practices are not exploiting the advantages offered by the interdependent relationship which exists between the languages.

IsiXhosa-based bilingual education evidently offers an attractive solution to the reading crisis for rural learners in the Eastern Cape, certainly in terms of the arguments outlined above, i.e. that „reading is a language problem“ and that „L2 reading is a L1 reading problem“. If isiXhosa HL were maintained as a LoLT for longer, while English language proficiency (ELP) was developed simultaneously, the later transition to English for learning would surely be easier. However, as convincing as the argument for HL-based additive bilingual education appears, the underlying relationship between L1 isiXhosa reading and L2 English reading has evidently not been tested in the South African context.

It is true that the Threshold Project led by Macdonald (1990) was significant in explaining to some extent the relationship between ELP and English-L2 reading, but what is also pertinent to consider, is the relationship between L1 and L2 reading. Recommendations in favour of additive bilingual education and of associated, effective classroom practices need to be informed by relevant evidence. The international, empirical evidence about „language thresholds“ and „linguistic interdependence“ may apply differently in different South African contexts, depending on such factors as the English language infrastructure, the availability of isiXhosa learning and teaching materials, and so on. The overarching aim of this particular study then, is to explore the aforementioned concepts, which are also the theoretical underpinnings of the South African LiEP, in one rural, Eastern Cape school. The interrelationships between English L2 proficiency, isiXhosa L1 reading and English L2 reading will be measured and analysed.

The researcher could find no evidence of precursor studies which have considered the underlying relationship between isiXhosa L1 and English L2 reading. This is not unexpected, for as Williams (1996) explains, “the extent to which L1 reading predicts L2 reading can only be validly posed in situations where L1 reading actually occurs” (p.184). It has already been explained that there is in the Eastern Cape, a convergence towards early-exit transitional models and it is therefore unlikely that isiXhosa-speakers have developed the higher order thinking and comprehension skills in the L1 beyond Grade 3. Pretorius and Mampuru (2007) confirm that many readers in Africa may never acquire literacy in their HL (p. 42). There is fortunately, one school which is an exception to this rule and it is at this school that I was able to conduct an exploratory study.

1.4 CONTEXT OF THE CASE STUDY

Sosebenza Community School² is situated in a fairly remote area of the Eastern Cape, 25km from the nearest rural town. This public school, which also receives financial assistance from a non-governmental community trust, emerged out of the amalgamation of several farm schools during the mid-1990s. It serves a relatively stable population of mostly isiXhosa-speaking families in a farming area of 1000km². Approximately 180³ children are enrolled in Grades R to 9, making for small class sizes and favourable learner-

² The identity of the school is not concealed in this study. „Sosebenza Community School“ is, as a result of its unique, additive bilingual, language in education policy, an already familiar name in the public domain (Province of the Eastern Cape. Department of Education, 2008; LEAP News, 2008)

³ This was the approximate enrolment at the end of 2009.

teacher ratios. The majority of learners⁴ and all the government-employed educators are isiXhosa-speaking. IsiXhosa is the language of communication in the staffroom, the school playground and at home. Children and teachers are not exposed to, nor are they required to use much English in the community beyond the classroom.

Sosebenza is a relatively well-resourced school where learners have access to a computer laboratory, a toy-library filled with educational games, and a book-library housing in excess of 10,000 items⁵ (T. Toto, personal communication, September 16, 2010). The school is one of only 27% of schools in South Africa that has a library (Pretorius & Mampuru, 2007, p. 41). The most distinctive feature of the school however, is its language policy. Sosebenza Community School began in 2002 to phase in a “strong bilingual model” or a “late exit transitional [bilingual] model” of language in education (Heugh, 2006, pp. 61; 69). It was mainly out of concern “that learners were not maintaining their early potential, as revealed through isiXhosa-medium of instruction in grades R-3, once there was a switch to English as LoLT in grade 4”, which led the School Governing Body to unanimously approve the phasing in, year-by-year, of an additive bilingual model of education (Koch et al., 2009, p. 110).

In the Sosebenza model, isiXhosa home language (HL) is maintained as a subject and partial language of learning and teaching (LoLT) to the end of Grade 6. English as an Additional Language (EAL) is introduced as a subject in Grade R, with roughly 5% of curriculum time allocated to oral English language activities⁶. The proportion of time allocated to English learning increases each year, so that in Grade 4 English is adopted as part-LoLT for an approximate 25% of the timetabled lessons. The second language (L2) is reserved for subjects deemed “less cognitively demanding and where the provision of scaffolding support is deemed easier” for example, Social Science and Arts and Culture (*ibid.*, p. 112). IsiXhosa on the other hand, is reserved for content perceived to be cognitively demanding, such as Mathematics and Science. This particular model of home language based bilingual education (HLbBE) circumvents the abrupt switch to the L2 as LoLT in Grade 4, as is the common practice in early-exit transition models. The development of isiXhosa for „reading to learn“, together with the incremental exposure to

⁴ A small number of children speak Afrikaans at home.

⁵ **FICTION:** English = 4965; isiXhosa = 717; Afrikaans = 92. **NON-FICTION / REFERENCE:** English = 3343; isiXhosa = 720; Afrikaans = 27

⁶ English-speaking teachers were, during the first few years of the phasing-in of the bilingual model, employed by the Trust on a part-time basis, to provide intensive English input for children, especially in the Foundation Phase.

English, aims to prepare learners for a full transition to English as LoLT at the start of Grade 7.⁷

The implementation of the model of bilingual education described has been supported by the ABLE (Additive Bilingual Language Education) Project. An important aim of this longitudinal research project has been to investigate the outcomes of the Sosebenza model of bilingual education on learners' language development (in both isiXhosa and English), their cognitive processing abilities and their academic achievements (Koch, et al., 2009). The researcher has been a member of the ABLE Project since its inception and it is therefore within the context of the larger project that this particular study was undertaken. Participation in the ABLE Project has provided me with unique access to the teaching and learning environment of the school. The 2009 Grade 6 class, the first of the ABLE research cohorts⁸, was the focus of this study, which sought to explore the effects of the delayed introduction to English as LoLT (and by implication the extended development of learners' HL) on learners' L2 reading comprehension. It is anticipated that the findings will inform the evolving language policy and literacy practices at Sosebenza Community School.

1.5 AIMS

The overall research question which guided the study is:

What is the relative contribution made to children's reading comprehension in English Additional Language (EAL) by, on the one hand, their language proficiency in English, and on the other hand, their reading comprehension skills in the home language (HL), isiXhosa?

Given the background and rationale outlined in the previous sections, this study specifically aimed to:

- 1.1 Describe Grade 6 learners' English Language Proficiency (ELP) through a comparison with their language proficiency in the HL, isiXhosa.
- 1.2 Describe the sixth graders' reading comprehension performances on expository texts, for both English and isiXhosa.

⁷ The additive bilingual model implemented at Sosebenza Community School was not fixed and had evolved in response to challenges within the school and in response to external factors. For example: while it was initially anticipated that isiXhosa would be maintained as part-LoLT to Grade 9, educators during the course of 2009 opted instead for a complete transition to English at Grade 7. This decision was taken in response to one of the main challenges encountered by the school: the lack of available learning and teaching resources in isiXhosa, particularly for the Senior Phase (ABLE, 2009, p. 1).

⁸ Refer to Chapter 3, Section 3.2.

2. Examine the correlations between ELP and English Reading Comprehension (ERC); and between ERC and isiXhosa Reading Comprehension (XRC).
3. Explore the predictive contribution of ELP and XRC to ERC.

1.6 OUTLINE OF THESIS

Chapter 2 begins with a conceptualisation of reading and outlines key factors which have a bearing on reading comprehension in a second language (L2). The Linguistic Threshold and Linguistic Interdependence theories are then explained and exemplified through the review of several case studies. The chapter is concluded with the implications of the research presented for L2 education contexts, particularly in South Africa.

A detailed description of the research process is provided in Chapter 3 including a description of the research participants, the data collection instruments employed in the study and the procedures that were observed in the collection of the data. The limitations of the research are noted at the end of the chapter.

The findings of the research are presented and analysed in Chapter 4 while in the concluding chapter of the thesis (Chapter 5), the findings are discussed and recommendations about the teaching of language and reading in additive bilingual, rural South African school contexts are made.

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

The purpose of this study is to explore the relative contributions of English second language (L2) proficiency and isiXhosa first language (L1) reading ability to English L2 reading ability. Transfer theory constitutes the overarching theoretical framework in this investigation, with two hypotheses, the Linguistic Threshold Hypothesis (TH) and the Linguistic Interdependence Hypothesis (IH), of particular relevance.

The chapter begins with a description of the central construct in the study viz. *reading comprehension*. A discussion of factors which influence comprehension in L2 reading follows, with particular emphasis on *L2 language proficiency* and *L1 reading ability*. The greater part of the chapter is dedicated to an exposition of the TH and the IH; and to a review of the empirical evidence for these hypotheses. The chapter is concluded with a brief discussion on the implications of the research presented for language policy and L2 pedagogical practices, particularly in South Africa.

2.2 WHAT IS READING?

In second language (L2) contexts written texts serve a dual purpose, and it is because they are both the source of new information and the source of input from which learners can acquire more lexical and syntactic knowledge, that meaningful reading is of such importance.

The purpose of reading is comprehension, defined by Lesaux and Geva (2006) as “the challenge of translating printed words into sounds in an accurate and efficient manner while constructing meaning out of what is being read” (p. 57). This definition emanates from a widely-held understanding in the field of applied linguistics that the reading process for both first language (L1) and L2 is interactive – in other words, that „bottom-up“ decoding skills and „top-down“ interpretation skills are simultaneously and interactively available to interpret a text (Grabe, 1988). A reader makes predictions about the meaning of a text based on her top-down skills, including knowledge of vocabulary, discourse structures, and the world; and also including comprehension strategies. The reader then refers to her bottom-up skills – including phonological awareness, letter knowledge,

phoneme-grapheme relationships and fluency - to check the text in order to refute or confirm or modify those meaning predictions (Carrell, 1988b, p. 101).

Despite subscribing to interactive models of reading however, many reading researchers have tended to overemphasise either top-down, or bottom-up decoding skills as being critical in reading. For example, Kenneth Goodman in the 1960s defined reading as an interactive process, but his model of reading as „a psycholinguistic guessing game“ in which the efficient reader’s ability to predict the meaning of a text on the strength of her background knowledge rather than use of all the graphic information available to her, was criticised for its top-down emphasis (Samuels & Kamil, 1988, p. 24). The implication of a top-down emphasis for L2 reading is that readers would be able to compensate for a breakdown in lower order skills, or poor language proficiency, with contextual or background knowledge schemata, including good L1 reading skills.

David Eskey (1988), a critic of the Goodman model, argues from a bottom-up perspective that “the rapid and accurate decoding of language is important to any kind of reading and especially important to second language readers. Good readers know the language” (p. 94). Eskey contends that “language is a major problem in second language reading, and that even educated guessing at meaning is no substitute for accurate decoding” (*ibid.*, p. 97). The implication of Eskey’s argument is that L1 reading skills cannot compensate for poor L2 proficiency in the L2 reading process.

The Threshold/ Short Circuit Hypothesis described later in the chapter (Section 2.4.1), is concerned with this „compensatory mechanism“ within L2 reading, viz. the mutual compensation between L2 proficiency and L1 reading towards L2 reading comprehension.

In contrast to monolingual children, children developing literacy in English L2 bring to the task resources or abilities linked to their L1. “Understanding the nature of these cross-language ... influences and the conditions that affect their expression is important for designing pedagogical interventions that facilitate the successful acquisition of reading and writing skills in ESL” (Genesee et al., 2006, p. 154). Peregoy and Boyle (2000) contend that while native and non-native readers of English engage in a similar, interactive reading process, there are three important differences: “(a) English language proficiency, (b) background knowledge, and (c) literacy knowledge and experience in the primary language” (p. 239). A description of each of these constructs follows (Section 2.3), before

investigating the ways in which they are related and the evidence for how each construct contributes to the L2 reading process (Section 2.4).

2.2.1 Assessing Reading Comprehension

Accurate assessment of reading comprehension is necessary, to know if learners truly understand what they read, and to inform future, appropriate instruction when they do not.

Measures of reading comprehension may be individually administered or group administered (and in the relatively large-scale studies reviewed in Section 2.5, group assessments were employed). The tests can vary according to the type of text children are expected to read (e.g., narrative or informational); according to the time constraints placed on the tasks; and in terms of whether or not children can refer back to the text in answering questions asked. Reading comprehension assessments also differ in the response format, evident in the case studies reviewed in Section 2.5. The most common formats are cloze, retellings and question-answer. In the cloze task words are omitted from the passage, and the child is asked to fill in the blanks with appropriate words. Retellings require a child to read a text and then orally tell an examiner about what was read, usually with some sort of coding system for scoring the quality of the retelling. The question-answer format is probably the most practicable in large-scale testing. It involves asking a child to read a passage at the appropriate level and then asking questions about the content of the text (Spear-Swerling, 2006).

Assessing reading comprehension is not unproblematic. With regard to questioning, Applegate, Quinn & Applegate (2002) caution that all too often the emphasis of instruction and classroom questioning is on literal recall. This may mean that when children are asked, in a test, to respond to what they have read and to support their interpretations with details and arguments, they are unable to do so. In their study, the authors demonstrate that the Informal Reading Inventories (IRIs) commonly used in the United States, are biased towards low-level thinking questions, leaving children without a higher level, thoughtful literacy (pp. 178-9). Applegate et al. argue therefore that the questions employed in tests must include opportunities for “open-ended responses to text” so that the complex interaction of systems involved in the meaningful reading (as described in 2.2 above) is reflected (*ibid.*, p. 174). The reading comprehension instrument employed in this study is explained in Chapter 3 (Section 3.3.2). Suffice here to state that the PIRLS instrument does address the Applegate et al. (2002) concern for higher-level thinking questions.

Apart from concerns with the kinds of questions asked, Spear-Swerling (2006) expresses other concerns regarding measures of reading comprehension. Firstly, tests may tap abilities that underlie comprehension, for example “reading comprehension assessments that require students to write answers to open-ended questions ... may be tapping components of writing as well as reading” („Concerns about existing tests“). She suggests therefore, that where possible, more than one measure of reading comprehension be used.

Secondly, in terms of their instructional usefulness, reading comprehension tests are too broad to enable them to pinpoint difficulties in individual learners. They cannot for example distinguish specific processes that might underlie poor comprehension. Spear-Swerling advises that the assessment of key component abilities, such as decoding skills and vocabulary knowledge, is essential in order to interpret reading comprehension performance and especially to facilitate instructional planning. (2006, „Concerns about existing tests“).

2.3 KEY FACTORS IN L2 READING

2.3.1 *Language Proficiency*

The vocabulary, grammar and discourse knowledge of beginning second language (L2) readers is very different to the tacit knowledge of beginning first language (L1) readers in that language. Those children who learn to read in their L1 are at an advantage as they bring to the task a well-established, oral knowledge of the language. On the other hand, many learners in South Africa must begin to read in English L2 at almost the same time that they start to learn the language orally.

„Language proficiency“ is unquestionably an important predictor of L2 reading comprehension, but it is not a simple construct to define. Broadly, proficiency relates to an individual’s knowledge of language, and ability to use the language in different modes (listening, speaking, reading and writing) in contextually appropriate ways. Michael Canale and Merrill Swain were among the linguists who worked on defining „language proficiency“. They developed a framework of „Communicative Competence“ to describe four categories of language proficiency viz. grammatical⁹, discourse¹⁰, sociolinguistic¹¹

⁹ Sentence level grammar: includes lexical items, morphology, syntax and phonology

¹⁰ Intersentential organisation: allows a language user to connect utterances and sentences into a meaningful whole

¹¹ Requires an understanding of the social context in order to choose and use language appropriate to the situation

and strategic¹² competence (Canale & Swain, 1980). In the reading literature, the term „oral language proficiency“ is often used and has been applied in diverse ways to encompass the competencies of “phonology, vocabulary, morphology, grammar, discourse features, and pragmatic skills” (Lesaux & Geva, 2006, p. 55).

In most quantitative studies designed to investigate the relations between proficiency and reading comprehension (including the research reviewed in Section 2.5) language proficiency has been operationalized as one or a combination of, vocabulary, grammar and listening comprehension. In some cases the researchers decided on their subjects“ L2 proficiency level according to their instructional levels in the L2 language classes (example: Carrell, 1991). In other studies, as cited by Geva (2006) for example, correlation between each of the subcategories of language proficiency viz. oral vocabulary skills, grammatical complexity and listening comprehension, with reading comprehension, was demonstrated.

Phonological processing, or the translating of words into sounds accurately and efficiently, is of course critical in reading comprehension (as previously implied in Section 2.2), but this aspect of text decoding is not usually included in the operationalization of language proficiency in studies pertaining to the reading comprehension abilities/ academic proficiency of older L2 learners. A probable reason is that the participants in most of the cross language studies reviewed in Section 2.5 were older and were assumed to already have had these precursor language skills, in at least the L1 or the L2, in place.

In order to distinguish between those aspects of language proficiency which are mastered early by L2 learners, and those that take much longer to develop and which vary from individual to individual, Jim Cummins in the 1970s formulated two conceptually distinct components of the „language proficiency“ construct, BICS and CALP. While BICS (Basic Interpersonal Communicative Skills) refers to a student“s oral/ social-conversational fluency, CALP (Cognitive Academic Language Proficiency) refers to a learner“s ability to understand and express both orally and in writing, concepts that are relevant to success in school. Cummins defined CALP as “those aspects of language proficiency which are

¹² Verbal and nonverbal communication strategies to enhance the effectiveness of communication or to compensate for communication breakdowns

closely related to the development of literacy skills in L1 and L2” (Cummins, 1980, p. 177).

The BICS/ CALP distinction was later elaborated into two, intersecting continua: the one relating to the range of contextual support (interpersonal or linguistic cues) available for expressing or interpreting meaning; and the second relating to the cognitive demand (the amount of information that must be simultaneously processed) of a particular task or activity. Conversational proficiency (BICS) refers to tasks which in general, are context-embedded and less cognitively demanding. The linguistic demands of school on the other hand – CALP - tend toward the context-reduced end of the first continuum and the cognitively demanding end of the second (Cummins & Swain, 1986). „Reading to learn“ the unfamiliar, academic content of the school curriculum, is a cognitively demanding, context-reduced activity. L2 learners, particularly in the higher grades, depend solely on the linguistic cues of written texts for meaning – texts that comprise low-frequency, academic vocabulary, complex syntax and complex discourse styles.

2.3.1.1 Assessing Language Proficiency

Research designed to elucidate the influence of language proficiency on reading comprehension has had to contend with the difficulties of conceptualising „language proficiency“. The inconsistencies across studies have effectively meant that the findings of such studies cannot be generalised to other contexts.

Cummins (2000) criticised the way in which Bossers (1991), Bernhardt and Kamil (1995) and Lee and Schallert (1997) operationalized „language proficiency“ in their research. The researchers in these three studies, which are described in greater detail in Section 2.5, reached a similar conclusion: first language (L1) reading is an important predictor of second language (L2) reading, but L2 knowledge is generally the more significant factor in L2 reading. Although Cummins did not refute the support for the Threshold¹³ or the Interdependence Hypothesis¹⁴, provided by these studies, he maintained that the findings were a consequence of the ways in which language proficiency had been defined.

Language proficiency had, he contended, been operationally defined to reflect academic (CALP) rather than conversational (BICS) aspects of proficiency. Therefore, finding strong correlations between academic proficiency in the L2 and reading proficiency in the L2 was

¹³ Refer to Section 2.4.1

¹⁴ Refer to Section 2.4.2

not surprising – “these measures [were] essentially assessing the same construct” (Cummins, 2000, p. 197). Conversational measures of language proficiency were assessed in the González (1989) and the Californian State Department (1985) studies cited by Cummins. In these studies “L1 reading emerged as a much stronger predictor of L2 reading than did L2 conversational proficiency” (*ibid.*, p.198).

The Woodcock-Muñoz Language Survey (WMLS) was the language proficiency measure employed in the present study. This instrument is explained in Chapter 3 (Section 3.3.1). Suffice here to state that the WMLS consists of four subtests which although designed to measure CALP also includes aspects of the conversational (BICS) dimension of language proficiency (Woodcock & Muñoz, 2001).

2.3.2 Knowledge of Text Content & Structure

Peregoy and Boyle (2000) cite empirical evidence to show that “familiarity with text content alleviated limitations associated with second language proficiency in text comprehension” (p. 239). Comprehension is supported when for example, the text reflects the second language (L2) reader’s culture, or is grounded in a discipline with which the L2 reader is familiar (Carrell, 1988b). In other words, the existence of content schemata may compensate for language proficiency limitations in L2 reading.

Familiarity with text structure also facilitates comprehension. Acquaintance with the structures of different text types/ genres means that readers are able to anticipate or predict the direction of a plot or an argument, thereby supporting attention given to the larger meaning of the text. Similarly, familiarity with the conventions of headings and subheadings provides readers with “a strategy for previewing text content and creating potential questions to answer when reading” (Peregoy & Boyle, 2000, p. 240). Awareness of expository text structures is critical for learners who must „read to learn“ across a range of disciplines in the L2. Text structure knowledge can help them grapple with conceptually challenging texts.

2.3.3 L1 Literacy Knowledge and Experience

Second language (L2) learners bring to the L2 reading task the tacit resources of their first language (L1). The extent of the L1 literacy knowledge and experience may vary from individual to individual, and from context to context, but the principle that L1 literacy

provides a good foundation for L2 literacy is the cornerstone of many bilingual programmes worldwide. Various aspects of reading and writing have been found to transfer across languages including “attitudes and expectations about print as well as the general process of decoding, interpreting the language, constructing meaning from text, and monitoring comprehension” (Peregoy & Boyle, 2000, p. 241). It is this cross language transfer that is at the core of the Linguistic Interdependence Hypothesis described in Section 2.4.2 below.

In this thesis the relationships between L2 proficiency and L2 reading; and between L1 reading and L2 reading were explored, while acknowledging that text-related schema, both content and structural, were also important factors to consider (given the discussion in 2.3.2).

2.4 RELATIONS BETWEEN THE L1 AND THE L2 IN READING

2.4.1 The Linguistic Threshold/ Short Circuit Hypothesis

There is a great deal of empirical evidence available to support the contention that “enhanced metalinguistic, academic, and cognitive functioning” is associated with “the continued development of academic proficiency in bilinguals” two languages” (Cummins, 2000, p. 182).

Jim Cummins, a longstanding proponent of bilingual education, put forward the Threshold Hypothesis (TH) in the 1970s, as a framework for research into the complex relations between language and thought in bilingual children. Specifically, Cummins postulated that “there may be threshold levels of linguistic competence [in either/ both languages] which bilingual children must attain both in order to avoid cognitive deficits and to allow potentially beneficial aspects of becoming bilingual to influence their cognitive growth” (1979, p. 229). Cummins (1979) argued that as the demands of the school curriculum increase, requiring more abstract thought processes grade-on-grade, language becomes an increasingly significant factor in a child’s cognitive development. In other words, he hypothesised that „thresholds“¹⁵ of language proficiency are necessary for the cognitive (including verbal cognitive abilities i.e. vocabulary knowledge, metalinguistic knowledge

¹⁵ Threshold = “the level at which something starts to have an effect” (Longman Dictionary of Contemporary English)

and deductive verbal reasoning) and academic advantages of bilingualism to take effect (Cummins, 2000, p. 178).

A common interpretation of the TH (as reflected in the literature on the topic) is that there exists a certain threshold level of second language (L2) proficiency which must be attained before first language (L1) reading ability transfers to the L2 reading. In other words, it is hypothesised that even skilled L1 readers will not read well in the L2 until their L2 language proficiency has reached a certain, threshold level.

In his later writing, Cummins (2000) asserted that his original definition of the TH, albeit by his own admission vague, had been misinterpreted by several researchers, particularly in the context of L2 reading research. In this regard, it is apparent that the TH has been conflated with the Short Circuit Hypothesis (SCH) and that the labels for these compatible, but distinct hypotheses have been used interchangeably (as they are in the current study). Clarke (1988) and others, extended the notion of a threshold level of language proficiency from bilingual contexts to specifically English L2 reading contexts. The SCH posited that „threshold“ knowledge of L2 proficiency is necessary to enable the transfer of reading skills from the L1 to the L2. It was in fact argued, that “a lack of second language linguistic knowledge ultimately „short-circuits“ the first language reading knowledge” (Bernhardt & Kamil, 1995, p. 17).

Whereas the SCH describes the conditions under which interdependence (refer to the following section) will occur, the Cummins-TH appears on the other hand, to be a broader construct “which focuses on the consequences of bilingualism for cognitive, linguistic, and academic growth” (Cummins, 2000, p. 198). In the strictest sense it is really the SCH which is relevant in this study. Therefore, when in the subsequent sections of this chapter the „Threshold Hypothesis“ is referred to, it is the construct as used in the L2-reading literature which is intended.

2.4.2 The Linguistic Interdependence Hypothesis

Jim Cummins formulated the Linguistic Interdependence Hypothesis (IH) to explain the research data which showed that children, who had developed their first language (L1) to the level of abstraction, were better able to master concepts in the second language (L2) than those who had not developed deep cognitive abilities in the L1 (Cummins, 1979, pp. 233-236). The IH offers a framework for understanding how L1 and L2 skills are related to

one another. The hypothesis, also referred to as the Common Underlying Proficiency (CUP) model, proposes that there is an underlying cognitive/ academic proficiency that is common across languages and which consists of concepts (knowing that), skills (knowing how) and linguistic knowledge to enable transfer between the L1 and L2, or vice versa (Cummins, 2000, pp. 190-191). Cummins' well-known, visual metaphor of the „dual iceberg“ (see for example: Cummins & Swain, 1986, p. 83) shows that while the surface aspects (conversational dimensions/ BICS) of two languages (including, for e.g., pronunciation) are clearly separate, there is an underlying academic ability which makes possible the transfer of language operations such as reading and writing (i.e. CALP) from one language to another. In this way and given adequate exposure to and motivation to learn the languages, „experience with either language can promote development of the proficiency underlying both languages“, (*ibid.*, p. 82). The converse of these conditions must also hold viz. that L2-only instruction will usually not result in full bilingual proficiency because of factors such as a lack of exposure to literate uses of L1 (Cummins, 1980, p. 185).

In simple terms and with relevance to the present study, the IH posits that L1 reading ability, if well-developed, transfers to L2 reading and that skilled L1-readers read well in the L2.

2.5 CASE STUDIES: LINGUISTIC INTERDEPENDENCE & THRESHOLDS

The Linguistic Interdependence (IH) and Linguistic Threshold (TH) were tested several times in the United States and Europe over the course of two decades (1980s and 1990s). This points to the perceived importance, for language planning and second language (L2) pedagogy worldwide, of finding answers to the question originally posed by Alderson (1984) and which is cited in much of the literature: „Is second language reading a language problem or a reading problem?“ (Bernhardt & Kamil, 1995; Lee & Schallert, 1997). A selection of these studies chosen to represent typologically different languages (e.g. Korean and English); English language learners of different ages; and undertaken in either English second or foreign language contexts, is presented below. Apart from one study undertaken by Pretorius and Mampuru (2007) in South Africa, no evidence was found of research undertaken to test the IH or the TH in an African context. An investigation, carried out by Williams (1996), provides indirect evidence for the TH in one other Southern African context.

2.5.1 Reading in Spanish and English/ English and Spanish

Mark Clarke (1988)¹⁶ was among the first researchers to highlight the importance of understanding whether second language (L2) reading was more related to the level of L2 proficiency or, on the other hand, to the level of first language (L1) reading ability. The question Clarke asked in his study was whether adult L1-Spanish readers were able to transfer their reading skills to reading in English-L2.

He identified 21 low-level English-L2 learners and then used a cloze procedure and miscue analysis to compare their reading ability in Spanish and English. Clarke hypothesised that if the superior Spanish readers had a similar (or equal) advantage over the poor Spanish readers, when they were assessed in English, then - given their equivalent English language proficiency - L1 reading behaviour transfer would have occurred.

Clarke's speculation was partly supported by the results in that there was a positive correlation between L1 and L2 reading. However, an analysis of the unacceptable cloze responses revealed that in Spanish, the good readers relied on semantically acceptable responses while the poor readers relied on syntactic cues. In the L2 however, this distinction disappeared. In other words, the dependence on syntactic cues by both the good and the poor readers in English was equal. Based on these findings, Clarke concluded that "limited language proficiency appears to exert a powerful effect on the behaviours utilized by the readers" causing skilled Spanish readers to become poor English readers (1988, p. 119).

The findings of this study suggest that a certain level of L2 proficiency (a „language ceiling“ or „threshold“) is needed before transfer of reading ability from the L1 to the L2 can possibly occur. Below this critical level of language control, the good reader's system is „short-circuited“ and reading ability in the L1 will make little difference to reading in the L2.

¹⁶ Clarke carried out his experiment in 1979.

The results of the Clarke study were not definitive firstly, because the number of subjects was limited and secondly, because the subjects involved had approximately the same level of L2 proficiency which meant that the relative role of proficiency in the L2 reading process could not be elucidated (Bossers, 1991, p. 48). Nonetheless, this pioneer study served to highlight important questions for further investigation, while simultaneously raising awareness of the need for research with more rigorous designs.

Patricia Carrell's (1991) well-known, carefully designed study, was the second to explicitly address the relations between L1 reading, L2 reading and L2 knowledge. Carrell hypothesised that both L1 reading and L2 language proficiency would be significant in L2 reading ability, but she questioned the *extent* to which each variable would be significant in L2 reading.

The experiment was carried out on two groups of subjects. The first group consisted of 45 university students in the USA who were L1 speakers of Spanish. Group 2 consisted of 75 L1 speakers of English who were studying Spanish at university. The L2 proficiency levels of the students in both groups were estimated on the basis of their actual instructional levels. The L1 and L2 reading ability variables were experimentally tested using two Spanish and two English passages. The four expository texts were on the general topic of „Language“ – this to control for the possible effects of readers' differing content schemata. The texts were also edited to control for the effects of rhetorical organisation, length and syntactic complexity, so that one of the two texts in each language was relatively difficult and the other relatively easy. Reading ability was tested in two sessions. To control for the greater likelihood of transfer effects from the L1 reading tasks to the L2, the L2 reading tests were administered first. The subjects read a L2 text and answered 10 multiple-choice, inference-type comprehension questions, while being allowed to refer to the text. This was repeated for the second L2 passage. In the second session the same procedure was used for both L1 reading tests (Carrell, 1991, 161-164).

The results supported the original prediction in that *both* the independent variables, L1 reading and L2 proficiency, when taken *together*, were significant predictors of the variance in L2 reading ability. Together, the predictors accounted for 35% (Spanish-L1) and 53% (English-L1) of the variance in the L2 reading performances. Carrell was also able to determine, by performing multiple regression analyses, the relative importance of each of the independent variables for each of the two groups studied. Most interesting was

that L1 reading emerged as a stronger predictor than L2 proficiency for the L1-Spanish group, while L2 proficiency on the other hand was the stronger predictor of L2 reading for the L1-English group. According to Carrell, the difference between the two groups may have been a result of the different environments of the two groups. Whereas the English-L1 group had little exposure to Spanish in the surrounding environment and were therefore learning Spanish as a „foreign“ language, the Spanish-L1 group were learning English in a „second“ language setting. A second explanation offered by Carrell, was that for the participants at lower proficiency levels, L2 proficiency was more critical in reading than for individuals determined to be generally more proficient in the language. The latter explanation is of course in keeping with the „language threshold“ argument posited by Clarke (*ibid.*, 165-168).

With the aim of contributing more, reliable data to the “problematic surrounding the second language/ first language reading relationship”, **Bernhardt and Kamil** (1995) examined the Threshold Hypothesis (TH) and the Interdependence Hypothesis (IH) with English-speaking adults in the United States Air Force Academy (p. 21). The learners of Spanish were divided into 3 levels of instruction: beginning, intermediate and advanced. Three reading comprehension tests (one Spanish and two English versions) from the Adult Basic Learning Examination battery of tests were then administered. The researchers also had access to the comprehension scores for all cadets who had taken the Nelson-Denny Reading Test.

A series of sophisticated regression analyses was run on the data in different combinations enabling the authors to conclude that “reading variables account for between 10 and 16 per cent in second language reading, language proficiency accounts for 30 to 38 per cent” (*ibid.*, p. 25). In other words, although language proficiency accounted for a greater proportion of the variance in the study, L1 reading also made a significant contribution. The findings of this study were thus in keeping with the Carrell (1991) results previously summarised.

2.5.2 Reading in Turkish and Dutch

Bossers (1991) conducted an experiment with L1-Turkish speakers learning Dutch-L2, to explore the relations between first language (L1) reading, second language (L2) reading

and L2 knowledge. A second aim of the study was to determine whether or not a „language ceiling“ as described by Clarke (1988) could be demonstrated.

The fifty participants had completed their secondary schooling in Turkey and had a high level of L1 proficiency. Their L2 proficiency varied from intermediate to advanced levels. The L1 and L2 reading comprehension tests consisted of expository passages and sixteen multiple choice questions per text. L2 proficiency was assessed by means of two parts of a test battery – one that tested grammar knowledge and one that tested vocabulary knowledge. By means of a multiple regression analysis, Bossers determined that L1 reading and L2 proficiency together explained 73% of the variance of the dependent variable, L2 reading. However, when the relative contribution of each predictor variable was taken into account, the relative importance of L2 knowledge for L2 reading far outweighed that of L1 reading (1991, p. 55). While Dutch-L2 proficiency accounted for 54% of the variance in Dutch reading, L1-Turkish reading explained only 19% of the variance in L2 reading ability.

In testing for the existence of a language „threshold“, Bossers discovered that knowledge of Dutch was the most powerful predictor for the least skilled Dutch readers. For this group, reading ability in Turkish was not a significant predictor. Conversely, L1 reading was the most significant predictor for the group made up of the most skilled Dutch readers.

Bossers concluded from the results that knowledge of the L2 plays a dominant role in L2 reading initially and that L1 reading becomes a more prominent factor at a more advanced level. This is in keeping with what the „language ceiling“ hypothesis would predict, viz. that “direct transfer of L1 reading skills occurs only when a certain amount of L2 knowledge has been acquired” (*ibid.*, p. 57).

2.5.3 Reading in Korean and English

Lee and Schallert (1997) tested the strength of the relationships between second language (L2) proficiency and L2 reading; and first language (L1) reading and L2 reading with 809, 9th and 10th grade learners in Korea. Their levels of English proficiency, estimated on the basis of their school scores for English, were wide ranging.

The researchers administered three tests: an English Language Proficiency (ELP) test, an English reading comprehension (ERC) test and a Korean reading comprehension (KRC) test. The ELP test included vocabulary knowledge (synonyms, antonyms, definitions, analogies) and the ability to judge the grammaticality of sentences presented (in categories of verbs, plurals, determiners, pronominalization, and so forth). The ERC test comprised four passages, two narrative and two expository, and twenty multiple-choice comprehension questions. The KRC similarly consisted of four passages and twenty questions. The subjects were permitted to refer back to the texts in answering the questions.

Lee and Schallert found that the range of mean scores on the ERC test was wider than that than on the KRC test. This they interpreted as an indication “that L2 reading ability is likely to depend more upon L2 proficiency than is L1 reading ability” (1997, p. 725). The multiple regression procedure confirmed this finding. While it was apparent that *both* L1 reading ability and L2 proficiency were significant predictors of L2 reading ability, the independent L2 proficiency variable accounted for more of the variance in the dependent English reading variable (57%) than was accounted for by the second predictor, Korean reading (30%).

The correlational statistics between L1 reading and L2 reading reflected that children with lower levels of L2 proficiency did not show much transfer of L1 reading strategies to L2 reading. By contrast, the correlations for higher levels of L2 proficiency were significant, suggesting that for these subjects “L2 reading will be a function of both L2 proficiency and L1 reading, ... suggestive of a threshold level of language proficiency” (ibid., p. 734).

2.5.4 Reading in Chichewa/ Nyanja¹⁷ and English

Eddie Williams' (1996) study contributed to the research data on the first language (L1)/ second language (L2) relations in reading research in important ways. Firstly, the research was conducted in two southern African countries (Malawi and Zambia) where, unlike in the USA, English is usually not a majority language. Secondly, the participants in Williams' study were Grade 5 learners whereas in most of the previous studies (some of which have been reviewed above) the participants had been older/ adult L2 learners.

¹⁷ “Chichewa and Nyanja are different labels for what is essentially the same language. There are minor differences between them in spelling, pronunciation, and lexis... the Nyanja of Zambian school books takes as its model the Chichewa of Malawi” (Williams, 1996, p. 186).

Although the study did not purport to address the relative contributions of L1 reading and L2 language knowledge to reading in L2, inferences are possible (Williams, 1996, p. 189).

Williams compared the English-L2 reading performances of children in Malawi and Zambia, countries with similar linguistic, historical, socio-economic and cultural backgrounds. The focus of the investigation was the „lower“ level of the reading process, primarily concerned with “word recognition, the identification of grammatical meaning, and the generation of propositions within sentences” (*ibid.*, 1996, p. 183). If one accepts the description of reading as a compensatory, interactive model, then it is clear that higher-order processing (top-down skills) cannot operate in the absence of the lower-level (bottom-up) processing.

In Malawian schools the national language, Chichewa, is the language of learning and teaching (LoLT) for the first four years and English is taught as a subject. Then, from the 5th grade onwards, the role of the languages is reversed with English becoming the LoLT and Chichewa maintained as a subject. This may be described as an „early-exit transitional“ model of bilingualism (Heugh, 2006, p. 62). In Zambia on the other hand, a model of „subtractive bilingualism“ is employed. English is the official LoLT from year 1 of schooling and little importance is accorded to any of the local languages, including Nyanja.

The reading performances of 290 Grade 5 children were tested in Malawi (average age: 13 years 7 months) and 227 children in Zambia (average age: 12 years 3 months). Both rural and urban children were represented in the survey of selected schools. Schools in both countries were poorly resourced, had large class sizes and a large percentage of untrained teachers (Williams, 1996, p. 187). None of the children spoke English at home; all the children claimed to speak Chichewa and Nyanja respectively. A modified cloze test¹⁸ format was selected as most appropriate, for learners to demonstrate their comprehension of four short, English passages of different genres and chosen for their familiar content (*ibid.*, 190-1). A similar test format was employed to investigate the learners“ reading proficiency in both Chichewa (Malawi) and Nyanja (Zambia). The English tests were administered first and the local language tests second.

¹⁸ The test consisted of a series of sentences based on the passages with deletions normally made every 6th word. The correct options and a selection of incorrect options were provided in a box above each paragraph (*ibid.*, pp. 190-192).

The English reading ability of children in Malawi and Zambia proved to be the same, which meant that Zambian children who had experienced „straight-for-English“ education were not superior to the Malawian children who had had Chichewa as the LoLT for the first four years of school. The Malawian children were moreover clearly superior in reading ability in Chichewa than were the Zambian children in reading Nyanja. This was of course not surprising, considering that Nyanja had not operated as LoLT for the Zambian children and they were not accustomed to seeing their language in its written form.

Williams ascribes the poor English reading performances in both countries to the dominant, „look and say“ pedagogic practices which involve a great deal of repetition and very little attention to meaning (ibid., pp. 199-200). He goes on to suggest that the Year 5 children in Malawi and Zambia had not reached a „threshold“ level of reading in the L2 which would enable them to learn through reading in other content areas. Williams concludes that “a great many Malawian and Zambian primary school children are not in a position to benefit educationally from the English-medium policy as currently implemented” (1996, p. 201). He goes on to make recommendations at both policy and classroom level: “Rather than producing large numbers of children who have very weak reading abilities in two languages, it would seem that there are at least possibilities of producing children at least able to read in a local language ... Improvement in the reading of English may be effected by greater attention in the classroom to the processing of meaning, and more personalization and contextualization of communication” (pp. 201-202).

A further inference from the Williams study, in respect of the Malawian children in particular, is that they haven’t yet reached a threshold of language proficiency which would enable the transfer of their L1 Chichewa skills to the L2-English reading task.

2.5.5 Reading in Northern Sotho and English

In African contexts the language factor in reading is, as **Pretorius and Mampuru** (2007) explain, “submerged by a host of other factors...poorly resourced schools, inappropriate instructional methods, print-poor environments, overcrowded classrooms, reduced time-on-task and poorly trained teachers” (p. 40). It was in a similar context, at a school located in a socioeconomically disadvantaged community in the Gauteng Province of South

Africa, that the researchers explored the two key underpinnings of second language (L2) reading research, viz. the Linguistic Interdependence (IH) and Linguistic Threshold (TH) Hypotheses. Essentially, they hoped to discover whether the transfer of first language (L1) reading to L2 reading would occur when the education context “is less than ideal” (*ibid.*, p. 43).

The Pretorius and Mampuru study at the township school was located within a larger, reading intervention project which aimed, by building up resources, developing teacher capacity and involving parents, to create a culture of reading in the community and to raise the reading and by implication, academic performance levels of the learners.

104 Grade 7 learners participated in the study. Northern Sotho (NS) was the home language (HL/L1) of 82% of the children; the remaining 18% were HL speakers of other indigenous, South African languages. The learners had experienced an early-exit transitional model of bilingual education: NS was the initial language of learning and teaching (LoLT) in Grade R to Grade 3, but learners were „switched“ to English as LoLT from Grade 4.

Dictation tests, based on passages from grade level textbooks, were used to test learners’ language proficiency in NS and English. NS and English versions of two different comprehension tests, based on expository passages were constructed. The first set of reading comprehension tests¹⁹ was administered at the start of the aforementioned reading project and the second, eight months later.

The reading comprehension scores for learners before the start of the reading intervention were low, both in NS and in English; and the language scores were significantly higher than the reading scores for both languages. The large gap between language proficiency and reading ability was interpreted by the researchers as evidence that language ability alone does not guarantee an ability to read in that language (*ibid.*, p. 53). The correlational statistics indicated that English language and English reading were strongly related, both at the pre- and post-test stages, confirming as for other studies here reviewed, the importance of L2 proficiency for reading.

¹⁹ The format of the test comprised inference questions, cloze items and the resolution of anaphoric items (Pretorius & Mampuru, 2007, p. 47).

The scores of the second series of reading comprehension tests showed a marked improvement on the pre-test scores, evidence that “the barriers to learning that poverty imposes can be overcome if learners have access to books and if the school puts reading on the daily agenda” (*ibid.*, p. 53) The L1-L2 reading relationship also strengthened over the course of the eight months.

The results of a regression analysis revealed that initially (before the start of the intervention project) L2-English proficiency accounted for more of the L2 reading variance than did L1 reading ability. Eight months later the situation had changed quite remarkably though, with NS reading accounting for 60% of the variance in English reading. Thus, as the reading scores in the two languages improved so the relations between L1 and L2 reading were strengthened - surely evidence of a shared underlying reading ability. A further regression analysis, in which L1 reading (rather than the usual L2 reading) was entered as the dependent variable, revealed that the L2-English reading predictor contributed more to the variance of NS reading than did the second variable, NS language proficiency. This finding also provided support for the IH, but given the fact that learners had had more exposure to English texts than to texts in the L1, it is not surprising that the direction of the transfer in this context, was probably from the L2 to the L1 and that L2 reading was a stronger predictor of L1 reading than was L1 proficiency (*ibid.*, pp. 45; 55).

2.5.6 A Summary of the Empirical Evidence

Studies conducted in different contexts around the world provide irrefutable evidence that second language (L2) reading is related to *both* L2 ability and first language (L1) reading.

The variance in the L2 reading process accounted for by the two independent variables, L1 literacy and L2 proficiency, differs across the studies reviewed. In the Bernhardt and Kamil (1995) study for example, only 50% of the variance was explained by the predictors, while in the Bossers (1991) research, L1 literacy and L2 proficiency accounted for 73% of the variance of the dependent variable, L2 reading. These differences across studies might be partially explained by readers’ differing exposure to the L2 in the environment and their background knowledge pertaining to the content and structures of the texts used in the reading tests. Moreover, the results of previous studies cannot be generalised as each context presents an array of factors which may influence L2 reading differently.

The variance *unaccounted* for by the independent variables is interesting. Bernhardt and Kamil (1995) suggest that background knowledge variables, interest and cognitive abilities may be possibilities worth investigating in future, in explaining the variance in the L2 reading process that has not been accounted for by L1 reading and L2 language proficiency (p. 31).

How L1 literate a L2 reader needs to be in order to make the L2 work and how much L2 knowledge a L2 reader needs in order to make the L1 reading knowledge work, again varies according to context (*ibid.*, p. 32). The tests as to the *relative* contribution of L1 reading and L2 knowledge to L2 reading across the various studies, provide support for the Interdependence Hypothesis (IH), but usually only at higher levels (thresholds) of L2 proficiency. In other words, “students with lower levels of second-language proficiency are less able to apply their first-language reading skills to reading in a second-language” (Lesaux & Geva, 2006, p. 65).

2.6 IMPLICATIONS FOR LANGUAGE POLICY & READING PEDAGOGY

The case studies reviewed in Section 2.5 provide support for Cummins’ Linguistic Interdependence Hypothesis (IH) and by association, for additive bilingual language policies²⁰. The research suggests that in contexts where children must develop cognitive academic skills in a second language (L2), the development of first language (L1) cognitive/ academic skills are as important as exposure to oral/ „whole“ L2 (Cummins, 2000). Reading in a L2 is therefore both a „language problem“ and a „L1-reading problem“.

If children’s English Language Proficiency (ELP) must be developed in order for them to become better readers, then this is problematic in the South African context where English is not a majority language. In the vast rural communities of the country, African languages are dominant and learners have little exposure to oral English. The poor “English language infrastructure” both at school and at home, impedes the development of ELP (Fleisch, 2008, p. 111).

²⁰ Refer to Section 1.2.3 (Chapter 1) for an explanation of *additive bilingualism*.

Peregoy and Boyle (2000) advise that in order to support English learners when English is used as the Language of Learning and Teaching (LoLT), “teachers need to use sheltering strategies ... (to) make lessons comprehensible” and in so doing, to promote language acquisition (p. 244). The kinds of strategies suggested by the authors include “pairing nonverbal cues (e.g. pictures, demonstrations, and gestures) with verbal instruction” and “paraphrasing and defining vocabulary in context” (*ibid.*, p. 244). In the South African context it is evident that the suggestions of Peregoy and Boyle are at best, idealistic - teachers lack the appropriate pedagogical content knowledge and skills²¹.

The second pedagogical implication of the IH is that reading must be explicitly taught, in *both* the L1 and the L2. Cummins for instance, cautions that

automatic transfer of academic skills across languages will not happen unless students are given opportunities to read and write extensively in English (the L2) in addition to the minority language (L1). In addition, there is a significant need for formal, explicit instruction in order to teach specific aspects of the academic registers in both languages (2000, p. 194).

Peregoy and Boyle suggest that teachers need to support beginner readers’ understanding of the meaning and purpose of a text by “reading the text aloud, pointing out and defining or dramatizing important content words ... and repetition”. For Intermediate readers they suggest that “teachers need to prepare students for any given text by focusing on specific aspects of its genre, vocabulary, grammar, content and text structure that may be new to them” (2000, p. 245).

It makes sense that children begin to read in the language with which they are most familiar, so that they are able to relate the printed symbols to their knowledge of spoken language with relative ease. Many South African children do learn to read in their home language (HL), but Pretorius and Currin (2010) state that

for many learners the transition from decoding syllables or words on a chalkboard, to meaningful reading activities involving extended texts does not happen easily ... Reading as a tool for learning („reading to learn“) is thus never properly developed, in either the home language or the LoLT (p. 68).

The fact that little attention is given to meaningful reading; that teacher capacity to develop sound reading skills is limited; and the fact that there is a paucity of books available in

²¹ Refer to Section 1.2.3.2 (Chapter 1) for a more detailed discussion.

schools, particularly in African languages, means that learners do not develop high levels of literacy in the L1 – certainly not enough to transfer to the L2. (Pretorius & Currin, 2010, pp. 74-75).

But, what potential does the IH hold for learners’ L2-English reading / academic achievement in a context when L1 literacy *is* promoted and developed for academic purposes, beyond Grade 3²²? This thesis set about testing the IH (and the levels of ELP at which transfer from L1 to L2 reading might be evident) in the context described in Chapter 1 (Section 1.4), and according to the research design outlined in the following chapter.

²² In the Pretorius & Mampuru (2007) study, Northern Sotho, the HL, was only maintained as LoLT to the end of Grade 3.

CHAPTER 3: RESEARCH DESIGN

3.1 INTRODUCTION

3.1.1 *Research Aims & Method*

The purpose of the study is to explore Grade 6 children's ability to read with understanding, information texts in English, in a context where English is an Additional Language (EAL) and a partial language of learning and teaching. The research aims to explore and describe two factors that influence the aforementioned EAL reading comprehension: the children's overall English Language Proficiency (ELP); and their reading comprehension abilities in the home language, isiXhosa.

The study is informed by quantitative data, but is essentially exploratory and descriptive. Correlational statistics are used to describe the relationships between the variables outlined, and regression analyses utilised to determine the relative contribution of each of the independent variables, viz. ELP and isiXhosa Reading Comprehension, to the dependent variable, English Reading Comprehension.

3.1.2 *Outline of Chapter 3*

The chapter begins with a description of the research participants, including the rationale for selecting the Grade 6 class; the composition of the research group including sub-groups, and a broad depiction of the children's socio-economic backgrounds.

In order to address the research aims, two main data collection instruments were used. A comprehensive description of both the language proficiency (Woodcock-Muñoz Language Survey) and reading comprehension (Progress in International Reading Literacy Study) test instruments is included in this chapter, followed by a description of the procedures which were observed in administering each of the tests.

The explanation then considers the process by which the data collected has been presented and analysed in this study (in Chapters 4 and 5 respectively).

In the final sections of the chapter, the ethical considerations of the study are addressed and the limitations of the research outlined.

3.2 PARTICIPANTS

3.2.1 *Background*

The 2002 Grade R class constituted the pilot group in the longitudinal Additive Bilingual Language Education (ABLE) research project (outlined in Section 1.4 of Chapter 1) – viz. the initial group at the school to experience the phasing-in, year by year, of home language based bilingual education (HLbBE). These learners were the first to experience, for example, the introduction of English Additional Language (EAL) as subject in Grade R, where previously Foundation Phase learners at the school were not introduced to English before Grade 2.

The 2003 Grade R enrolment comprised the first research cohort of the ABLE project – in other words, the first group to be tracked and monitored in terms of their academic language development (in both isiXhosa and English), their cognitive development and their academic achievements. It was this 2003-cohort that was selected as the focus of this particular study, conducted in 2009, when the learners were in Grade 6.

3.2.2 *Rationale for Selection: 2009 Grade 6 class*

The Grade 6 class was selected primarily because of the Grade's strategic importance. It is generally agreed that in the Foundation Phase children „learn to read“ and that by the end of the Intermediate Phase, viz. Grade 6, they should be „reading to learn“ with a good deal of fluency. Those children who are unable to read for information will undoubtedly struggle through the Senior Phase and will surely not cope with the academic literacy demands of the Further Education and Training (FET) Phase.

Further, in this gradual transitional model of additive bilingual education at Sosebenza Community School, Grade 6 marks the final year in which isiXhosa is employed as part-language of learning and teaching (LoLT). It is therefore imperative that Grade 6 learners

are fluent English readers, readers who are able to cope with the demands of a completely English-as-LoLT curriculum from the beginning of Grade 7. It is as such anticipated that the findings and analysis of this study will contribute valuable data towards understanding the language, cognitive and academic development of the children in the 2003 Additive Bilingual Language Education (ABLE) research cohort (refer to Section 3.2.1 above). At the same time, the data may usefully inform necessary changes to the continually-evolving model of home language based bilingual education (HLbBE) being implemented at Sosebenza, particularly in terms of reading-related classroom pedagogies.

The qualitative²³ and quantitative²⁴ data collected for the 2003 cohort over the period of six years has been a useful reference in this study and has also made it possible to track individuals in the group, described below. Tracking individuals has enabled the researcher to explain learners' development in relation to their differing experiences within the HLbBE model; and this information has also assisted teachers in differentiating the learning input according to the needs and prior learning experiences of the children.

3.2.3 Description: Whole Class

In 2003 there were eighteen children in the research cohort (Grade R). The table in **Appendix A** indicates how the profile of the original group (sos_1 to sos_18) had changed over the years, so that by 2009 only seven of the original cohort remained – three girls and four boys. Three learners in the original cohort failed at the end of their Grade 2 year – one boy and two girls; two children – a girl and a boy - failed at the end of Grade 3; and a further two had to repeat Grade 4 – both boys. Four children of the original 2003 cohort left the school (usually when their families moved out of the community, perhaps to seek employment elsewhere).

In 2009 there were sixteen children in Grade 6 at Sosebenza Community School (represented in **Table 1** below). The label „*Whole Class*“ is used to refer to this group of sixteen Grade 6s in the data presentation and analysis chapters of this study.

²³ Video recordings of classroom practices; recordings of stimulated observation feedback sessions with teachers; recordings of interviews with teachers; learners' work

²⁴ Scores for: the Early Years Easy Screen (EYES) test, the Kaufman Assessment Battery (KABC), the Woodcock Muñoz Language Survey (WMLS), Sosebenza Community School's annual examinations and the Department of Education's Common Tests

The participants were home language speakers of isiXhosa. The learner identified as sos_19 had two home languages, both isiXhosa and Afrikaans. There were six females in the group and ten males. The average age of the group (at the time of collecting the reading comprehension data in November 2009) was thirteen years.

Table 1: 2009 Grade 6 - Whole Class

Individual Identity	Group Name	Gender	Age (Nov. '09)	2003 R	2004 1	2005 2	2006 3	2007 4	2008 5	2009 6
sos_2	Together from Grade 1	F	12							
sos_3	Together from Grade 1	F	12.5							
sos_6	Together from Grade 1	F	13							
sos_8	Together from Grade 1	M	13							
sos_12	Together from Grade 1	M	12.5							
sos_14	Together from Grade 1	M	12							
sos_15	Together from Grade 1	M	12							
sos_19	Together from Grade 1	M	15							
sos_20	Together from Grade 1	M	13.5							
sos_21	Pilot Repeaters	M	14					Repeat		
sos_22	New in Grade 2	F	12.5							
sos_23	Numerous Repeaters	M	15.5					Repeat		
sos_24	New in Grade 6	F	12							
sos_25	Pilot Repeaters	M	13.5						Repeat	
sos_26	Together from Grade 1	M	14							
sos_27	New in Grade 6	F	14							

3.2.3.1 Subgroup: Together from Grade 1

As previously mentioned, seven of the learners had been part of the Grade 6 class since their Grade R year²⁵. Another three joined the group in Grade 1²⁶ (children who had not been enrolled in Grade R at all). Ten learners had therefore experienced – more or less – a similar model of home language based bilingual curriculum delivery. The group of ten learners is referred to as the ‘*Together from Grade 1*’ group in the subsequent, data-oriented chapters.

²⁵ sos_2; sos_3; sos_6; sos_8; sos_12; sos_14; sos_15

²⁶ sos_19; sos_20; sos_26

3.2.3.2 Subgroup: New in Grade 2

A further learner (sos_22) moved to Sosebenza from another school, at the start of Grade 2. This learner is referred to as *'New in Grade 2'*.

3.2.3.3 Subgroup: Pilot Repeaters

The group caught up with two more learners when they were repeating Grades 4 and 5 respectively²⁷. These boys, originally part of the Additive Bilingual Language Education (ABLE) pilot group (referred to in Section 3.2.1 above), had failed one grade. The label *„Pilot Repeaters“* has therefore been adopted when referring to the data collected on these two learners.

3.2.3.4 Subgroup: Numerous Repeaters

The learner identified as sos_23 appeared to be a generally struggling student who had failed numerous times in the Foundation Phase and was in fact repeating Grade 4 in 2007 when the other participants in the study caught up with him. The label used to refer to this learner is, *„Numerous Repeaters“*.

3.2.3.5 Subgroup: New in Grade 6

A final two learners were enrolled at the school – after transferring from nearby schools - at the start of their Grade 6 year²⁸ and are referred to in the following data chapters as *„New in Grade 6“*.

3.2.4 Socio-Economic Status & Exposure to Books

The children shared similar socio-economic backgrounds as revealed through a questionnaire (**Appendix B**) designed to provide an indication of learners' socio-economic circumstances (SES), their exposure to books and their perceptions about reading. The information here described is summarised in **Table 2** on the following page.

Ten of the participants resided on farms and were the children or grandchildren of farm labourers. Five children lived with family members (some lived with their aunts and/ or uncles) in the township situated about 25km from the School. The majority of participants reported that their households (with an average size of 5.6 people) were dependent on the wages of a farm labourer and/ or a domestic worker. The household income in this context

²⁷ sos_21; sos_25

²⁸ sos_24; sos_27

was generally supplemented by the South African social grant system, including child grants and old age pensions.

Possible exceptions to the low-income backgrounds of the majority may have been sos_3, sos_20 and sos_15. The former two children resided in households where the main breadwinner was a telephone technician while sos_15's mother was the manager of a non-governmental organisation in the community. Curiously, learners from the latter, possibly „better-off“ households, did not report having access to a greater number of books than did the children from the more humble homes. Sos_3, sos_15 and sos_20 all marked the „Between 5 and 10“ category for the question, *How many books (NOT magazines/newspapers) are there in your house?* On the other hand, three children reported having more than ten books, with sos_2 and sos_6 both selecting the „Between 20 and 50“ option. Four children stated that there were no books in their homes whatsoever, while a further four children reported having fewer than five books in the house.

All the participants in the study claimed to have at least one television set in their homes and with one exception (sos_23), all learners also reported that there were cellular telephones present in their homes – varying between a minimum of one and a maximum of eight per household. Sos_15 also had access to a computer - potentially another literacy tool - in his home. Of further interest is that seven participants resided in households where there was at least one privately-owned vehicle.

Table 2: Socio-Economic Information/ Exposure to Books

Individual Identity	Size of Household			Household Assets				No. of Books in Household		
	Employed Adults	Unemployed Adults	Children	Television	Cellular Phone	Computer	Vehicle	0-10	10-20	20-50
sos_2	1	2	5	2	8					√
sos_3	4	1	6	2	5		1	√		
sos_6	2	1 (studying)	3	1	1		1			√
sos_8	2		2	1	1		1	√ 0		
sos_12	3		4	2	1		1	√		
sos_14	1	1	2	1	1			√ 0		
sos_15	2		2	2	3	1	1	√		
sos_19	2	1 (studying)	1	1	2			√		
sos_20	3	1	6	2	4		2	√		

sos_21	2		3	1	1		1	√		
sos_22 ²⁹										
sos_23	1	2	1	1				√ 0		
sos_24	1	2	2	1	2			√		
sos_25	2		3	1	3			√		
sos_26	1		3	1	1				√	
sos_27	1	2	2	1	2			√ 0		

In all, the questionnaires created the impression that the participants were, in the researcher’s view, from low-income, but generally not poverty-stricken homes. Electrical appliances, television sets and cellular phones were prolific, while books on the other hand were far less numerous. Even where claims were made for owning more than twenty books, the participants were clearly not familiar with many of the titles in the home-libraries.

3.3 DATA COLLECTION INSTRUMENTS

Two test instruments were used to generate the quantitative data on which this descriptive study is based. The Woodcock-Muñoz Language Survey (WMLS) provided a profile of the sixteen participants’ language proficiency skills, while sample tests available on the PIRLS website (timssandpirls.bc.edu/pirls2006/user_guide.html) were used to describe the learners’ reading comprehension abilities.

A questionnaire (**Appendix B**) provided additional, qualitative data, viz. a broad indication of the children’s socio-economic backgrounds and reading-related opportunities and perceptions. The questionnaire data was used in the interpretation of the quantitative data (refer to Section 3.3.3 below).

3.3.1 Woodcock-Muñoz Language Survey (WMLS)

The Woodcock-Muñoz Language Survey (WMLS) was designed for use in the United States by Richard Woodcock and Ana Muñoz-Sandoval to “provide a broad sampling of proficiency in oral language, reading, and writing” (Woodcock & Muñoz, 2001, p. 1). Each of the English and Spanish Forms of the WMLS “also provides an overall measure of language competence and cognitive-academic language proficiency (CALP) levels” (*ibid.*).

²⁹ Sos_22 left Sosebenza at the end of 2009. The questionnaires were administered mid-way through 2010 and this particular learner is thus not included in the socio-economic description.

A further strength of the test is that it may be used with subjects as young as three years and as old as ninety nine.

Koch (2009) acknowledges that Cummins' (1984) definition of CALP³⁰ goes beyond the constructs of the WMLS, but in citing Laija-Rodriguez, Ochoa & Parker (2006), she makes a strong argument for the test as a useful predictor of reading and as useful for research on reading in two languages and research on bilingual programmes (pp. 303-304).

The WMLS was selected by the ABLE (Additive Bilingual Language Education) Project³¹ to inform and monitor the implementation of additive bilingual education at Sosebenza Community School, specifically in relation to the development of CALP in both isiXhosa and English (*ibid.*, p. 303).

3.3.1.1 Adapting the WMLS

After purchasing the test, permission was obtained from Riverside Publishing (**Appendix C**) for the WMLS (Woodcock-Muñoz Language Survey) to be adapted³² into isiXhosa. A member of the ABLE (Additive Bilingual Language Education) research team and psychometric expert led the process of adapting the test for the linguistic and statistical equivalence³³ of the two versions of the test, i.e. the isiXhosa and the English. The English form of the test was also adapted for the South African (SA) context, by including for example, SA English words as acceptable responses to some of the questions (*ibid.*, p. 302).

[The WMLS was adapted for use in the ABLE Project well before this particular study was conducted. It was explained in Section 1.4 of Chapter 1 that this study was located within the broader context of the ABLE Project at Sosebenza Community School.]

The WMLS consists of four subtests namely Picture Vocabulary, Verbal Analogies, Letter Word Identification and Dictation. Each of the tests measures different aspects of language proficiency:

³⁰ Refer to Chapter 2, Section 2.3.1 for an explanation of CALP.

³¹ Refer to Chapter 1, Section 1.4 for a description of the ABLE Project.

³² To adapt a test is "to translate a set of items literally and to change the words or content of other items so as to enhance their appropriateness in the new cultural context and then to evaluate the different versions of the test for equivalence" (Koch, 2009, p. 304).

³³ "Equivalence is a measurement term dealing with the measurement level at which scores of tests that are available in more than one language ... can be regarded as comparable" (*ibid.*, p. 302).

- **Test 1: Picture Vocabulary (PV)**

Essentially a naming task, the PV subtest requires subjects to name familiar and unfamiliar pictured objects, drawing primarily on school-based knowledge and experience. There are a total of 57 items in the test that become increasingly difficult, as the objects pictured appear less and less frequently in the school environment.

- **Test 2: Verbal Analogies (VA)**

This subtest involves language reasoning. It assesses the ability to comprehend and orally complete a series of logical word relationships. The vocabulary in the analogies remains relatively simple, but the relationship between the words in the 35 items becomes increasingly complex.

- **Test 3: Letter-Word Identification (LWI)**

The 57 items in this subtest measure the subject's reading identification or decoding skills, beginning with isolated letters and then progressing to words. The decoding becomes increasingly difficult as the selected words appear less frequently in written language.

- **Test 4: Dictation (DICT)**

The dictation subtest requires an ability to respond in writing to a variety of questions pertaining to letter forms, spelling, punctuation, capitalisation and word usage. This subtest consists of 56 items.

(Woodcock & Muñoz, 2001, pp. 7-8; Koch, 2009, p. 303).

Test adaptation is an on-going and important process, particularly in a multilingual country like SA where there is a paucity of quality language tests available in two or more languages. Although the complete psychometric properties of the SA WMLS are not yet available, Koch (2009) demonstrates evidence for construct equivalence across the isiXhosa and English versions for two of the subscales, namely the Verbal Analogies and the Letter Word Identification scales. This suggests that it would be possible to compare the scores of children on these two subtests in isiXhosa and English. On the contrary, there is evidence to suggest construct in-equivalence for the other two scales of the test, namely Picture Vocabulary and Dictation. This means that the scores in isiXhosa and English on

these two subtests cannot be used for comparison. Nevertheless, it must be emphasised that evidence for acceptable levels of reliability³⁴ for both the Picture Vocabulary and Dictation scales in both language versions exists (Koch, 2009, p. 315). This would therefore imply that it is possible to comment on the scores that children achieved on these subtests, even when the scores of the two language versions cannot be compared.

3.3.1.2 Arguments for administering the isiXhosa WMLS

In relation to the aims of this particular study, more specifically the influence of children's English Additional Language (EAL) proficiency on their reading comprehension abilities in EAL, it might not have been deemed necessary to administer the isiXhosa version of the language proficiency test. However, it is in keeping with the ethos of the broader Additive Bilingual Language Education (ABLE) study (described in Chapter 1, Section 1.4) within which this research is located, viz. the promotion of bilingualism and biliteracy rather than a transition to monolingualism / limited bilingualism, that it was important to administer the isiXhosa form of the WMLS (Woodcock-Muñoz Language Survey). The 2003-ABLE cohort referred to in Section 3.2.2 of this chapter, was previously tested on the WMLS when the children were in Grade 3 (2006), viz. the end of the Foundation Phase. The children's Grade 6 WMLS scores provided useful data in terms of tracking over time, their CALP development in the two languages of learning and teaching (LoLTs), isiXhosa and English. The latter data will potentially provide the ABLE research team and the Sosebenza teachers with useful information pertaining to the implementation of the evolving model of additive bilingual education.

A further, important reason for administering both language versions of the WMLS is related to the fact that there are no normalised standard scores (norms) available for the SA population. Therefore, using the WMLS isiXhosa Form in conjunction with the English Form would allow for a description of the learners' *relative* proficiency in each language skill area (oral and reading-writing). Finally, it might also be interesting to observe whether or not isiXhosa language proficiency is a better predictor of isiXhosa reading than is English language proficiency of English reading.

3.3.2 Progress in International Reading Literacy Study (PIRLS)

3.3.2.1 The PIRLS Framework

³⁴ Reliability may be defined as the consistency of test scores over time (Downie & Heath, 1974, p. 98).

The PIRLS is a reading literacy test developed and overseen by the International Association for the Evaluation of Educational Achievement (IEA) and implemented in the volunteer, participating countries by National Research Coordinators (NRC)³⁵. Rigorous procedures guide the development (including translation) of the test instruments, the data collection and the scoring procedures. The concerted attention to quality ensures that PIRLS, conducted every 5 years in participating countries,³⁶ provides a reliable measure of how well children, aged 9 and 10, can read and therefore also of how well each country's education system is performing (Campbell, Kelly, Mullis, Martin & Sainsbury, 2001). The reading achievement results are interpreted in relation to national background information about both the education system in each country (the reading curriculum, teacher education and training, instructional resources available for teaching reading) and the children's home and school experiences in learning to read. This data is collected through surveys and questionnaires completed by school principals, teachers, parents and the 4th grade (and in some contexts 5th grade) children themselves (Mullis, Martin, Kennedy & Foy, 2007).

PIRLS assesses two different purposes for reading – reading for literary experience and reading to acquire and use information. A variety of passages in different genres and “drawn from materials that students encounter in their everyday experiences inside and outside school” are included (Mullis, et al., 2007, p. 2). The PIRLS framework specifies that within each of the literary and informational reading purposes, four different processes of reading comprehension, or ways in which readers construct meaning, be assessed. These processes include: 1) Focus on and retrieve explicitly stated information; 2) Make straightforward inference; 3) Interpret and integrate ideas and information; and 4) Examine and evaluate content, language and textual elements (Campbell, et al., 2001, pp. 10-12).

About half the questions which address these thinking processes require learners to construct their own responses, while the remaining questions are in the multiple choice format. The four PIRLS reading comprehension categories are tabled on the following page (**Table 3**) together with the approximate proportion of questions, according to the framework, which are to be devoted to each of the meaning-making processes in each passage.

³⁵ In South Africa the NRC for PIRLS 2006 was the Centre for Evaluation and Assessment at the University of Pretoria.

³⁶ South Africa participated in PIRLS for the first time in 2006.

Table 3: The PIRLS Framework: Four Reading Comprehension Processes

Process	Description	Percentage Questions
Focus on and Retrieve Explicitly Stated Information	The process requires no interpretation – the meaning is stated in the text, usually within a sentence or phrase. The reader must recognise the relevance of the information in relation to the information sought.	20%
Abbreviation ESI		
Make Straightforward Inferences	Straightforward inferences are based on information that is contained in the text, although not explicitly stated. Readers are required to connect pieces of information. The focus may be on local meaning (residing in part of the text) or global meaning (representing the whole text).	30%
Abbreviation SIN		
Interpret and Integrate Ideas and Information	Readers are required to process the text beyond the phrase or sentence level in order to construct a more complete understanding of the text. Readers may need to draw on their own understanding of the world (based on their knowledge or experience) or their own perspective.	30%
Abbreviation INT		
Examine and Evaluate Content, Language, and Textual Elements	Readers weigh their understanding of the text content against their personal knowledge of the world or against their more objective views obtained through any past, related reading. On this basis the reader counters or confirms claims made in the text. In reflecting on language and structure, readers draw on their understanding of text genre and language conventions.	20%
Abbreviation EVAL		

(*ibid.*, pp. 10-12)

3.3.2.2 The PIRLS Selection

In view of the dismal PIRLS performances by South African children³⁷, it did not seem inappropriate or biased, to use in this study with Grade 6s, albeit 2 years beyond the age

³⁷ Refer to Section 1.2.2.1 in Chapter 1

for which the test was originally intended, sample passages drawn from the PIRLS 2006 test booklets. These comprehension texts evidently proved too challenging for the isiXhosa speaking Grade 5s in PIRLS 2006, but the Grade 6 learners would have had at least an extra year (in a bilingual curriculum) in which to achieve the assessment standards listed under the Reading Outcome in the National Curriculum Statement (NCS) for Languages – both Home and First Additional (South Africa, Department of Education, 2002). Howie et al. make the point that at *Grade 4* level the assessment standards of the curriculum “dovetail with the kind of reading activities that are expected of learners in the PIRLS assessments” (2008, p. 6).

This study was interested in the informational purpose of reading, primarily because the concern in the Sosebenza school context was with academic literacy and the ability of learners „reading to learn“ (refer also to 1.2.1 and 3.1.1). Two of the information passages (including the questions and scoring guides) which were released as samples in the *PIRLS 2006 International Report* (Mullis, et al., 2007) were administered to the Grade 6 children at Sosebenza Community School, in both isiXhosa and English. The comprehension passages are entitled, *Antarctica: Land of Ice / I-Antarctica: Ilizwe loMkhenkce* and *Searching for Food / UkuPhanda ngoKutya* (**Appendices D & E; F & G**). The children’s scores on these tests constitute the reading comprehension data required for later analysis in the study.

Administering *two* different tests of reading comprehension, in both languages, was a design necessity, viz. to counterbalance the possibility of transfer from the isiXhosa to the English (and vice versa) versions of the same test. It would in other words, have been problematic to make claims about the influence of isiXhosa reading comprehension on the dependent variable, reading comprehension in English Additional Language (EAL), when the carry-over effect could not be ruled out. It is for this reason that the children’s reading comprehension scores in English on the one test have been regressed against the isiXhosa reading scores on the other test (Refer to Section 4.5 of Chapter 4).

3.3.2.3 Translation Challenges

The isiXhosa versions (or any of the other African language versions) of the two texts had, prior to May 2010, not been released by the Centre for Evaluation and Assessment (University of Pretoria). It was therefore necessary to have the English passages, questions

and scoring guides translated. An experienced translator³⁸ provided the isiXhosa equivalents of the two texts while the researcher worked on the design and layout of *I-Antarctica: Ilizwe loMkhenkce* and *UkuPhanda ngoKutya* to provide further comparability with the English versions (**Appendices E & G**).

Shortly before administering the tests (discussed in Section 3.4.2 below) it was decided to ask the bilingual librarian and the Science teacher at Sosebenza Community School to „proof-read“ the isiXhosa versions. Interestingly, both individuals immediately disagreed with much of the translation in the texts, labelling it “Mthatha Xhosa” and indicating that the dialectal differences (mainly lexical) would render the texts inaccessible for the Grade 6 learners. With the assistance of the librarian, both passages, both sets of questions and both scoring guides were then re-translated and re-written to produce the final tests of isiXhosa Reading Comprehension which were subsequently administered to the learners and which have been included in **Appendices E and G**.

The experience with the translation of the reading passages is an aside in this particular study, but it is surely pertinent in the broader context of home language based bilingual education and curriculum development, particularly for linguists, textbook writers and publishers. A few of the translation differences have been included for interested readers in **Table 4** below.

Table 4: *Examples of dialectal differences/ translation difficulties*

English	“Mthatha Xhosa”	“Sosebenza Xhosa”
south pole	incopo eseZantsi	incam yomZantsi
scientists	oososayensi	inzululwazi
cardboard	iqweqwe	ikhadibhodi
Searching for Food	UkuZingela uKutya	UkuPhanda ngoKutya
study (v)	jongisisa	funda
sprinkle(v)	zwayizela	fefa
potato	zambane	tapile

3.3.2.4 Genre Comparison: Text 1 &Text 2

Although the two comprehension instruments, *Antarctica: Land of Ice / I-Antarctica: Ilizwe loMkhenkce* (Text 1) and *Searching for Food / UkuPhanda ngoKutya* (Text 2) may

³⁸ Master of Arts in English-IsiXhosa translation, Walter Sisulu University, Mthatha, Eastern Cape

broadly be described as informational or expository texts, there are differences between them, particularly in terms of organising structures and language features. These differences may, as is discussed in Chapter 5 (Section 5.3.3), have influenced the participants' comprehension, depending on their previous exposure to and experience with each of the text types. A brief comparison of the two texts is therefore relevant (**Appendices D & F**).

▪ **Text Organisation**

The function of both Texts 1 and 2 is to document information and each text begins with a general classification of the information it provides. Similarly, both *Antarctica Land of Ice* and *Searching for Food* use subheadings and paragraphs to introduce different aspects of the topics.

A further similarity is that the texts employ visual elements to aid reading, for example a larger, bolded font size sign-posts the various subsections within the texts. Another feature common to information texts is the inclusion of photographs and/ or diagrams. However, while the images used in Text 1 are largely photographic, the visuals in Text 2 are diagrammatic, of the kind children might commonly encounter in Natural Science textbooks. In *Antarctica: Land of Ice* the pictures are illustrative supplements to the written text, but in *Searching for Food*, the diagrams are a crucial part of the text. In other words, although the images in Text 1 help the reader to visualise the information about Antarctica, comprehension of the passage would still be possible were the pictures not included. On the contrary, much of the meaning of *Searching for Food* is contained in the labelled diagrams and text boxes. Comprehension of Text 2 is dependent on an understanding or interpretation of the visual elements.

▪ **Integration of other genres**

Text 1, *Antarctica: Land of Ice* and Text 2, *Searching for Food*, are moreover, atypical examples of information reports as both texts include organisational and language features of other genres. Text 1 incorporates a social text - a personal letter- on page 3. The use of the 1st and 2nd person pronouns serves to personalise the text, presumably making the information more accessible to "you", the reader. Text 1 is subsequently referred to as the Social-Information text (abbreviation: Soc-Info).

Text 2, *Searching for Food*, uses the procedural genre to communicate scientific information. Although the three projects within the larger text are organised as experiments, viz. each consisting of a list of equipment/ materials required, followed by a logical series of instructions by which to achieve a particular outcome, the intention is not that the reader will actually follow the directives, but rather that s/he will be able to imagine the experiments and develop a holistic understanding of the text based on this abstraction. The *Searching for Food* text is henceforth referred to as the Procedural-Information text (abbreviation: Proc-Info).

3.3.2.5 Question Comparison: Test 1 & Test 2

Table 5 on the following page provides a breakdown of the PIRLS reading comprehension processes addressed by the questions in each of the comprehension tests used in this study. The table also indicates which of the questions are in the multiple choice format and which require a constructed response. The category analysis of the constructed response questions has been set out in the scoring guides released as part of the *PIRLS 2006 International Report* (Mullis, et al., 2007). The categorisation of the multiple choice questions however, was for the researcher to establish using the descriptions of the four reading comprehension processes previously tabled (**Table 3**).

In *Antarctica: Land of Ice* (Soc-Info) the allocation of questions, in terms of the four reading comprehension processes, is more or less in keeping with the PIRLS framework. On the other hand, the questions in the *Searching for Food* (Proc-Info) test deviate quite significantly from the suggested framework (refer to **Table 3**). It is evident that the questions are heavily weighted in favour of the INT-type, rendering this test more challenging than the Soc-Info text which arguably, with more questions in the ESI and SIN categories, requires less higher-order thinking of the reader.

While it might be anticipated that the Proc-Info text would be the more difficult of the two for the Grade 6 learners to comprehend, it should be noted that the difficulty factor cannot be predicted on the basis of the text content and features alone. The complexity of a text is not inherent to the text itself, but depends instead on the learners' prior/ background knowledge (of content and language) and their exposure to and experiences with texts of various genres (Peregoy and Boyle, 2000).

Table 5: *Categorisation of Comprehension Questions in the Social-Information & Procedural-Information Tests*

COMPREHENSION PROCESSES		QUESTION CATEGORISATION	
		Text 1: Soc-Info	Text 2: Proc-Info
		Total No. Questions = 11	Total No. Questions = 15
		Total Possible Score = 16	Total Possible Score = 17
Focus on and Retrieve Explicitly Stated Information (Abbreviation ESI) 20%	Multiple Choice	-	#2 #6
	Constructed Response	#1 #3 #8	-
	% of Questions	27.27	13.33
	% of Total Score	25	11.76
Make Straightforward Inferences (Abbreviation SIN) 30%	Multiple Choice	#2 #6	#3 #4
	Constructed Response	#7	#11
	% of Questions	27.27	20
	% of Total Score	31.25	17.65
Interpret and Integrate Ideas and Information (Abbreviation INT) 30%	Multiple Choice	#5	#8
	Constructed Response	#4 #9	#5 #9 #10 #12 #13 ³⁹ #15
	% of Questions	27.27	46.67
	% of Total Score	31.25	47.06
Examine and Evaluate Content, Language and Textual Elements (Structure) (Abbreviation EVAL) 20%	Multiple Choice	#10	#1 #14
	Constructed Response	#11	#7
	% of Questions	18.18	20
	% of Total Score	12.5	23.53

3.3.3 Questionnaire: SES; Exposure to Books & Perceptions of Reading

The questionnaire included in **Appendix B** was not part of the original design of the study as it was not considered necessary in addressing the research aims. It was however during the course of describing the participants in this chapter (refer to Section 3.2.4 above) and in

³⁹ Note: Inconsistency in the marks allocated to question #13 on the question sheet (2 marks) versus the scoring guide (1 mark). I have scored the question according to the scoring guide – therefore a maximum possible total of 17 marks for the test and not 18.

understanding the reading comprehension data (refer to Section 4.3 in Chapter 4), that curiosity about the participants arose. The questionnaire, with some questions loosely based on a more carefully constructed instrument used by the ABLE (Additive Bilingual Language Education) project in the early stages of the longitudinal research⁴⁰, was designed with the aim of informing this study – albeit to a limited extent – about the children’s socio-economic circumstances and exposure to reading on the one hand⁴¹, and their perceptions about and attitudes toward reading on the other⁴². The aim of the questions therefore, was simply to provide data which would add to the descriptive nature of the study and which would support the interpretation of the other data in the study. The questionnaire data, collected by counting the number of responses to each question, will therefore not be presented in Chapter 4.

3.4 DATA COLLECTION PROCEDURES

3.4.1 *Woodcock-Muñoz Language Survey (WMLS)*

The administration, scoring and interpretation of the WMLS are guided by standardised test procedures. All those who use the test are responsible, not only for maintaining the integrity of the test by following proper procedures, but also for maintaining test confidentiality (Woodcock & Muñoz, 2001, pp. 4-6). These directives are included in a Comprehensive Manual which was referred to and as far as possible adhered to, in administering the South African versions of the WMLS for this study.

The WMLS is an individually-administered series of four subtests, Picture Vocabulary (PV), Verbal Analogies (VA), Letter Word Identification (LWI) and Dictation (DICT). Approximately forty minutes is required to test each participant on the isiXhosa and English versions respectively. The Test Books, containing the stimulus pictures or words for the subtests, are in easel format. They are set up on a table, with the relevant stimuli facing the subject and the directions facing the examiner. The subject is required to provide oral responses to all the questions, apart from the DICT items. Responses to the latter questions are written on a Worksheet. The examiner records the scores on a Test Record, writing „1“ or „0“ next to each item depending on whether the response is correct or not.

⁴⁰ Refer to Section 1.4 in Chapter 1

⁴¹ Refer to Section 3.2.4 above

⁴² Refer to Section 4.3.3 in the following Chapter

The researcher was fortunate to have had a fair amount of prior experience in administering the English version of the WMLS and was therefore able to guide the isiXhosa language lecturer (a former teacher)⁴³ in administering the isiXhosa version of the WMLS appropriately and exactly. This included for example, guidance about the “basals and ceilings” (Woodcock & Muñoz, 2001, pp. 13-19). The isiXhosa examiner was also cautioned against coaching subjects towards providing the correct responses (often a temptation for teachers) and further, of not providing the participants with any indication about whether answers given were correct or incorrect or indeed, what the appropriate response to a specific question ought to have been.

While it is in the writer’s view unlikely that children completing the isiXhosa version of the WMLS before the English version would have much advantage (in terms of transfer) over those children who would complete the English version first, the possibility was nonetheless counterbalanced in the research design. Fourteen of the Grade 6 participants had been at Sosebenza Community School the previous year (2008). Based on an average percentage for each child, calculated across four learning areas⁴⁴, the year-end Grade 5 academic results were used to rank the learners. The group was then divided into two, more or less equal academic-ability groupings, one which would take the isiXhosa test first (labelled „x-e” on the table in **Appendix H**) and in the other group, the children who would begin with the English test (labelled „e-x”). The sixteen participants were tested over a period of three days toward the end of May 2009, with the isiXhosa and English versions being administered on two separate days for each participant.

The participants took longer to complete the isiXhosa version of the WMLS than the English version, probably because a ceiling⁴⁵ was reached sooner on the English subtests. The children were generally able to respond to more items in the isiXhosa version.

3.4.2 Progress in International Reading Literacy Study (PIRLS)

Once the translation process of the two sample PIRLS Reading Comprehension (RC) tests had been completed (refer to Section 3.3.2.3 above), the tests were reproduced. The two language versions of Texts 1 and 2, including the accompanying answer sheets for each,

⁴³ The examiner, a lecturer in the Education Faculty at Walter Sisulu University, was appointed by the ABLE Project for the task of testing the sixteen children on the isiXhosa version of the WMLS.

⁴⁴ Mathematics (LoLT – isiXhosa), Natural Science (LoLT – isiXhosa), Social Science (LoLT – English), Arts and Culture (LoLT – English)

⁴⁵ A ceiling is reached when a subject responds incorrectly – scores „0” - on a consecutive six items in a subtest.

were presented in separate booklets (**Appendices D-G**). The RC instruments were employed in November 2009, i.e. at the end of the learners' 6th grade.

The researcher was, in administering the RC tests assisted by the isiXhosa-speaking school librarian. The purpose of the testing was clearly explained to the learners - to put them at ease so that their anxiety might not negatively affect their performance. They were seated individually and given instructions bilingually. The learners were, according to their teachers, familiar with multiple choice test formats. Providing instructions was thus relatively straightforward. The children were cautioned to read the texts carefully before answering the questions, to mark only one answer in each of the multiple choice options and to refer to the mark allocation when writing the answers to the questions requiring extended responses (i.e. as an indication of the detail to include). There was no time limit imposed.

All the participants answered both RC tests in both isiXhosa and English. The *Antarctica: Land of Ice* and *I-Antarctica: Ilizwe loMkhenkce* comprehensions were administered on the 17th November, while the *Searching for Food* and *Ukuphanda ngoKutya* tests were administered the following day.

The class was again divided into the two, approximately equal ability groupings previously described (Section 3.4.1 above). This time the order of administration was reversed so that those learners who in May 2009 had taken the English version of the WMLS (Woodcock-Muñoz Language Survey) before the isiXhosa version, were now required to read and respond to the isiXhosa version of RC Text 1 first. Similarly, the Grade 6s who had first answered the isiXhosa WMLS, began with the English passage, i.e. *Antarctica: Land of Ice*. Once each learner had completed the initial version of Text 1, they handed it to the researcher and received for completion, the same test but in the alternate language.

On the 18th of November the order of testing was, as a further counter-balancing measure, alternated again, so that those learners, who had on the previous day completed the RC Text 1 in isiXhosa first, were now required to begin by reading and responding to the English version of RC Text 2 before proceeding to the *Ukuphanda ngoKutya* text. Likewise, the children who were previously tested in the order English-isiXhosa (e-x) were now tested in the order isiXhosa-English (x-e). The table in **Appendix H** reflects the order of testing – for the WMLS and the two tests of RC - for each of the sixteen children.

The first learners⁴⁶ to complete both test versions of *Antarctica: Land of Ice* did so in less than an hour (45-50 minutes). The *Searching for Food* tests took comparatively longer to complete with the first-finishers⁴⁷ having submitted both their answer booklets after 50-60 minutes. Sos_19 was the last learner to complete the Text 1 RC tests. He completed the tests 30 minutes after the first-finishers. The slowest learners to complete the Text 2 RC tests were sos_21 and sos_24.

The researcher's observations of the learners as they read the texts and responded in writing to the questions, revealed that the majority did not read the text – whether in isiXhosa or in English - to gain a holistic understanding before proceeding to the questions. The common strategy appeared to be one of going backwards and forwards between the questions and the text. In other words, most children appeared to abandon the linear reading of the text by turning to the questions instead and then scanning the text for the appropriate, explicitly stated answers to each of the questions. A further interesting observation while administering the tests was that in spite of the order in which the language versions were administered, most learners seemed to spend a longer period of time interacting with the isiXhosa texts and questions. Sos_2 for example, was observed to rush the English *Searching for Food*, but then seemed to agonise over the isiXhosa, *Ukuphanda ngoKutya*. In the end this learner – although second to complete the RC Text 2 - scored „0“ on both language versions.

The librarian marked the isiXhosa answer booklets against the scoring guides which she herself had checked and where necessary re-translated and edited (as previously discussed in Section 3.3.2.3). The researcher scored the English RC test responses.

3.4.3 Questionnaire: SES; Exposure to Books & Perceptions of Reading

The questionnaire⁴⁸ was administered in July 2010, roughly seven months after the Reading Comprehension tests had been concluded. Only fifteen of the participants completed the questionnaire as sos_22 had transferred to another school at the end of 2009. The bilingual librarian at Sosebenza Community School administered the questionnaire. She interviewed each of the participants explaining the questions in isiXhosa where

⁴⁶ Order of Completion (Text 1): sos_20; sos_6; sos_2; sos_14; sos_8...

⁴⁷ Order of Completion (Text 2): sos_14; sos_2; sos_20; sos_3; sos_6...

⁴⁸ Refer to Section 3.3.3 above. The questionnaire was used to support the interpretation of the quantitative data in the study.

necessary and then writing the children's responses (usually given in isiXhosa) in English. As a long-standing staff member at the school, the librarian knew all the children fairly well and was to a large extent familiar with their home circumstances and of course, also their reading abilities and preferences. The children would, it was believed, be more likely to give honest, detailed responses (in isiXhosa) to the librarian than to the researcher.

3.5 DATA ANALYSIS

As has previously been outlined in this Chapter, the participant group was small in size and was furthermore, not homogenous. The group consisted of six subgroups (refer to Section 3.2.3 and **Table 1**). It is for these reasons important to emphasise firstly, that statistically-proven conclusions could not be drawn from the data and secondly, that the research is descriptive. The data analysis method may broadly be described as „descriptive statistics“ (Bernstein, et al., 2005, p. 7). However, while the study is exploratory and descriptive in nature, inferential methods (viz. regression analyses) have been employed to explore the relationships between the variables further. The researcher was assisted in this study by a psychometrist and the use of SPSS software (Statistical Package for the Social Sciences).

In order to answer the overarching research question⁴⁹, contributory research goals have been identified (refer to Section 1.5 of Chapter 1; Section 4.1 of Chapter 4). The instruments used to collect data related to each of the aims have already been discussed. The following is an explanation of the descriptive statistics used in the analysis of the data for each of the research goals:

3.5.1 Aim 1: Descriptions of Language Proficiency & Reading Comprehension

3.5.1.1 Language Proficiency (English compared with isiXhosa)

The raw scores (the number of correct responses) on the four Woodcock-Muñoz Language Survey (WMLS) subtests cannot be interpreted according to the guidelines contained in the *WMLS Comprehensive Manual* (Woodcock & Muñoz, 2001) as normalised standard scores⁵⁰ (norms) are not available for the South African population. For this reason, the WMLS scores have been transformed into „mean“ scores and „standard deviations“ so that

⁴⁹ What is the relative contribution made to children's reading comprehension in English AL by, on the one hand, their language proficiency in English, and on the other hand, their reading comprehension skills in isiXhosa?

⁵⁰ “The distributions of the scores have been made to conform to the normal curve” or “the curve of best fit” (Downie & Heath, 1974, p. 69, 77).

descriptive comparisons for the children's English Language Proficiency (ELP) abilities can be made across the six subgroups in the sample and relative to their performances on the isiXhosa version of the WMLS. The mean or "arithmetic average" is described as a measure of "central tendency" and is derived by adding together all the scores and dividing by the number of cases (Downie & Heath, 1974, p. 39). Standard deviation is a measure of "variability" or in simpler terms, an indication of how the scores are dispersed and the extent to which they differ from the mean (*ibid.*, p. 53). The higher the standard deviation the greater the distribution of scores and the more they differ from each other; the lower the variability the less the scores differ from each other (Bernstein et al., 2005, p. 62). The raw scores, mean scores and standard deviations are presented in table-format in Chapter 4 (Section 4.2) and inform the cross-group, comparative description.

3.5.1.2 Reading Comprehension (both isiXhosa and English)

Frequencies have been used to analyse the Reading Comprehension test scores. "A frequency distribution shows how many times each score occurs, and how many scores fall in certain intervals" (Bernstein, et al., 2005, p.97). Frequency is best illustrated by graphs and in the following, Analysis Chapter (Section 4.3), histograms have been used to make comparisons and demonstrate differences in relation to the four comprehension question types previously outlined (3.3.2.1 above).

3.5.2 Aim 2: Correlations between the variables

Correlation is defined as "a measure of relationship between two (quantitative) variables" (Downie & Heath, 1974, p. 82). In this study the participants' language proficiency scores and reading comprehension scores represent different variables. The correlations between English Language Proficiency (ELP) and English Reading Comprehension (ERC); and between ERC and isiXhosa Reading Comprehension (XRC) are evaluated. The correlation coefficient provides an indication of the strength of the relationship between the variables.

The Pearson product-moment correlation coefficient, called the „Pearson r “ is one technique – used in this analysis - which may be used to measure the relationship (linear dependence) between variables. A Pearson r measurement of greater than .50 is considered a high coefficient, demonstrating a strong relationship between the variables. An r of below .30 is indicative of a weak correlation. Downie and Heath (1974) caution however, that a high Pearson r does not necessarily reflect a relationship of *causality* between the two variables and that "a relationship may exist between two variables because both are

related to a third variable” (p. 97; Bernstein, et al., 2005, p. 83). Nonetheless, it is possible to test the significance of a Pearson r , viz. “to investigate the probability that the coefficient at hand is different from what would be expected to result by chance or if there were no relationship between the two variables” (Downie & Heath, 1974, p. 98). A two-tailed test of significance has been used to evaluate the coefficients in this study.

3.5.3 Aim 3: Predictive contribution of variables to English Reading Comprehension

Regression analysis is a statistical procedure that allows researchers to “predict scores on one variable from scores made on another” (Downie & Heath, 1974, p. 125). It is also possible, in a multiple regression analysis, to investigate the relationship between *more* than two variables and it is in this way that regression offers a more flexible method of data interpretation than does correlation analysis (limited to two variables).

In this particular study, directional assumptions have been made about the relationships between three variables, English Language Proficiency (ELP), isiXhosa Reading Comprehension (XRC) and English Reading Comprehension (ERC). Regression analyses were used to explore the extent to which each of the independent variables, ELP and XRC predicts the dependent variable, ERC. The scores on the English Social-Information text previously described (Section 3.3.2.4) is the dependent variable, while the isiXhosa version of the Procedural-Information test is the independent variable. It must be noted, that because of the small sample size, it was the total score for ELP – viz. the four subscale scores added together - which were used as the second independent variable.

Generally inferential statistics can be undertaken with at least 15 participants, and at least five participants per independent or predictor variable (Field, 2005). The requirement for sample size in regression analysis is more stringent, with researchers indicating $50 + 8k$ (where k is the number of variables). Sample size in multiple regression impacts on the likelihood of finding significant relationships where they do not really exist; larger sample sizes decreases the likelihood. In this particular study the decision was taken to explore possible predictive relationships. However, because of the small sample size the researcher realises that no final conclusions about these predictive relationships are possible and that the findings of the regression analysis can only be regarded as tentative, In simple terms, regression analysis involves finding a „line of best fit“ or a formula that best describes the relationship between the variables, i.e. the dependent variable regressed

against the independent variables on a graph. On the basis of this model it is possible to predict the values for the dependent variable from the independent variables. However, the model is rarely a perfect predictor as several of the actual or observed scores will not be the same as the predicted scores. The correlation coefficient (R), as reflected in the output tables in Chapter 4 (Section 4.5), is a measure of the correlation between the actual value and the predicted value of the dependent variable, ERC. R-square (R^2) is the square of the measure of correlation and indicates the proportion of the *variance* in ERC that can be accounted for by the independent variables, i.e. ELP and XRC. Brace, Kemp and Snelgar (n.d.) point out that the R^2 measure tends to overestimate the success of the model as a predictor and it is for this reason necessary to calculate an Adjusted R-square (R^2) value which includes the number of variables in the model and the number of participants (p. 209). The closer the Adjusted R^2 gets to 100% the more the variance of the dependent variable is explained by the independent variables – in this case, ELP and XRC. The error between the „line of best fit“ and the observed scores is referred to as the Standard Error of Estimate or residual. Essentially the Standard Error of Estimate is a measure of how much variability is not explained by the model. Downie & Heath (1974) express this relationship as follows: “When the size of the correlation coefficient is high, the size of the standard error of estimate is small (or there isn’t much variance from the regression line); conversely when the relationship between the two variables is low, the size of estimate is large” (p. 133).

The ANOVA (Analysis of Variance) test is similar to the regression technique in that it seeks to account for the variance in the scores observed, but in ANOVA “we are trying to see how much of the variance is accounted for by our manipulation of the independent variables (relative to the percentage of the variance we cannot account for)” (Brace et al., n.d., p. 207). Essentially ANOVA is a “simultaneous” test used to assess the success of the regression model in predicting the dependent variable. The statistical significance of the model is tested by the F-ratio. Where the p-value (probability value) is less than ($<$) 0.05 the model is significant and can indeed be used to predict the dependent variable for any value of the independent variable.

The Beta regression coefficient (see SPSS Coefficient output tables in Section 4.5 of Chapter 4) allows one to compare and assess the strength of the relationship between *each* predictor variable (ELP and XRC) and the dependent variable (ERC). The Beta is measured in units of standard deviation and the greater the Beta value, the greater the

impact of the particular independent variable on the dependent variable (Brace et al., n.d., pp. 208-9).

In an attempt to answer the research question pertaining to the comparative, predictive contribution of ELP and XRC to ERC, three regression analyses are explored in the chapter that follows. In the first analysis ERC is regressed against XRC and ELP in two different models – the one to determine the overall contribution of ELP and XRC to ERC; and the second, to ascertain the comparative contribution of XRC, considered separately. In the second regression analysis ERC is regressed against XRC and XVA (isiXhosa Verbal Analogies subtest) in order to determine whether it is reading in isiXhosa per se or a verbal reasoning ability in isiXhosa which has the greater influence in ERC. In previous studies, such as that of Pretorius and Mampuru (2007) reviewed in Section 2.5.5 of Chapter 2, it was shown that the direction of the transfer in reading comprehension may sometimes be from the second language (L2) to the first language (L1) rather than in the more usual, opposite direction i.e. L1 to L2. In order to confirm the direction of the transfer in this study, the results of a third regression analysis in which XRC is regressed against ERC and XLP (the scores of the four subtests added together) are presented.

3.6 ETHICAL PROCEDURES

This study is, as has been discussed in Chapter 1, situated within the larger ABLE (Additive Bilingual Language Education) project. Department of Education consent for the phasing-in of a model of additive bilingual education together with the establishment of a longitudinal research project at the school, was obtained from the Cradock district office in 2001⁵¹. In addition, members of the research team met with the Sosebenza parent community in 2001 to describe the model of additive bilingual education envisaged for the school, together with the rationale and intended outcomes of both the model and the research. Parents provided written consent for their children to participate in the ABLE project. Apart from classroom-based support for teachers, fairly regular meetings have over the years been held between the research team and the Sosebenza teaching staff – meetings through which teachers and researchers have kept abreast of developments related to the implementation of the model and about the findings arising from the research.

⁵¹ A copy of the original letter of consent has unfortunately been lost by the ABLE Project.

Six of the learners in the 2009 Grade 6 class were not part of the 2003 ABLE research cohort (refer to Section 3.2) and their (parents') consent for them to participate in a research project had prior to this study not been obtained. A decision was then taken to gain or confirm the consent of all the Grade 6 parents, the children themselves and their teachers for the purposes of this research. The information sheets and the forms included in **Appendices I** (English) and **J** (isiXhosa) were circulated (in bilingual format), signed and returned.

The anonymity of the children and the educators has been protected in the research. However, the name of the school, „Sosebenza Community School“ is already in the public domain. The school has evidently been recognised as an Eastern Cape Department of Education „flagship“ school - as a consequence of its home-language based bilingual language policy. An attempt at disguising the identity of the school seems therefore, rather futile (refer to Section 1.4 in Chapter 1).

3.7 LIMITATIONS

The greatest limitation of this research lies in the sample size. The small number of participants means that the quantitative data cannot be used to prove a theory or answer a question conclusively. The statistics can only be used descriptively while the regression analysis results must be interpreted with caution.

In Chapter 4 the data collected, using the research instruments described in this chapter, is presented and then analysed using the descriptive statistics outlined in Section 3.5 above. In the final chapter, the data presented is discussed

CHAPTER 4: ANALYSIS

4.1 INTRODUCTION

The overarching goal of the research is to determine the relative contribution made to Grade 6 children's reading comprehension skills in English Additional Language by on the one hand, their language proficiency in English and on the other hand, their reading comprehension skills in isiXhosa.

In order to address the research goal, three subsidiary aims have been identified and the data in this chapter is presented according to this framework, viz.:

(4.2) Aim 1A

Describe the learners' performances on tests of **Language Proficiency**:

4.2.1 English Language Proficiency; and

4.2.2 English Language Proficiency relative to IsiXhosa Language Proficiency

(4.3) Aim 1B

Describe the learners' performances on tests of **Reading Comprehension**:

4.3.1 Social-Information Text: English and isiXhosa

4.3.2 Procedural-Information Text: English and isiXhosa

[4.3.3 Describe learners' Reading Perceptions and Attitudes]

(4.4) Aim 2

Examine the **correlations** between:

4.4.1 English Language Proficiency and English Reading Comprehension;

4.4.2 English Reading Comprehension and IsiXhosa Reading Comprehension

(4.5) Aim 3

Explore the **predictive contribution** of English Language Proficiency and isiXhosa Reading Comprehension to English Reading Comprehension

4.2 AIM 1A - LANGUAGE PROFICIENCY

The Woodcock-Muñoz Language Survey (WMLS), consisting of four subtests, was the instrument used to assess the learners' language proficiency in both English and isiXhosa. It was pointed out in Chapter 3 (Section 3.3.1.1), that although substantial work has been done, both on the adaptation into isiXhosa and the adaptation of the English form of the

WMLS for the South African population, there are as yet no norms available for the test. It is therefore the raw scores that are presented and discussed in this study.

Although the study is most concerned with the effects of English Language Proficiency on Grade 6 learners' reading comprehension in English Additional Language; the results of the isiXhosa WMLS offer a tool by which to examine the learners' *relative* proficiency in each of the four language subtests.

The sixteen participants' individual scores on the two versions of the four WMLS subtests are reflected in **Appendix K**.

4.2.1 *English Language Proficiency*

4.2.1.1. Whole Class

Table 6: *Whole Class English Language Proficiency*

WMLS Subtests	Number Participants	Max Score Possible	Range		Mean	Standard Deviation
			Minimum Score	Maximum Score		
EPV ⁵² Total	16	58	13	31	22.00	4.243
EVA ⁵³ Total	16	35	2	17	8.44	4.335
ELWI ⁵⁴ Total	16	57	22	46	35.19	7.850
EDICT ⁵⁵ Total	16	56	11	24	17.75	3.838

The English Language Proficiency (ELP) scores for the class of sixteen Grade 6 children are tabulated above. A comparison of the mean scores on the subtests relative to the maximum score possible for each, reflects that as a class, the children performed best on the Letter Word Identification (ELWI) test, although the standard deviation (the comparative variance in the „distance“ from the mean score for individual learners) for this particular test is substantially higher than on the other three tests. In other words, while some learners performed poorly on the test, at around the 40% mark, others performed relatively well (the highest score being 80%) thereby raising the overall mean score to 35.19 or 61.7%.

⁵² English Picture Vocabulary subtest

⁵³ English Verbal Analogies subtest

⁵⁴ English Letter Word Identification subtest

⁵⁵ English Dictation subtest

The Verbal Analogies (EVA) subtest, with a mean of only 8.44, proved to be the most challenging of the four tests for the sixteen children. The scores ranged from a mere 11.8% to a poor 48.6%.

The statistics present rather differently when the scores of the ten learners who have been at the school since Grade 1 in 2004 (and have therefore as a group shared similar experiences of additive bilingual education – outlined in Section 1.4 of Chapter 1) are compared with the *Whole Class* – as per **Table 7** below.

4.2.1.2 Together from Grade 1

Table 7: *English Language Proficiency Comparison: Whole Class & Together from Grade 1*

WMLS Subtests	Max Score Possible	<i>Whole Class</i>			<i>Together from Grade 1</i>		
		No.	Mean	Standard Deviation	No.	Mean	Standard Deviation
EPV Total	58	16	22.00	4.243	10	23.80	3.584
EVA Total	35	16	8.44	4.335	10	10.30	4.029
ELWI Total	57	16	35.19	7.850	10	38.90	5.934
EDICT Total	56	16	17.75	3.838	10	19.60	3.169

When the mean scores of the ten learners are compared to those of the class as a whole, it is evident that the *Together from Grade 1* group performed better than the *Whole Class* on all counts. This may suggest that it is the remaining six learners who have a negative effect on the *Whole Class* scores. The top scorers in the class are all part of the *Together from Grade 1* group. Sos_15 scored the highest mark in three of the four tests while sos_14 achieved the top mark of 46 points (or 80.7%) on the Letter Word Identification (ELWI) test (**Appendix K**). Comparable to the pattern which emerged for the *Whole Class*, the scores on the Verbal Analogies (EVA) subtest remain the lowest for this group and the ELWI performances remain the best. Interestingly, the mean score on the ELWI subtest increased by the greatest margin when compared with the *Whole Class* group, once again suggesting that it is the learners in the other subgroups who performed particularly poorly on this test.

4.2.1.3 New in Grade 2

Sos_22 (*New in Grade 2*) achieved the lowest score in the class on the English Letter Word Identification (ELWI) test viz. 38.6% (**Appendix K**). Significant too, is that her result for the English Picture Vocabulary (EPV) subtest was the lowest in the class – she scored 13 points out of a total possible score of 58 (i.e. 22.41%) on this test. With scores on the Verbal Analogies (EVA) and Dictation (EDICT) subtests below the comparative mean scores of both the *Whole Class* and *Together from Grade 1* groups, it is apparent that the *New in Grade 2* child's overall English Language Proficiency (ELP) is poorer than the majority of her peers. The *New in Grade 2* learner had had at least 4 years in which to catch up to the ELP of her peers in the *Together from Grade 1* group. The fact that she did not, suggests that either this learner had particular learning difficulties, or perhaps that the pedagogical support she received was less than favourable.

4.2.1.4 New in Grade 6

The comparison between the English Language Proficiency (ELP) performances of the *Together from Grade 1* group and the *New in Grade 6* learners, as represented in **Table 8** below (see also **Appendix K**), is particularly interesting. Prior to the start of the Grade 6 year, the two groups had had notably different language-in-education experiences. The *New in Grade 6* learners transferred from schools where isiXhosa had been the Language of Learning and Teaching (LoLT) to the end of Grade 3 and English was introduced as a subject (restricted to oracy) in Grade 2. At the start of their Grade 4 year these children, albeit at two different schools, would have experienced a transition to English as the *official* LoLT. In practice though and as has been documented by Fleisch (2008) and Probyn et al. (2002), isiXhosa is likely to have been the *unofficial* LoLT. In other words, classroom interaction is likely to have been characterised by isiXhosa-dominant code switching practices, with English limited mainly to its written form in textbooks and tests. The consequences of this common practice and its implications for learners' ELP have been discussed in both Chapter 1 (Section 1.2.3.2) and Chapter 5 (Section 5.2.1). Suffice it here to show that the *Together from Grade 1* children who had experienced an additive mode of curriculum delivery (as described in Section 1.4 of Chapter 1) outperformed the *New in Grade 6* learners on the test of ELP.

Table 8: *English Language Proficiency Comparison: Together from Grade 1 & New in Grade 6*

		<i>Together from Grade 1</i>			<i>New in Grade 6</i>		
WMLS Subtests	Max Score Possible	No.	Mean	Standard Deviation	No.	Mean	Standard Deviation
EPV Total	58	10	23.80	3.584	2	18.50	2.121
EVA Total	35	10	10.30	4.029	2	3.00	1.414
ELWI Total	57	10	38.90	5.934	2	36.00	8.485
EDICT Total	56	10	19.60	3.169	2	17.50	.707

The mean scores for the *New in Grade 6* learners on all the subtests are lower than the corresponding mean scores for the *Together from Grade 1* group, but the most significant difference is on the Verbal Analogies (EVA) subtest. The mean score of the two new girls is 7.30 points lower than that of their ten peers in the additive bilingual group. This suggests that the *New in Grade 6* learners’ verbal reasoning abilities in English are seriously limited. Indeed, sos_27 (refer **Appendix K**) scored only 2 points on the latter test – the lowest score in the class.

4.2.1.5 Pilot Repeaters & Numerous Repeaters

The results of the two learners, sos_21 and sos_25, who were originally part of the ABLE (Additive Bilingual Language Education) Project’s Pilot group (referred to in Section 3.2.1 of Chapter 3.), but who failed in their Grade 4 and 5 year respectively, are presented by drawing comparisons with the *Together from Grade 1* scores in Table 9. The scores for sos_23, a 15 year old boy who had failed several grades prior to repeating Grade 4 in 2007 (when the 2003-cohort caught up with him), are tabulated alongside the *Whole Class* data in Table 10 below.

Table 9: *English Language Proficiency Comparison: Together from Grade 1 & Pilot Repeaters*

		<i>Together from Grade 1</i>			<i>Pilot Repeaters</i>		
WMLS Subtests	Max Score Possible	No.	Mean	Standard Deviation	No.	Mean	Standard Deviation
EPV Total	58	10	23.80	3.584	2	22.00	2.828
EVA Total	35	10	10.30	4.029	2	8.50	2.121
ELWI Total	57	10	38.90	5.934	2	27.50	.707
EDICT Total	56	10	19.60	3.169	2	13.00	1.414

Table 10: *English Language Proficiency Comparison: Whole Class & Numerous Repeaters*

WMLS Subtests	Max Score Possible	<i>Whole Class</i>			<i>Numerous Repeaters</i>		
		No.	Mean	Standard Deviation	No.	Mean	Standard Deviation
EPV Total	58	16	22.00	4.243	1	20.00	.
EVA Total	35	16	8.44	4.335	1	6.00	.
ELWI Total	57	16	35.19	7.850	1	25.00	.
EDICT Total	56	16	17.75	3.838	1	11.00	.

In terms of oral language ability (Picture Vocabulary and Verbal Analogies subtests), the performances of the learners who became part of the group as a result of having failed one or more grades (*Pilot Repeaters* and *Numerous Repeaters*), are more or less on par with the *Whole Class* – the mean scores are similar. Indeed, the mean scores of the *Pilot Repeaters* are not much below those of the *Together from Grade 1* group on the two tests.

However, while the oral language abilities of the *Pilot Repeaters* are in keeping with the class averages, their scores on the Reading and Writing subtests (Letter Word Identification and Dictation) are significantly lower than the *Together from Grade 1* mean scores. Essentially, the findings suggest that while the two boys are as familiar with English vocabulary items and as able, in terms of verbal reasoning ability, as the *Together from Grade 1* group, their literacy skills are lagging. Sos_23 (*Numerous Repeaters*) has the lowest score in the class for the Dictation (EDICT) subtest.

4.2.2 English Language Proficiency relative to isiXhosa Language Proficiency

The tables presented in this subsection offer a comparison between the isiXhosa Woodcock-Muñoz Language Survey (WMLS) data and the English equivalents on the four subtests. The first table below compares the sets of results for the *Whole Class* group.

4.2.2.1 Whole Class

Table 11: *Relative Language Proficiency - English & isiXhosa: Whole Class*

WMLS Subtests	Max Score Possible	<i>Whole Class_ English</i>			<i>Whole Class_ isiXhosa</i>		
		No.	Mean	Standard Deviation	No.	Mean	Standard Deviation
PV Total	58	16	22.00	4.243	16	31.81	5.624
VA Total	35	16	8.44	4.335	16	21.50	3.162
LWI Total	57	16	35.19	7.850	16	48.56	5.762
DICT Total	56	16	17.75	3.838	16	31.44	7.908
LP TOTAL	206	16	83.38	17.473	16	133.31	17.385

The total mean score for the Grade 6 class“ isiXhosa Language Proficiency (XLP) is 133.31 – about 50 points more than the learners” total mean (i.e. 83.38) on the English version of the same tests. The children performed substantially better in isiXhosa on all of the subtests. The most marked difference though is on the Verbal Analogies (VA) subtest: the learners performed on average, two and a half times better in isiXhosa than on the equivalent, English verbal reasoning test. The standard deviation for the isiXhosa VA is also smaller than for the English VA, indicating that there is less variability in the individual scores.

4.2.2.2 Together from Grade 1

The comparative English and isiXhosa WMLS (Woodcock-Muñoz Language Survey) results of the children, who since Grade 1 have experienced a similar mode of isiXhosa-based additive bilingual curriculum delivery, are tabled below.

Table 12: *Relative Language Proficiency - English & isiXhosa: Together from Grade 1*

WMLS Subtests	Max Score Possible	<i>Together from Grade 1 _ English</i>			<i>Together from Grade 1_ isiXhosa</i>		
		No.	Mean	Standard Deviation	No.	Mean	Standard Deviation
PV Total	58	10	23.80	3.584	10	32.80	5.903
VA Total	35	10	10.30	4.029	10	23.00	1.414
LWI Total	57	10	38.90	5.934	10	51.20	3.225
DICT Total	56	10	19.60	3.169	10	34.60	6.004
			92.60			141.60	

When compared with the total mean scores of the *Whole Class*, the *Together from Grade 1* group's mean scores are once again higher. Interestingly, 49 points marks the distance between the English and isiXhosa total mean scores for the *Together from Grade 1* learners – a difference almost identical to the *Whole Class* group (50 points) described on the previous page.

As with the English WMLS data, the top performing learner on the isiXhosa subtests is again part of this *Together from Grade 1* group, i.e. sos_15 (refer to **Appendix K**).

4.2.2.3 Pilot Repeaters

The *Together from Grade 1* group outperformed the *Pilot Repeaters* on all but one of the isiXhosa subtests: the *Pilot Repeaters* have a higher mean score for the isiXhosa Picture Vocabulary (XPV) test, albeit the difference small and not tested for significance (compare the isiXhosa subtest scores in Tables 12 & 13). With a score of 35.50, the *Pilot Repeaters* are the best performing group on this XPV test. This finding represents a slight deviation from the pattern which emerged when the various subgroups' scores were compared on the English versions of the WMLS subtests.

Table 13: Relative Language Proficiency - English & isiXhosa: Pilot Repeaters

		<i>Pilot Repeaters _ English</i>			<i>Pilot Repeaters_ isiXhosa</i>		
WMLS Subtests	Max Score Possible	No.	Mean	Standard Deviation	No.	Mean	Standard Deviation
PV Total	58	2	22.00	2.828	2	35.50	2.121
VA Total	35	2	8.50	2.121	2	18.50	4.950
LWI Total	57	2	27.50	.707	2	40.00	2.828
DICT Total	56	2	13.00	1.414	2	24.00	1.414
			71.00			118.00	

Apart from their results on the XPV subtest, the two *Pilot Repeaters*' scores are below the class average on the remaining three isiXhosa tests. Indeed, sos_21's score of 15 is the lowest in the class for the XVA subtest, while sos_25 has the lowest score on the Letter Word Identification (LWI) test. The *Pilot Repeaters*' comparatively weak scores on the literacy-oriented subtests is a similar pattern to that which emerged out of the English test results for this group.

4.2.2.4 Numerous Repeaters & New in Grade 2

There is nothing particularly noteworthy about both the *Numerous Repeaters* and the *New in Grade 2* isiXhosa Woodcock-Muñoz Language Survey (WMLS) scores. The scores for both groups reflect an improvement on their respective marks for the equivalent English subtests (refer **Appendix K**). The isiXhosa results for these children were also the poorest in the class and well below the *Whole Class* mean scores. In fact, Sos-23’s score for XPV was the lowest in the class.

4.2.2.5 New in Grade 6

The *New in Grade 6* group’s scores on the isiXhosa version of the Woodcock-Muñoz Language Survey (WMLS) are noteworthy. Although the isiXhosa scores for all the subgroups on all the WMLS subtests were better than the equivalent English scores, the differences were greatest for the *New in Grade 6* learners as reflected on Table 14 below. The total mean score of 136.00 represents a 61.00 point improvement on the equivalent total in English. In fact sos_27, one of the *New in Grade 6* children and the lowest scorer on the EVA English Verbal Analogies (EVA) subtest, attained the second highest score on the isiXhosa equivalent. She scored 25 points in isiXhosa, but only 2 points in English (refer **Appendix K**).

Table 14: Relative Language Proficiency - English & isiXhosa: New in Grade 6

WMLS Subtests	Max Score Possible	<i>New in Grade 6_ English</i>			<i>New in Grade 6_ isiXhosa</i>		
		No.	Mean	Standard Deviation	No.	Mean	Standard Deviation
EPV Total	58	2	18.50	2.121	2	29.50	4.950
EVA Total	35	2	3.00	1.414	2	21.50	4.950
ELWI Total	57	2	36.00	8.485	2	50.50	9.192
EDICT Total	56	16	17.50	.707	2	34.50	10.607
			75.00			136.00	

4.3 AIM 1B - READING COMPREHENSION: COMPARISON OF ENGLISH & ISIXHOSA SCORES

Comparison across the six subgroups of participants was possible for the Language Proficiency data generated by the Woodcock-Muñoz Language Survey (WMLS) and described in the previous section of this chapter. A similar cross-group comparison is

however not useful for the Reading Comprehension (RC) data presented below. The small number of participants (and the relatively small number of test items in the RC tests) is restrictive. It is for this reason of greater value to consider the English Reading Comprehension (ERC) scores relative to the isiXhosa Reading Comprehension (XRC) scores for the *Whole Class*; and then to compare performances across the four categories of RC questions, as outlined in Chapter 3 (Sections 3.3.2.1 & 3.3.2.5). Reference is also made, in the presentation below to individual participant scores on the two RC tests. The individual, itemised results are therefore included in **Appendices L** and **N**.

4.3.1 Social-Information Text: English and isiXhosa

The first of the PIRLS RC instruments to be administered was the passage described in Chapter 3 (Sections 3.3.2.2 – 3.3.2.5) as the Social-Information (Soc-Info) text and entitled *Antarctica: Land of Ice / I-Antarctica: Ilizwe loMkhenkce* (**Appendices D & E**).

Table 15: Total Scores - Social-Information Text: English & isiXhosa

	No. Participants	No. of Questions	Max. Score Possible	Range		Mean	Standard Deviation
				Min. Score	Max. Score		
English Soc-Info	16	11	16	1	10	5.25	2.817
IsiXhosa Soc-Info	16	11	16	0	10	5.31	2.750

Table 15 above indicates that the difference between the total mean scores for the sixteen participants on *Antarctica: Land of Ice* and on the isiXhosa, *I-Antarctica: Ilizwe loMkhenkce*, is marginal. This suggests that the Grade 6 learners' reading comprehension abilities in English (Additional Language) and isiXhosa (Home Language) are similar.

4.3.1.1 Individual Performances

Sos_6, sos_15, sos_19 and sos_20 were the top scorers on the English version of the text. Sos_3, Sos_6, sos_15 and sos_19 achieved over 50% on the isiXhosa version of the Soc-Info text. Interestingly, sos_20 performed better on *Antarctica: Land of Ice*, while sos_3 achieved more correct responses on *I-Antarctica: Ilizwe loMkhenkce*. In both these cases the learners achieved greater success on the version of the test they responded to first, English and isiXhosa respectively. The five children referred to above are participants in the *Together from Grade 1* group. However, Sos_26 is also in the *Together from Grade 1*

group, but this boy attained no correct answers at all on the isiXhosa version of the Soc-Info text. He scored only 2 on the English test, viz. the RC passage he attempted first (**Appendix L**).⁵⁶

The two RC scores for Sos_24, a girl in the *New in Grade 6* group, reflect the greatest margin of difference (4 marks) when compared with the other participants whose scores were much closer together for the two versions. Sos_24 scored 2 (12.5%) for her English answers, but attained 6 (37.5%) for her isiXhosa responses. She took the isiXhosa comprehension test before the English one.

Three learners achieved exactly the same result for both versions of the test; eight children performed best on the language version they tackled first (for four of them it was the isiXhosa test and for the other half, the English equivalent) and; five children did better on the second test they answered (three of them scored a higher mark on the isiXhosa than on the English and for the remaining two, the reverse applied).

4.3.1.2 Question Types & Categories

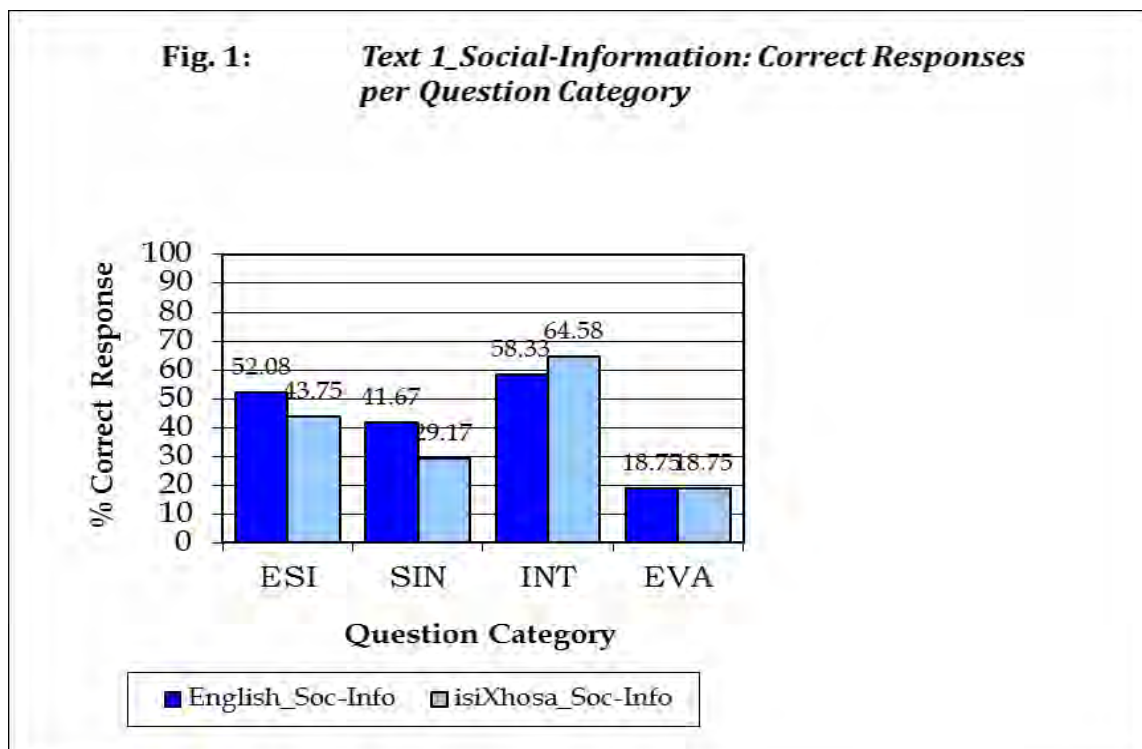
The table included in **Appendix M** indicates that the question construct – viz. whether of the multiple choice (MC) or constructed response (CR) type – did not appear to be an important predictor of correct responses. In other words, the questions most successfully answered were of both the MC and the CR types. In this test, 36.36% of the questions were of the MC variety and 63.64% matched the CR label.

It is curious – because it is unexpected - that the highest number of correct responses was recorded for questions in the category, *Interpret and Integrate Ideas and Information* (INT) – this both for *Antarctica: Land of Ice* and *I-Antarctica: Ilizwe loMkhenkce*. Questions in the category, *Examine and Evaluate Content, Language and Textual Elements/ Structure* (EVAL) proved to be the most challenging for the learners, both in response to the English questions and the isiXhosa. The frequency of correct responses across the four question categories is represented on the graph below (Fig. 1).

It is relevant to note that while the total number of correct responses recorded for English is greater than for the isiXhosa test (79 compared to 72), the total score recorded for the

⁵⁶ Sos_26's individual scores on the four Language Proficiency subtests (both language versions) are, apart from his PV scores, lower than the mean scores of the *Together from Grade 1* group. The ELWI and EDICT scores are respectively, 9.9 and 4.6 points lower than the *Together from Grade 1* mean scores. Sos_26's score on XDICT is 6.6 points lower than the *Together from Grade 1* mean.

isiXhosa Soc-Info text is more than that recorded for the English (85 compared to 84). This is due to the fact that some answers are weighted more heavily than others, as is indicated on the table in **Appendix M**. Partially correct responses were thus recorded as „correct responses“ on the graph below.



4.3.2 Procedural-Information Text: English and isiXhosa

The total *Whole Class* scores for the English and isiXhosa versions of the Procedural-Information (Proc-Info) test are presented in Table 16 below. It is immediately apparent from the low mean scores, that the Grade 6 learners' performance on the *Searching for Food* and *UkuPhanda ngoKutya* texts was poorer than their achievements on the previously-presented, Social-Information (Soc-Info) Reading Comprehension (RC) test. There was a 16.63% decline in the total mean score for the English RC, while the mean score for the isiXhosa Proc-Info test was 13.72% lower than the mean score for the equivalent Soc-Info test. In addition, the margin of difference between the mean scores for the English and the isiXhosa versions was greater for the Proc-Info instrument than it was for the Soc-Info test. The total scores for RC Text 1 reflect a 0.06 point difference (0.38%) between the mean scores on the two versions. For RC Text 2 there is a 0.56 (3.29%) mean score discrepancy between the English and the isiXhosa, with the group having performed slightly better on the *UkuPhanda ngoKutya* test than on the English equivalent.

Table 16: Total Scores - Procedural-Information Text: English & isiXhosa

	No. Participants	No. of Questions	Max Score Possible	Range		Mean	Standard Deviation
				Minimum Score	Maximum Score		
English Proc-Info	16	15	17	0	7	2.75	2.082
isiXhosa Proc-Info	16	15	17	0	8	3.31	2.089

4.3.2.1 Individual Performances

Whereas there were six learners who attained a score greater than 50% on the *Antarctica: Land of Ice/ Ilizwe loMkhenkce* test, there was not a single score of 50% on the second RC test. Sos_15 achieved the highest score of 47.06% on the *UkuPhanda ngoKutya* passage, while sos_6 and sos_20 each attained 46.67% for their answers to the *Searching for Food* text. Once again, the best performers are in the *Together from Grade 1* group but in this instance, so too are the weakest learners: sos_2 had no correct responses on either language version of the Proc-Info test⁵⁷ and sos_26 scored „0“ on the English test and „1“ for his isiXhosa answers (refer **Appendix N**).

Three participants attained equivalent scores on the two language versions of RC Text 2; eight children performed better on *UkuPhanda ngoKutya* than on *Searching for Food* (half answered the isiXhosa questions first and the other four started with the English RC questions) and; five achieved a better result on the Text 2, English RC (three tackled the isiXhosa questions first while the English version was administered to the other two children first).

4.3.2.2 Question Types & Categories

In contrast to the Social-Information text (Soc-Info), **Appendix O** reflects that for the Procedural-Information text (Proc-Info) the type of question, whether of the Multiple Choice (MC) sort or the Constructed Response (CR) variety, does appear to have a bearing on the number of correct responses attained. Inspection of the data for *Searching for Food* and *UkuPhanda ngoKutya* reflects that the questions answered most successfully across all of the four question categories depicted in Fig. 2 below, were MC-type questions (46.67% of the questions in this particular RC test). Further, it is interesting to observe that for the

⁵⁷ Sos_2 scored 31.25% and 25% on the English and isiXhosa versions of the Soc-Info RC test respectively. His Language Proficiency results on the four WMLS subtests, and in both languages, compare favourably with the mean scores for the *Together from Grade 1* group (apart from the EPV and the XPV tests in which his scores were below the group average).

questions numbered 11 and 12 in the RC Text 2 – both CR-type questions – no learners scored any points at all. A sample of the answers learners wrote in response to Question 12⁵⁸ (*Searching for Food* – **Appendix F**) is here provided to illustrate the difficulties they experienced.

Five learners⁵⁹ quoted directly from the text despite the fact that the question did not call for information explicitly stated. In some cases the learners quoted from a completely irrelevant section of the text - for example, sos_23 responded: “Find an ants nest you will need also the following material”.

Three learners⁶⁰ wrote fairly well-constructed answers, but their responses indicated that they had misinterpreted the question and the directive / instructional nature of the text – for example, sos_14 wrote “because the pill bugs they can be hot and sleep better” and sos_15 wrote “To help pill bugs find food”.

Sos_3, sos_12, sos_19 and sos_22 responded in more or less grammatical form, but their answers were nonsensical for example, “because give you energy and ants” and “to call the pill bugs and the ants to catch them”, indicating a complete breakdown in comprehension.

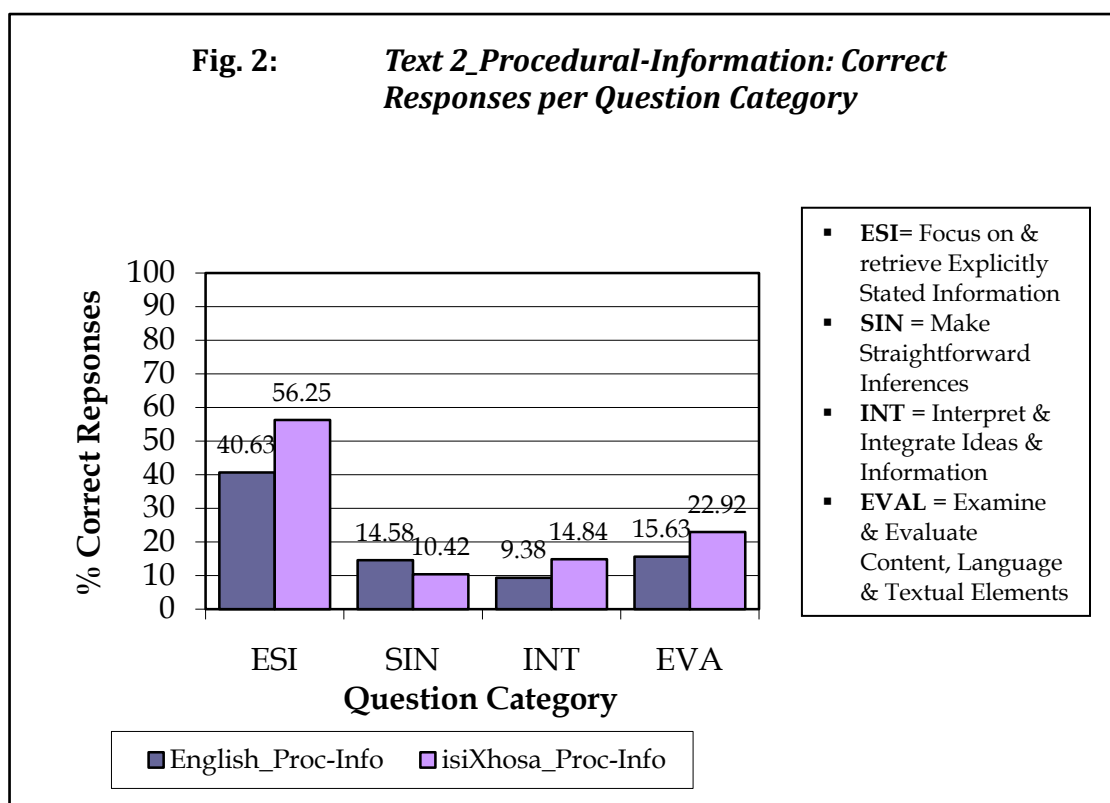
A further three of the participants⁶¹ produced strings of random words (no syntactical rules observed) in response to the question, such as “you put the shoebox and food want to have a house needs food and house of animals”. Finally, sos_21’s “ty want tychr” was only recognisable as complete gibberish.

⁵⁸ Question # 12: Explain why it is important to put layers of soil and sand in the bottle.

⁵⁹ sos_6; sos_8; sos_23; sos_24; sos_27

⁶⁰ sos_14; sos_15; sos_20

⁶¹ Sos_2; sos_25; sos_26



The graph above illustrates that for both language versions of the Proc-Info text, questions in the category, *Focus on and Retrieve Explicitly Stated Information*, were answered most successfully. The other question categories proved too challenging for the participants with the smallest number of correct responses in English recorded for the *Interpret and Integrate Ideas and Information* category – precisely the questions which generated the most correct responses in the Soc-Info Text 1 (both English and isiXhosa). The most challenging category of questions for learners to answer in isiXhosa was in the *Make Straightforward Inferences* category.

4.3.3 Learners' Reading Perceptions & Attitudes

In the discussion about learners' reading performances in Chapter 5, it will be useful to consider their perceptions about and attitudes toward reading. This data was collected using the questionnaire described in Section 3.3.3 of Chapter 3.

Three learners admitted to not enjoying reading. Sos_14 said "I don't have time to read". Sos_21 did not like reading because he said, "I struggle to read some words" and Sos_23 stated, "I get bored when I read".

The remaining 12 Grade 6s all agreed that they liked reading primarily “because by reading you learn lots of things” (sos_2).

Sos_19, sos_21, sos_24 and sos_25 did not perceive of themselves as good readers. The reasons given were similar to that of sos_24: “because when I read I struggle with some other words”.

The majority of the *Whole Class* group thought they were good at reading and provided reasons such as, “my teacher always asks me to read in class” (sos_2); “when I read I don’t make mistakes” (sos_8) and; “when there are competitions at school my teachers always choose me to represent the school” (sos_15).

Eight children of the 15 who completed the questionnaire, preferred to read in isiXhosa, primarily for the reasons stated by sos_21 and sos_25 respectively: “when I read isiXhosa I read fluently” and “because I want to know and understand what I read”.

The four readers who preferred to read in English stated reasons similar to sos_20 viz., “English can put me anywhere in the world”; and sos_12 who said, “it makes me learn more English words and makes my English better”. Sos_19 preferred to read in Afrikaans and sos_3 and sos_6 stated that they liked reading in both English and isiXhosa.

4.4 AIM 2: CORRELATIONS BETWEEN THE VARIABLES

The preceding sections of this chapter have provided descriptive data for the different variables in this study, viz. the Grade 6 learners’ English Language Proficiency (ELP), their isiXhosa Language Proficiency (XLP), their English Reading Comprehension (ERC) abilities and the learners’ isiXhosa Reading Comprehension (XRC) performances. Moreover, the Language Proficiency data consists of learners’ scores on four different subtests; and there are two sets of data for Reading Comprehension (in both English and isiXhosa).

In the sections that follow, the nature of the relationships which exist between the variables is described. It must be reiterated that while the descriptive data allowed for comparisons across participant subgroups, the correlational statistics on the other hand, limited by the small number of participants, did not. Although correlations of different participant subgroups was not possible, correlations across different assessment tasks was possible. In

order to measure the relationships between the variables using the Pearson *r* test, the sixteen participants were treated as a homogenous group (despite the recognition of significant in-group differences, particularly in terms of the children’s differing experiences and exposure to forms of additive bilingual education).

The correlations reflected in **Table 17** below are discussed in the subsequent Sections 4.4.1 and 4.4.2.

Table 17: Correlation Coefficients

	ERC_Text 1_Soc-Info		ERC_Text 2_Proc-Info	
	Pearson Correlation	Sig. (2-tailed)	Pearson Correlation	Sig. (2-tailed)
EPV	.68	.004*	.23	.383
EVA	.78	.000**	.31	.245
ELWI	.69	.003*	.31	.238
EDICT	.77	.000**	.42	.108
XRC_Text 1_Soc-Info	.77	.000**	.48	.060
XRC_Text 2_Proc-Info	.63	.009*	.72	.002*

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

4.4.1 English Language Proficiency & English Reading Comprehension

A coefficient measurement greater than .50 demonstrates a strong relationship between two variables (Downie & Heath, 1974). In the Correlation Coefficients table above (**Table 17**) it is apparent that there are strong correlations between the learners’ English Language Proficiency (ELP) results (all the Woodcock-Muñoz Language Survey – WMLS - subtests) and their English Reading Comprehension scores on the Social-Information text, *Antarctica: Land of Ice* (labelled ERC_Text 1_Soc-Info). Further, the four ELP variables are **significantly** correlated with the ERC_Text 1. This suggests that the more proficient learners were in English, or the better they performed on the English WMLS subtests, the better they performed in English reading comprehension.

It is striking though that there are no correlations whatsoever, between any of the English Language Proficiency (ELP) subtests and the Procedural-Information test, *Searching for Food* (labelled ERC_Text 2_Proc-Info). A possible, contributing factor relates to the restricted range in participant responses (**Appendices L & O**). While the number of correct responses for ERC_Text 1 varied from 1 to 10 (maximum possible score =16), the range

for the ERC_Text 2 responses was more restricted: the lowest score was 0 and the highest 7 (maximum possible score =17). The relatively restricted range for ERC_Proc-Info may have deflated the correlation values and the lower than .50 *r*-values may therefore not be perfectly accurate.

A second argument to account for the lack of correlation between ELP and the ERC_Text 2 scores, relates to the genre of the text itself. The structure and language features of the multi-modal, scientific information text were arguably so unfamiliar to the learners, that their ELP skills had limited value in supporting their interpretations of the text. This is discussed in Section 5.3.2 of Chapter 5.

4.4.2 English Reading Comprehension & isiXhosa Reading Comprehension

With a correlation of .77, the relationship between the English and isiXhosa versions of *Antarctica: Land of Ice* (ERC_Text 1 and XRC_Text 1) is highly significant at the 0.01 level – refer to the Correlation Coefficients Table 17 above. The correlation between the two language versions of *Searching for Food* (ERC_Text 2 and XRC_Text 2) is also significant (.72), although slightly less so (at the 0.05 level) than the relationship between the two versions of Text 1.

The high *r* value for the correlations between the different language versions of the same RC test confirms that the children's scores on ERC_Text 1 and XRC_Text 1 co-varied; also co-varying were their scores on ERC_Text 2 and XRC_Text 2. In other words, as the scores increased on the one test, they increased on the other. This correlation may arguably be the result of a carry-over effect between the two versions of each test, but as this possibility was controlled for with a counterbalancing technique, it should be discounted as the main contributing factor (refer to Section 3.3.2.2 in Chapter 3).

While there was some correlation between the scores on XRC_Text 2 and ERC_Text 1 (*r* = .63; *p* = .009) the relationship between XRC_Text 1 and ERC_Text 2 was weak. This suggests that in ERC_Text 2 in particular, isiXhosa reading was not a significant factor.

4.5 AIM 3: PREDICTIVE CONTRIBUTION OF ENGLISH LANGUAGE PROFICIENCY & ISIXHOSA READING COMPREHENSION ON ENGLISH READING COMPREHENSION

In this study, the ERC_Text 1 (Social-Information) was used as the dependent variable, while the XRC_Text 2 (Procedural-Information) was the independent variable (refer to 3.3.2.2). A series of regression analyses were run on the data to determine whether (or the extent to which) it is general proficiency in English or the reading ability in the home language, isiXhosa, that has the greatest influence on the Grade 6 learners' reading comprehension abilities in the additional language, English.

4.5.1 Regression Analysis # 1: English Reading Comprehension against English Language Proficiency & isiXhosa Reading Comprehension

In the first analysis the dependent variable (or outcome variable), English Reading Comprehension (ERC_Text 1) was regressed against the independent variables, isiXhosa Reading Comprehension (XRC_Text 2) and English Language Proficiency (combining the scores on the four Woodcock-Muñoz Language Survey subtests) according to two different models, as summarised in **Table 18** below.

Table 18: Regression Analysis #1- Model Summary

Model	R	R Square (R ²)	Adjusted R ²	Std. Error of the Estimate
A	.632	.399	.356	2.260
B	.865	.748	.710	1.518

In Model A, ERC_Text 1 was regressed against only one of the independent variables, viz. XRC_Text 2. In Model B the dependent variable was regressed against two independent variables, i.e. XRC_Text 2 (Proc-Info) and the total scores for English Language Proficiency (ELP)⁶².

The R² value in Model A suggests that XRC_Text 2 accounts for about 40% of the variance in ERC_Text 1. This suggests that isiXhosa reading comprehension is a **fairly** important factor in English reading comprehension; the Analysis of Variance table below (Table 19) reflects that Model A is statistically significant (probability value smaller than 0.05) in predicting ERC_Soc-Info.

⁶² The scores of the four Woodcock-Muñoz Language Survey subtests added together.

The R^2 value in Model B suggests that when the two independent variables are considered together, close to 75% of the variance in the dependent variable, ERC_Text 1, is explained. In fact, and as is reflected on the Beta Coefficients table below (Table 20), XRC as a factor becomes insignificant in Model B. In other words, when both variables are included, ELP is the most significant predictor of ERC_Text 1.

Table 19: Regression Analysis # 1 – Analysis of Variance (ANOVA)

Model		Sum of Squares	df	Mean Square	F	Sig.
A	Regression	47.497	1	47.497	9.300	.009
	Residual	71.503	14	5.107		
	Total	119.000	15			
B	Regression	89.048	2	44.524	19.325	.000
	Residual	29.952	13	2.304		
	Total	119.000	15			

Table 20: Regression Analysis # 1 – Beta Coefficients

Model		Un-standardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
A	(Constant)	2.428	1.084		2.239	.042
	XRC_Text 2_Proc-Info	.852	.279	.632	3.050	.009
B	(Constant)	-5.307	1.962		-2.705	.018
	XRC_Text 2_Proc-Info	.344	.222	.255	1.548	.146
	ELP_WMLS	.113	.027	.701	4.247	.001

4.5.2 Correlation: English Language Proficiency & isiXhosa Reading Comprehension

The first regression analysis, presented above, demonstrates that isiXhosa Reading Comprehension (XRC_Text 2) was a significant factor in learners' English Reading Comprehension (ERC) – but only when considered separately from English Language Proficiency (ELP). In order to account for this finding, which suggests that XRC and ELP are related, the two independent variables were correlated using the Pearson r technique.

Table 21 below reflects that the two variables, XRC_Test 2 and ELP, are correlated at .54 and that this relationship is significant. This means that the two variables share an underlying construct of some sort (perhaps general language ability) and it this „common

ground“ which partially explains why it is that XRC_Text 2 became „invisible“ when combined with ELP to predict the variance in the dependent, ERC_Text 1 variable.

Table 21: Correlation Coefficients

	XRC_2_Proc-Info	
	Pearson Correlation	Sig. (2-tailed)
XRC_Text 2_Proc-Info	1	
ELP_Total	.537*	.032

*. Correlation is significant at the 0.05 level (2-tailed).

4.5.3 Regression Analysis # 2: English Reading Comprehension against isiXhosa Reading Comprehension & isiXhosa Verbal Reasoning

A second regression analysis was used on the data to determine what the influence of isiXhosa reading and language proficiency (specifically: Verbal Analogies subtest) on English reading comprehension might be. Model A once again represents the regression of the dependent variable, English Reading Comprehension Text 1 (ERC_Text 1) against the independent variable, isiXhosa Reading Comprehension (XRC_Text 2). In Model B, the dependent variable was regressed against the results of two variables: the isiXhosa Woodcock-Muñoz Language Survey, Verbal Analogies subtest (XVA) and the XRC_Text 2.

Table 22: Regression Analysis # 2- Model Summary

Model	R	R Square (R ²)	Adjusted R ²	Std. Error of the Estimate
A	.632	.399	.356	2.260
B	.770	.593	.531	1.929

The R² value indicates that Model B explains about 60% of the variance in ERC_Text 1. The ANOVA output below (Table 23) indicates that both Model A and Model B were significant in the outcome variable, ERC_Text 1. From Tables 23 and Table 24 below it is evident that in this analysis, XRC_Text 2 was important in predicting ERC_Text 1, but especially when it was considered in combination with XVA (as in Model B).

Table 23: Regression Analysis # 2 – Analysis of Variance (ANOVA)

Model		Sum of Squares	df	Mean Square	F	Sig.
A	Regression	47.497	1	47.497	9.300	.009
	Residual	71.503	14	5.107		
	Total	119.000	15			
B	Regression	70.613	2	35.306	9.486	.003
	Residual	48.387	13	3.722		
	Total	119.000	15			

Table 24: Regression Analysis # 2 – Beta Coefficients

Model		Un-standardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
A	(Constant)	2.428	1.084		2.239	.042
	XRC_Text 2_Proc-Info	.852	.279	.632	3.050	.009
B	(Constant)	-5.789	3.425		-1.690	.115
	XRC_Text 2_Proc-Info	.680	.248	.504	2.740	.017
	XVA Total	.409	.164	.459	2.492	.027

Regression Analysis # 2 enables the conclusion that isiXhosa factors (verbal reasoning and reading comprehension) are important in English reading comprehension even though the model in which these factors are considered accounts for less variance in ERC_Text 1 than does English Language Proficiency (as observed in Regression Analysis #1 above).

4.5.4 Regression Analysis # 3: isiXhosa Reading Comprehension against English Reading Comprehension and isiXhosa Language Proficiency

The aim of the third regression analysis was to test whether English reading comprehension abilities (ERC_Text 2) had a predictive relationship with reading comprehension in isiXhosa (XRC_Text 1). Model A in this analysis represents the regression of XRC_Text 1 as the dependent variable against ERC_Text 2 as the independent variable. In Model B the independent variables are ERC_Text 2 and XLP.

Table 25: Regression Analysis # 3- Model Summary

Model	R	R Square (R ²)	Adjusted R ²	Std. Error of the Estimate
A	.480	.231	.176	2.497
B	.573	.328	.225	2.421

The R² values in Table 25 indicate that Model A only accounts for 23% of the variance in XRC_Text 1, while Model B can only explain 33% of the variance. According to the Analysis of Variance results tabled below (Table 26), neither Model A nor Model B offers a significant explanation for the variance in isiXhosa reading comprehension.

Table 26: Regression Analysis # 3 – Analysis of Variance (ANOVA)

Model		Sum of Squares	df	Mean Square	F	Sig.
A	Regression	26.178	1	26.178	4.200	.060
	Residual	87.260	14	6.233		
	Total	113.438	15			
B	Regression	37.225	2	18.612	3.175	.075
	Residual	76.213	13	5.863		
	Total	113.438	15			

Table 27: Regression Analysis # 3 – Beta Coefficients

Model		Un-standardised Coefficients		Standardised Coefficients		
		B	Std. Error	Beta	t	Sig.
A	(Constant)	3.567	1.056		3.379	.004
	ERC_Text 2_Proc-Info	.635	.310	.480	2.049	.060
B	(Constant)	-2.917	4.834		-.604	.557
	ERC_Text 2_Proc-Info	.552	.306	.417	1.800	.095
	XLP Total	.050	.037	.318	1.373	.193

4.6 SUMMARY

It has in this chapter been shown that the sixteen Grade 6 children's isiXhosa Language Proficiency (XLP) far exceeded their English Language Proficiency (ELP) with the greatest difference being apparent on the Verbal Analogies (VA) subtest. The mean percentage for the English VA test was 24.11% compared to 61.43% on the isiXhosa equivalent. On both the ELP and XLP subtests, the *Together from Grade 1* group of learners (with one exception – isiXhosa Picture Vocabulary) performed best.

The participants' reading comprehension scores in both English and isiXhosa were more or less equally poor on both the Social-Information (Soc-Info) and Procedural-Information (Proc-Info) tests. The Proc-Info text, viz. *Searching for Food* proved to be the most challenging in both languages. The strongest readers in both English and isiXhosa were part of the *Together from Grade 1* group, but so too were the weakest readers. Learners were, for the text *Antarctica Land of Ice* (RC_Text 1) able to answer questions in the process category, *Interpret and Integrate Ideas and Information* (INT), most successfully, both in English and isiXhosa. The comprehension process most successfully attended to, in both language versions, in the *Searching for Food* (RC_Text 2) text was *Focus on and Retrieve Explicitly Stated Information* (ESI).

Having established learners' Language Proficiency and Reading Comprehension scores, correlational statistics were then used to determine the relationships between the variables, specifically ELP and English Reading Comprehension (ERC); and between English Reading Comprehension (ERC) and isiXhosa Reading Comprehension (XRC). It was found that the four subtests of ELP each correlated significantly with the ERC_Text 1. This alluded to the important role of ELP in reading in this context. (Possible reasons for the lack of correlation between the four ELP subtests and ERC_Text 2 were offered).

The ERC_Text_1 data correlated with the XRC_Text 1 data; and the ERC_Text 2 results were significantly related to the XRC_Text 2 scores. The correlation may well have been the result of a carryover between the two language versions of the same test (though this effect was controlled for) and it would have been difficult to make a claim for the influence of XRC in ERC on this basis. What these correlations did confirm however, is that when learners performed poorly on one language version of a test, they performed, by the same token, poorly on the other version.

Having established that the variables of interest in this study were significantly related, the third subsection of the chapter, viz. a series of regression analyses was presented to ascertain which of the variables, ELP or XRC has the greatest influence on ERC. It was shown that when English RC_Text 1, the dependent variable, was regressed against the independent variables, ELP and XRC_Text 2, 75% of the variance in ERC was explained. While it was evident from this particular regression model that ELP was the most important predictor of ERC, the role of XRC could not be ignored. Indeed in the second regression analysis it was shown that XRC_Text 2 and XLP (in particular, verbal reasoning

abilities) do predict 60% of the variance in ERC. Through the final regression analysis it was shown that ERC did not contribute to XRC in this context.

The data presented in this chapter and the recommendations arising out of these findings will be discussed in the following chapter.

CHAPTER 5: DISCUSSION

5.1 INTRODUCTION

In this chapter the findings of the study are discussed according to the three aims (outlined in Section 1.5 of Chapter 1; Section 4.1 of Chapter 4) of the research and with reference to the literature introduced and reviewed in earlier chapters. The data presented in Chapter 4 is discussed in an effort to answer the overarching research question:

What is the relative contribution made to children's reading comprehension in English Additional Language (EAL) by, on the one hand, their language proficiency in English, and on the other hand, their reading comprehension skills in the home language (HL), isiXhosa?

The chapter is concluded with the key lessons and recommendations which have emerged from the research. The study is small and so the conclusions reached cannot be generalised to other contexts, but it is nonetheless hoped that the lessons learned will be useful in the development of the home language based bilingual education (HLbBE) curriculum at Sosebenza Community School and also at other schools across the Eastern Cape where isiXhosa-English models of additive bilingual education are being piloted.

5.2 AIM 1A - ENGLISH LANGUAGE PROFICIENCY (RELATIVE TO ISIXHOSA LANGUAGE PROFICIENCY)

It is evident from the results of the Woodcock-Muñoz Language Survey (WMLS) that the isiXhosa Language Proficiency (XLP) of all the participants was substantively better (by 50 points) than their English Language Proficiency (ELP). This is of course to be expected in a context where isiXhosa was the home language (HL), the *lingua franca* in the community and the primary Language of Learning and Teaching (LoLT). Moreover, it is in comparisons of the subtest-data, across the participant subgroups and between the two languages that curiosities emerge. These points of interest are discussed below.

5.2.1 General English Language Proficiency (ELP)

The subgroup with the best overall ELP were the *Together from Grade 1* learners, or those who had been exposed to an additive bilingual model of education for six years. These learners, in Sosebenza Community School's model of additive bilingual education

(described in Section 1.4 of Chapter 1) benefitted from initial, oral English input provided by native English-speaking teachers. They had in addition, benefitted from small class sizes⁶³ and had had access to a well-resourced school library⁶⁴.

The *Together from Grade 1* group outperformed the *New in Grade 6* learners who were not likely to have benefitted from access to a similar „English language infrastructure“ in the first five years of their schooling (Fleisch, 2008).

Moreover, the *New in Grade 6* children would have experienced an „early-exit transitional model“ of bilingual education (Heugh, 2006). The failings of Eastern Cape classrooms in the latter regard has been documented by Probyn et al. (2002) and previously explained in Chapter 1, viz. that classroom realities are often in conflict with school language policies. Those that purport to provide for more time-on-task in English are, as a consequence of amongst others, extensive, unsystematic code-switching and generally poor pedagogical practices, not succeeding (refer to Section 1.2.3.2 of Chapter 1). It is therefore not especially surprising that the children *New in Grade 6* were not as English-proficient as their home language based bilingual education (HLbBE) counterparts, despite the fact that they had transferred to Sosebenza Community School from schools where English was the official Language of Learning and Teaching (LoLT).

An unexpected finding is that the *New in Grade 6* learners, particularly sos_27 (refer **Appendix K**) scored remarkably well on the isiXhosa WMLS (Woodcock-Munoz Language Survey) - 61 points higher than on the English version and certainly as well as the *Together from Grade 1* group. It is difficult to account for how a learner (sos_27) who transferred from an English-as-LoLT school had strongly developed verbal reasoning abilities in her home language (HL), but such poor abilities in the language in which she had previously been expected to learn and be assessed. It would surely have been expected, in keeping with the findings of Probyn et al., that learners who have experienced a sudden shift to English as the LoLT in Grade 4 are likely not to develop good language skills (and associated thinking abilities) in either the HL or the additional language (AL) (2002, p. 106). The explanations for this finding are thus at best, speculative: perhaps sos_27 was fortunate enough to have had a solid isiXhosa Foundation Phase grounding, but followed regrettably, by poor English AL instruction and support.

⁶³ A maximum of 20 learners in the class from 2003 through 2009 (See **Appendix A**).

⁶⁴ Refer to Footnote 5 (Chapter 1).

5.2.2 Picture Vocabulary (PV)

It is striking that while the *Pilot Repeaters* achieved amongst the lowest scores on the English Letter Word Identification (ELWI) and English Dictation (EDICT) WMLS (Woodcock-Muñoz Language Survey) subtests, the group performed notably better on the subtests with an oral dimension, including the English Verbal Analogies test but particularly the PV test. The *Pilot Repeaters*' mean score for the English PV (EPV) was comparable to the mean scores for the *Whole Class* and the *Together from Grade 1* groups and well above the scores of the *New in Grade 6* group. A possible explanation for this finding might be that these learners had spent an additional year benefitting from oral English exposure in the classroom and had therefore learnt a greater number of English words.

A similar finding is evident from the *Pilot Repeaters*' scores on the isiXhosa version of the WMLS subtests viz., that these learners' oracy skills were better developed than their text-based skills. In fact on the isiXhosa PV test, the *Pilot Repeaters* attained the highest mean score when compared to the other subgroups. This finding might be explained by the fact that these learners had spent an additional year (compared to the *Together from Grade 1* group) immersed in an additive bilingual context where teachers had actively sought to develop content-specific terminology in isiXhosa. Their vocabulary for academic purposes was thus better developed.

5.2.3 Verbal Analogies (VA)

A verbal reasoning ability is critical for learning. Performances on the English VA (EVA) test show that this proved to be the most challenging of the four subtests for all the subgroups. This surely does not bode well for learning subject-specific content and concepts through the medium of English. Of interest, is the fact that the *New in Grade 6* learners who had transferred from schools where English was the official LoLT (Language of Learning and Teaching) were, with a mean score of just 3.00, the worst performing group compared to the other subgroups on the EVA subtest. The dismal English verbal reasoning abilities suggest that these two children were not succeeding academically in their previous English-as-LoLT schools⁶⁵.

In contrast to the dismal EVA scores, the Xhosa VA (XVA) scores were, compared to the results of the other subtests, the second highest for the *Whole Class*. The vast difference

⁶⁵ This supposition could not be substantiated as the two learners' Grade 5 academic records were not available.

between the EVA (an average score of 24.1%) and the XVA (an average score of 61.4%) indicates that the Grade 6's Cognitive Academic Language Proficiency (CALP)⁶⁶ was better developed in isiXhosa than it was in English. This result is expected, not only because the home language of the learners is isiXhosa, but also because the majority of the class had since Grade 1 experienced isiXhosa as the dominant Language of Learning and Teaching (LoLT).

5.2.4 Letter Word Identification (LWI)

The *Whole Class* performed best on the LWI subtest in both the English and isiXhosa versions. Decoding, or the ability to recognise letters and words and to automatically make the phoneme-grapheme connections, is a critical, bottom-up skill in interactive reading models and is of vital importance in successful reading comprehension (Carrell, 1988a; Grabe, 1988; Eskey, 1988)⁶⁷.

Four learners - the *Pilot Repeaters*, *Numerous Repeaters* and *New in Grade 2* subgroups - scored below the *Whole Class* mean score on both the English LWI (ELWI) and the isiXhosa LWI (XLWI) tests. This suggests that decoding challenges would be an obstacle to the reading comprehension skills of these learners, particularly in English as an Additional Language (EAL).

However, this is not to say that those learners who performed well on the LWI subtests (particularly in the *Together from Grade 1* group) would necessarily be better readers, as there is of course a lot more to reading comprehension – in terms of top-down skills and processes - than purely decoding (refer to Section 2.2 of Chapter 2). It is interesting to note, from the questionnaire (**Appendix B**) which was administered, that the majority of learners perceived of LWI/ decoding to be **the** measure of successful reading and that comprehension featured less significantly (Section 4.3.3 of Chapter 4).

5.2.5 Dictation (DICT)

The scores on the DICT subtests of the WMLS suggest that learners had difficulties in naming and producing text conventions such as letter forms, spelling forms and punctuation. The DICT scores – on both the English and isiXhosa versions - were amongst the lowest for all the learners. The very low scores on the Letter Word Identification (LWI)

⁶⁶ Refer to Section 2.3.1 of Chapter 2 for an explanation of the CALP construct.

⁶⁷ Refer to Section 2.2 of Chapter 2

and DICT tests for the *Pilot Repeaters* and *Numerous Repeaters* suggest that it was their poor literacy skills in both English and isiXhosa that had previously been obstacles to their academic progress at school.

5.2.6 English Language Proficiency: Conclusions

Although the large distance between the English and isiXhosa Woodcock-Muñoz Language Survey (WMLS) scores is to be expected - as has previously been discussed (Section 5.2 above) – it is not satisfactory in a context where a full transition to English as the Language of Learning and Teaching (LoLT) would be made at the start of the following, Grade 7 year. The comparative scores on the verbal analogies subtest in particular, suggest that the 2009 Grade 6 learners were better equipped to learn and read in isiXhosa than they were in English. I would argue that even in this late-exit additive bilingual context, the provision of English input had not been optimal and that “6 years of L2 learning [would] not be enough to facilitate successful transition to L2 medium instruction” (Heugh, 2006, p. 61). It is pertinent to note the relative improvement in the English oracy skills of those learners (*Pilot Repeaters*) who had spent an additional year within the additive bilingual mode of curriculum delivery.

A further conclusion to be reached on the basis of the discussion on the WMLS data – although ever mindful of the limited sample size on which the inference is based – is that the isiXhosa-based additive bilingual learning framework at Sosebenza Community School was apparently more conducive to the development of cognitive academic language proficiency (CALP – refer to Section 2.3.1) **in English** than was the purportedly English-only environment of many Eastern Cape rural and township schools.

The poor reading comprehension skills (discussed in 5.3 below) could not have been predicted on the basis of the comparatively good LWI (Letter Word Identification) scores, demonstrating again that there is more to reading than decoding only. The poor DICT (Dictation) scores are in my view further evidence in the argument (refer Section 5.3.2) that learners had not had adequate experience with texts and were therefore unfamiliar with many of the text and spelling conventions they were required to produce in this subtest.

5.3 AIM 1B - READING COMPREHENSION: ENGLISH & ISIXHOSA

The majority of Grade 6 learners recognised the sole purpose for reading as providing access to information (refer to Section 4.3.3 in Chapter 4). One learner referred to the language learning benefits associated with extensive reading, but there was no indication that the social purpose of reading was part of their consciousness. The reading comprehension assessments in this study were in keeping with the reading purpose the Grade 6 learners identified with, viz. reading for information. Of interest was that the learners were observed to have adopted a particular strategy for answering the questions: referring to each question and then scanning the text back and forth, for the relevant information (Section 3.4.2 of Chapter 3). However, the learners' scores on the reading comprehension assessments – discussed below – indicate that this strategy was not sufficient or successful for these learners. This observation was also considered to be indicative of a text-bound perception of reading, in other words that the meaning of the text was in the words themselves (Carrell, 1988a).

The learners' scores on the English and isiXhosa versions of the Social-Information (Soc-Info) reading comprehension test 1 (RC_Text 1), *Antarctica: Land of Ice/ I-Antartica: Ilizwe loMkhenkce*, were approximately equivalent. Equivalence of ability is probably to be desired in a bilingual context, but with only four learners scoring 50% and above on both the English and isiXhosa versions of the Soc-Info text, it is indicative of very poor reading comprehension abilities in two languages (and perhaps further confirmation of the findings of the SACMEQ III study in which 64.4% of Grade 6s in the Eastern Cape could not read for meaning⁶⁸). It is immediately interesting that the marked difference between the English Language Proficiency (ELP) and isiXhosa Language proficiency (XLP) of the Grade 6s did not transfer to their reading comprehension. In other words, stronger XLP did not result in improved reading comprehension in this language, proving that there is more to reading than language proficiency (Pretorius, 2002; Section 1.2.3.1 of Chapter 1).

The correlations between English reading comprehension and ELP are discussed in Section 5.4 below. Additional, contributing factors to account for the poor reading comprehension in both English and isiXhosa are here considered:

⁶⁸ Refer to Section 1.2.2.2 of Chapter 1

5.3.1 Exposure to Books

In the *PIRLS 2006 International Report*, Mullis et al. report that the presence of (children's) books in the home showed a strong positive relationship with reading achievement (2007, p. 5). It has already been shown that the Grade 6 children in this study had very few books in their homes (Table 2 in Chapter 3), but that they were nevertheless fortunate to have had access to a well-stocked school library (Section 1.4 in Chapter 1). Based on the unconvincing answers learners provided regarding the number of books they had read (January-July 2010), their limited familiarity with titles of the books in the library (No. 11, **Appendix B**) and the researcher's observations of limited reading behaviours when visiting the school on different occasions; it is argued that regardless of the availability of books, learners' exposure to books and opportunities for extensive reading, was inadequate.

5.3.2 Engagement with Text

It is acknowledged that the majority of the 720 isiXhosa non-fiction/ reference books in the library were primarily appropriate for Foundation Phase learners/ beginner readers and were therefore inadequate to promote Grade 6 children's engagement with information texts in isiXhosa. There were however textbooks available in isiXhosa for Intermediate Phase learners at Sosebenza Community School. The Natural Science teacher for example, had the option of two different isiXhosa textbooks⁶⁹ on which to base her lessons.

A member of the ABLE (Additive Bilingual Language Education) team (refer to Section 1.4 of Chapter 1), whose research interest at Sosebenza Community School had been the development of Scientific isiXhosa terminology, and the development of bilingual teaching strategies in the subject, observed numerous Science lessons in the Grade 6 class during the course of 2009. She confirmed that during those lessons she never observed learners engaging with texts of any description at all – learners were not required to read information texts and apart from copying notes off the chalkboard, were not required to produce written isiXhosa texts. This lack of engagement with information texts was irrespective of the fact that there were isiXhosa Science textbooks available at the school (C. Foli, personal communication, November, 2011).

⁶⁹ IsiXhosa textbooks were not commercially available. However, two South African textbook publishing houses requested that Sosebenza Community School pilot the use of Intermediate Phase isiXhosa textbooks.

5.3.3 Genre

The Grade 6 scores on the Procedural-Information (Proc-Info) reading comprehension test 2 (RC_Text 2), *Searching for Food/ UkuPhanda ngoKutya*, were even worse than their performances on RC_Text 1 – 16.63% lower than the English version of *Antarctica: Land of Ice* and 13.72% lower than the isiXhosa RC_Text 1, *I-Antartica: Ilizwe loMkhenkce*. This finding suggests that learners found the RC_Text 2 more difficult to read than the RC_Text 1, perhaps because the Procedural-Information genre-type was less familiar, for the reasons reflected in Section 5.3.2 above. Learners were arguably more acquainted with the Social-Information text type, with features similar to the narrative genre commonly found in English Additional Language textbooks and lessons (Section 2.3.2 of Chapter 2; Section 3.3.2.4 of Chapter 3).

A second reason that the RC_Text 2 was more difficult to comprehend, was given in Chapter 3 (Section 3.3.2.5), viz. that with 66.67% of the questions testing the ESI⁷⁰ and SIN⁷¹ reading comprehension processes (compared to only 45.45% in RC_Text 1), it is likely that learners were especially challenged by the second RC test.

5.3.4 Pedagogy

A further argument to be made as an explanation for the poor reading comprehension results in this study is a pedagogical one. Peregoy and Boyle (2000) are amongst the writers who advocate that *instruction* is central in effective reading comprehension. In other words, the organisational and language features of different expository genres ought to be explicitly taught (Chapter 2). Hazelrigg (2008) states that the teaching of reading comprehension strategies is critical for reading to learn. She explains these strategies as consisting of metacognitive strategies (self-monitoring and evaluating); cognitive strategies (the manipulation of the text, through either mental or physical processes e.g. using pre-existing schemata to predict possible meaning); and social/ affective strategies (involving social actions that facilitate learning). Readers need to have a variety of strategies at their disposal so that they may select appropriate strategies to the reading task at hand (Hazelrigg, 2008, pp. 7-9).

Given the very poor reading comprehension abilities, it is doubtful whether reading instruction - in either English or isiXhosa - in the Sosebenza Community School context,

⁷⁰ Interpret and Integrate Ideas and Information

⁷¹ Examine and Evaluate Content, Language and Textual Elements

extended to genres and reading comprehension strategies. Learners had a „text-bound“ view of reading insofar as good reading was equated with good decoding abilities (Section 4.3.3 of Chapter 4). This perception of reading is likely to have been influenced by the classroom pedagogies to which they were exposed.

A small sample of the kinds of answers learners wrote for the Constructed Response-type questions was presented in Chapter 4 (Section 4.3.2.2). In my view these responses are indicative of learners“ text bound view of reading, the paucity of relevant comprehension strategies and in several cases the learners“ poor English language proficiency. Those instances where learners quoted directly from the text (even when the question did not call for information explicitly stated) might be construed as evidence of their view that „the meaning is in the text“ or alternatively, of the argument that the readers did not have the lexical and syntactic resources at their disposal to enable them to write their own responses (Carrell, 1988a).

5.3.5 Reading Comprehension: Conclusions

The study has shown that the 2009 Grade 6 learners at Sosebenza Community School were generally poor readers in both English Additional Language (EAL) and isiXhosa Home Language (HL). They were unable to read with any real success, two reading comprehension passages which were originally used as part of the PIRLS 2006 with younger children (Section 3.3.2.2 of Chapter 3). Various factors which account for the ineffective reading comprehension have been discussed viz. limited opportunities for reading practice in general, but particularly with information text- types; lack of familiarity with the organisational and textual features of information genres, especially the „scientific“ genre common in the subject of Natural Science; and finally, poor reading strategy instruction. The latter deduction was made on the basis of learners“ stated, narrow views of what reading is and following an analysis of the constructed responses which learners provided in response to the comprehension questions in the two tests.

5.4 AIM 2 - CORRELATIONS: ENGLISH READING COMPREHENSION & ENGLISH LANGUAGE PROFICIENCY; ENGLISH READING COMPREHENSION & ISIXHOSA READING COMPREHENSION

In Chapter 4 (Section 4.4) it was shown that there were significant correlations (varying from medium to strong) between English Reading Comprehension and each of the English Language Proficiency (ELP) subtests on the one hand; and between English Reading Comprehension and isiXhosa Reading Comprehension on the other. It was demonstrated therefore that both ELP and reading in the home language (HL) were factors in the meaningful reading of Grade 6 learners in English Additional Language (EAL). The factors were co-varied suggesting that the better the learners' English language abilities, the better their reading; and the better their reading in isiXhosa the better their comprehension in EAL.

An interdependence between L1 (first language or HL) and L2 (second language or EAL) reading was evident in the correlational statistics (Cummins, 2000; Section 2.4.2 of Chapter 2). However, the relative importance of ELP and HL reading in EAL reading could only be determined through regression analyses, the findings of which are discussed below.

5.5 AIM 3 - PREDICTIVE CONTRIBUTION: ENGLISH LANGUAGE PROFICIENCY & ISIXHOSA READING COMPREHENSION

In the first regression analysis English Language Proficiency (ELP) and isiXhosa Reading Comprehension (XRC) together accounted for 75% of the variance in English Reading Comprehension (ERC). Although XRC was shown to be a significant factor, ELP proved to be the most important factor for ERC in the Sosebenza Community School context. In other words, transfer potential between isiXhosa HL/ L1 (home language/ first language) and EAL/ L2 (English Additional Language/ second language) - or an underlying interdependence - was evident, but the possibilities of transfer were short circuited by the generally poor English language abilities of the learners (Bernhardt & Kamil, 1995). This then is the explanation for why it was that XRC became „invisible“ when combined with ELP in a regression model to predict the variance in ERC (Section 4.5.1 of Chapter 4). In the third regression analysis presented in Chapter 4 it was shown that transfer potential in this context was not in the direction of the L2 (English) to the L1 (isiXhosa) as was the

case in the Pretorius and Mampuru (2007) study (Section 2.5.5 of Chapter 2)⁷², but instead from the L1 to the L2.

The findings for this study, conducted in a rural South African context where English is not a majority language, corroborate the findings of studies conducted in other contexts around the world (reviewed in Section 2.5 of Chapter 2) and usually with older language learners, viz. that successful L2 reading is a consequence of both ELP and L1 reading. Although L1 reading was consistently found to be an important predictor of L2 reading, L2 knowledge emerged as a more important predictor than L1 reading in all the studies reviewed.

The relatively large variance (compared to the case studies reviewed) accounted for by ELP and XRC in this research were to be expected, according to Carrell (1991), for learners with lower language proficiency levels. The children in this study were younger than the participants in the studies reviewed in Chapter 2 and in this more or less „foreign“ language context, the learners also had less exposure to English. The lower proficiency levels were therefore to be expected.

5.6 CONCLUSIONS & RECOMMENDATIONS

The findings of this research – similar to that of the Williams (1996)⁷³ study - suggest that the 2009 Grade 6 learners at Sosebenza Community School were not equipped – in terms of reading and language proficiency - to make the transition to English as sole Language of Learning and Teaching (LoLT) in Grade 7. Even if the learners“L1 reading skills had been better developed, chances are that transfer to the L2 would have been short-circuited by the poor English language skills (Williams, 1996).

The first recommendation then, for the development of the Sosebenza model of home language based bilingual education (HLbBE), is that isiXhosa be maintained as partial LoLT for longer, perhaps to the end of the Senior Phase (Grade 9), when learners would have had more opportunity to develop cognitive academic language proficiency (CALP) in English.

Given the fact that language proficiency is a key component of reading and given the learners“relatively strong isiXhosa Language Proficiency (compared to their English

⁷² In this study, Northern Sotho was not maintained at Language of Learning and Teaching (LoLT) beyond Grade 3 and learners had more exposure to English texts.

⁷³ Reviewed in Chapter 2, Section 2.5.4

Language Proficiency) in this context, it would be advisable that a more focussed effort be made in future, to develop initial information literacy in the home language (isiXhosa), for as Bernhardt (2003) reiterates , “a strong first-language base enables a second-language reader to understand the parameters of literacy as well as the strategies, thereby unburdening the process substantially” (p. 114).

Although the specific comprehension difficulties of learners would need to be assessed holistically (including for example evaluations of decoding skills and vocabulary knowledge) so that effective interventions might be planned (Spear-Swerling, 2006; Section 2.2.1 of Chapter 2), it is clear that explicit reading strategy instruction in isiXhosa is urgently required for the learners in the Sosebenza’s model of HLbBE. The reading instruction would in addition, need to include a focus on expository text structure as discussed in Section 5.3.3 above and as argued by Peregoy and Boyle (2000). Cummins (2000) points out that even when L1 literacy is well-developed, transfer to the L2 does not happen automatically and that learners must simultaneously have ample opportunity to read and write in the L2.

While a tentative claim was earlier made (Section 5.2.6) that the model of HLbBE at Sosebenza Community School is more supportive of the development of ELP than early-exit models of bilingualism, it is evident that in order to support the transfer of reading skills from the L1 to the L2, all aspects of English competence will need to be more systematically developed, perhaps using the “sheltering strategies” advocated by Peregoy and Boyle (2000) and briefly outlined in Section 2.6 of Chapter 2. Once learners are able to read effectively in English, then positive outcomes for the development of their language abilities will surely follow.

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APPENDICES

APPENDIX A: Status of 2003 Cohort

	Gender	Date of Birth	Age (Nov'09)	2003 R	2004 1	2005 2	2006 3	2007 4	2008 5	2009 6
sos_1	F	1997/10/24	12						Left	
sos_2	F	1997/10/20	12							
sos_3	F	1997/03/15	12.5							
sos_4	F	1997/09/28	12				Failed			
sos_5	F	1997/06/04	12.5				Left			
sos_6	F	1997/02/15	13							
sos_7	M	1996/05/23	13.5					Failed		
sos_8	M	1996/10/08	13							
sos_9	F	1997/05/25	12.5				Left			
sos_10	M	1997/12/20	12			Failed				
sos_11	F	1997/05/10	12.5			Failed				
sos_12	M	1997/05/25	12.5							
sos_13	M	1997/10/03	12				Failed			
sos_14	M	1997/10/30	12							
sos_15	M	1997/10/22	12							
sos_16	M	1997/08/24	12			Left				
sos_17	M	1997/08/04	12					Failed		
sos_18	F	1997/01/26	13			Failed				
sos_19	M	1994/08/25	15							
sos_20	M	1996/07/24	13.5							
sos_21	M	1995/11/12	14					Repeat		
sos_22	F	1997/05/22	12.5							
sos_23	M	1994/05/08	15.5					Repeat		
sos_24	F	1997/10/04	12							
sos_25	M	1996/03/18	13.5						Repeat	
sos_26	M	1995/09/05	14							
sos_27	F	1995/09/21	14							

2009 Grade 6	Years at Sosebenza Community School
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5. Who has the highest level of education in your household? (*Not the person's name; rather his/ her relationship to you*).....
 What level of formal education does this person have (e.g. Grade 10, Teachers' Diploma, etc.)?.....

6. Which of the following is/are present in your household? (*Please tick where relevant and indicate a number where required*)

- Electricity
- Running Water
- Bathroom
- Single Beds (how many?)
- Double Beds (how many?)
- Cellular phone (how many?)
- Telkom phone
- Music system (incl. radio)
- TV
- DVD player/ video machine
- Fridge
- Stove
- Computer
- Car/ bakkie (how many?)

7. How many books (NOT magazines/ newspapers) are there in your house? (*Please underline.*)

0 / Less than 5 / Between 5 and 10 / Between 10 and 20 /
 Between 20 and 50 / Between 50 and 100 / More than 100

Do you know the names of any of these books? If relevant, write a few of them down.

8. Are there any magazines/ newspapers in your house? If so, which ones – what are their names?

9. Do you like reading? Yes / No (*Please circle*)
 Explain your answer. Why or why not?

 What language (isiXhosa / English / Afrikaans) do you like reading in the most?
 Why?

10. Do you think you're a good reader? Yes/ No (*Please circle*)
 Why do you say so? Explain your answer.

11. How many (approximately) books have you read (by yourself / silent reading) this
 year, so far?
 What is the title of the best book (the favourite one) you have read this year?

12. Is there anyone in your household that likes reading? (*the person's relationship to
 you*) What does s/he like reading (story books,
 newspapers, etc.)? What language does
 s/he normally read in?.....
13. Who is the best reader you know? (*the person's relationship to you, e.g. friend,
 sister, etc.*)..... How do you know that s/he is a good
 reader?.....

Thank you.

APPENDIX C: Letter of Permission from Riverside Publishing – Adaptation of Woodcock-Muñoz Language Survey (WMLS)



December 6, 2007

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Antarctica: Land of Ice

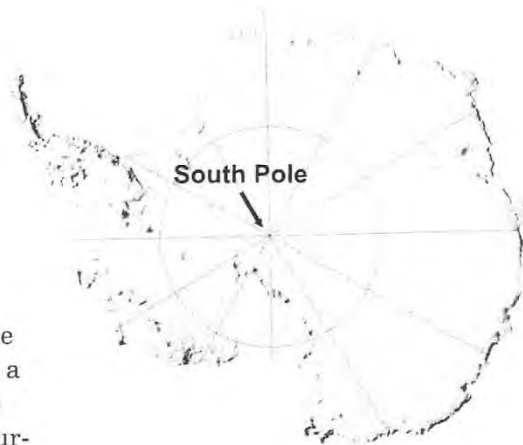
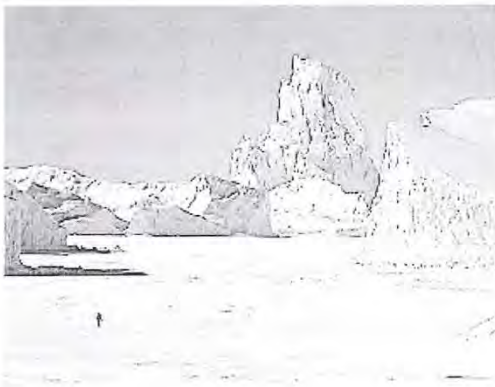
Introducing Antarctica

What is Antarctica?

Antarctica is a continent that is right at the south of the planet. (If you try to find it on a globe, you will see that it is at the bottom.)

It takes up one-tenth of the Earth's surface and is covered with a blanket of ice that can be as thick as 1,500 metres or more. The South Pole is right in the middle of Antarctica.

Antarctica is the coldest continent, as well as the driest, the highest and the windiest. Very few people live there all year round. Scientists stay there for short periods, living in specially built research stations.



A Map of Antarctica

Summer in Antarctica is between October and March. During this time there is non-stop daylight. In winter, April to September, the opposite happens and Antarctica is plunged into six months of constant darkness.

In Antarctica, it is colder than you can possibly imagine, even in the summer! The South Pole is the coldest part of Antarctica. The average temperature for January, the middle of the summer, is minus 28 degrees Celsius (written as -28°C). Minus means colder than the freezing point, which is 0°C .

In the winter, April to September, the average temperature at the South Pole can be as cold as -89°C . When it is that cold, a mug of boiling water thrown in the air would freeze before it hit the ice. Sometimes the scientists have to use fridges to keep their samples warm!



Penguins in Antarctica

There are more penguins in the Antarctic than any other bird.

They cannot fly but use their short wings as swimming flippers. They are superb swimmers. On land, they waddle upright or move in short hops.

Penguins have many feathers that overlap each other. These, together with woolly down feathers and a thick layer of fat, keep out the cold air, wind and water. For extra warmth, penguins huddle together in groups.

A Letter from Antarctica

Sara Wheeler is one of the scientists working in Antarctica. By reading her letter to her nephew Daniel, you can learn more about her Antarctic experience.



Antarctica

Friday, 9 December

Dear Daniel,

Here is the letter I promised to write to you from Antarctica, and a photograph. Imagine how excited I am to be here at last, following in the footsteps of so many famous explorers. It is very different from the world I am used to.

There is nothing fresh down here—and no supermarkets—so we have to eat a lot of dried, tinned or frozen food (it doesn't have to be put in the freezer—you can just leave it outside). We cook on small gas stoves, which take much longer than cookers at home. Yesterday I made noodles with tomato paste and vegetables out of a tin, followed by dried strawberries that tasted like cardboard.

I miss fresh apples and oranges—I wish you could send me some!

Love from Sara

Questions Antarctica: Land of Ice

1. Where can you find Antarctica on a globe?



2. Antarctica is the coldest place on Earth. What other records does it hold?

- (A) driest and cloudiest
- (B) wettest and windiest
- (C) windiest and driest
- (D) cloudiest and highest

3. What is the coldest part of Antarctica?



4. Think about what the article says about Antarctica. Give **two** reasons why most people who visit Antarctica choose **not** to go there between April and September.



1.



2.

5. Why does the article tell you that 'a mug of boiling water thrown in the air would freeze before it hit the ice'?

- (A) to tell you how hot the water is in Antarctica
- (B) to show you what they drink in Antarctica
- (C) to tell you about scientists' jobs in Antarctica
- (D) to show you how cold it is in Antarctica

6. According to the article, what do penguins use their wings for?

- (A) flying
- (B) swimming
- (C) keeping chicks warm
- (D) walking upright

7. Give **three** ways penguins are able to keep warm in Antarctica.

 1. _____

 2. _____

 3. _____

8. What are **two** things you learn about food in Antarctica from Sara's letter?

 1. _____

 2. _____

9. Think about whether you would like to visit Antarctica. Use what you have read in both *Introducing Antarctica* and *A Letter from Antarctica* to explain why you would or would not like to visit.



10. Which section of the article tells you how thick the ice is in Antarctica?

- (A) What is Antarctica?
- (B) The Weather in Antarctica
- (C) Penguins in Antarctica
- (D) A Letter from Antarctica

11. In this article, there are two different ways of finding out about Antarctica:

- *Introducing Antarctica*
- *A Letter from Antarctica*

Which of these kinds of information do you find more interesting, and why?



The letter from Sara Wheeler is adapted from *Letters from Antarctica*, by Sara Wheeler, 1997. Reproduced by permission of Hodder and Stoughton Ltd. Photographs © Guillaume Dargaud

Scoring Guide: Antarctica: Land of Ice

1. Acceptable Response
These responses identify the explicitly stated location of Antarctica. The response states that Antarctica is at the bottom of the globe, or describes it as being at the south of the planet. [1]
 2. C [1]
 3. Acceptable Response
These responses identify the explicitly stated location of the coldest part of Antarctica. The response states that the South Pole is the coldest part. ("The middle part" is also acceptable.) [1]
 4. Complete Comprehension
These responses demonstrate complete comprehension by interpreting information about conditions in Antarctica during the winter. The response describes both of the winter conditions mentioned in the article: 1) the extreme cold, and 2) the constant darkness. (Note: it is not correct to just say that it is winter; it is necessary for the response to include the extreme cold or darkness of winter.)
Example:
It is plunged into six months of constant darkness. A mug of boiling water thrown in the air would freeze before it hit the ice. [2]
- OR
- Partial Comprehension
These responses demonstrate partial comprehension by interpreting information about one condition in Antarctica during the winter. The response describes one of the winter conditions mentioned in the article: 1) the extreme cold OR 2) the constant darkness. (Note: it is not correct to just say that it is winter; it is necessary for the response to include the extreme cold or darkness of winter.)
Example:
It is very cold that time of year. [1]
 5. D [1]
 6. B [1]
 7. Extensive Comprehension
These responses demonstrate extensive comprehension by identifying most of the ideas in the article from which penguins' ability to stay warm can be inferred. The response describes at least three of the ways penguins are able to stay warm listed below. [3]

OR

Satisfactory Comprehension

These responses demonstrate satisfactory comprehension by identifying some of the ideas in the article from which penguins' ability to stay warm can be inferred. The response describes two of the ways penguins are able to stay warm listed below.

[2]

OR

Minimal Comprehension

These responses demonstrate limited comprehension by identifying one idea in the article from which penguins' ability to stay warm can be inferred. The response describes only one of the ways penguins are able to stay warm listed below.

[1]

Ideas from Article Explaining how Penguins Stay Warm

- *They have many feathers which overlap each other.*
- *They have woolly down feathers.*
- *They have feathers (only counts as a separate idea if neither of the first two ideas about feathers is included in the response).*
- *They have a thick layer of fat.*
- *They huddle together in groups.*

8. Complete Comprehension

These responses demonstrate complete comprehension by identifying two explicitly stated ideas related to food in Antarctica. The response identifies at least two of the ideas listed below.

[2]

OR

Partial Comprehension

These responses demonstrate partial comprehension by identifying one explicitly stated idea related to food in Antarctica. The response identifies only one of the ideas listed below.

[1]

Ideas from Sara's Letter About Food in Antarctica

- *There are no supermarkets.*
- *There is a lot of dried, tinned, or frozen food (one of more of these adjectives is acceptable as an idea)/ Nothing is fresh.*
- *Food doesn't have to be put into a freezer. / Food can be left outside.*
- *They cook on gas stoves.*
- *It takes longer to cook.*
- *They eat noodles with tomato paste and vegetables.*
- *Strawberries taste like cardboard.*
- *They don't have apples and oranges.*
- *Sara doesn't like the food in Antarctica. / It is not good.*

9. Complete Comprehension

These responses demonstrate complete comprehension by integrating information from across two different texts to fully support a personal opinion about text content. The response states or implies a personal opinion about visiting Antarctica and provides specific information from both texts – Introducing Antarctica and A Letter from Antarctica – to support the opinion. See chart below for appropriate ideas for each text.

Example:

No, because it is the coldest place on earth and there is nothing fresh to eat.

[2]

OR

Partial Comprehension

These responses demonstrate partial comprehension by supporting a personal opinion about text content with information from one text. The response states or implies a personal opinion about visiting Antarctica and provides specific information from one text – Introducing Antarctica OR A Letter from Antarctica – to support the opinion. See chart below for appropriate ideas for each text.

Example:

Yes, because many explorers have been there.

[1]

Topics/Ideas from Each Text that May be Used to Support Opinion

Introducing Antarctica

- *Extreme cold*
- *Constant darkness*
- *Penguins live there*
- *Scientists stay there*

A Letter from Antarctica

- *Food (freshness, tinned/dried, cooking, buying)*
- *Cold*
- *Famous explorers have gone there*

10. A

[1]

11. Acceptable Response

These responses demonstrate understanding of the type of information presented in at least one of two texts. The response provides an opinion about which text is most interesting. In addition, it includes an explanation that accurately describes some element of the content, language, format, or tone of at least one of the texts.

Example:

Sara's letter because it makes you understand what it really feels like to be there.

[1]

[Total = 16 marks]

[Mullis, et al., 2007]

I-Antarctica: Ilizwe loMkhenkce

Ukwaziswa
kweAntarctica

Yintoni iAntarctica?

I-Antarctica lilizwekazi elisemazantsi kanye eplanethi. (Ukuba uzama ukuyifumana kwiglowubhu, uya kubona ukuba ingaphantsi.)

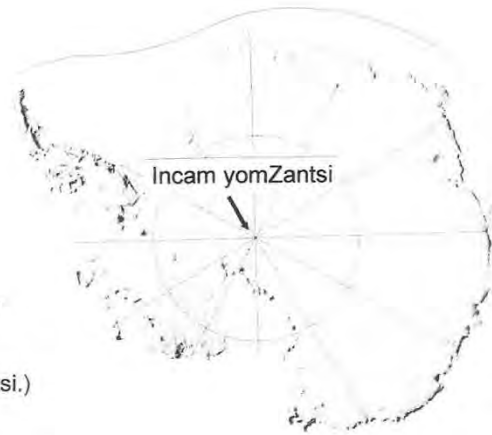
Ithatha ukuya kutsho kwisinye eshumini (1/10) sendawo yoMhlaba yaye yogqunywe yingubo yomkhenkce enokuba ngqindilili kangangeemitha eziyi1,500 nangaphezulu. Incam yomZantsi esebindini ngqo weAntarctica.

I-Antarctica lelona lizwekazi libandayo, kwaye lelona lomileyo, elona liphezulu elinomoya ogquthayo. Bambalwa kakhulu abantu abahlala kulo minyaka le.



INzululwazi bezingahlali kakhulu apho, bezihlala kwizikhululo zophando ezakhiwe ngendlela eyodwa.

Ihlobo laseAntarctica liphakathi kweyeDwarha (Okthobha) neyoMnga (Matshi). Ngeli xesha ukukhanya kwelanga kwakungapheli. Ebusika, ngoTshazimpuzi (Epreli) ukuya kweyoMsintsi (Septemba), kubakho umahluko, iAntarctica ivaleleke kwiinyanga ezintandathu zobumnyama obungapheliyo.



Imephu yaseAntarctica

EAntarctica kubanda ngeyona ndlela ungenokuyicinga, nditsho nasehlotyeni! Incam yomZantsi yeyona ndawo ibanda kakhulu eAntarctica. Amaqondo obushushu aphakathi ngeyoMqungu (Janyuwari), phakathi ehlotyeni, aziidigri ezingama-28 ngaphantsi kukaziro (ezibhalwa ngokuthi -28°C). Uphawu lokuba ngaphantsi kukaziro (-) lubonisa ukuba kubanda ngaphezu kweqondo lokwenza umkhenkce, elingu 0°C .



Ebusika, ngoTshazimpuzi (Epreli) ukuya kweyoMsintsi (Septemba), iqondo lobushushu kwiNcam yomZantsi lingabanda ukuya kutsho ku -89°C . Xa kubanda ngolo hlobo, imagi yamanzi abilayo ejulwe emoyeni ingangumkhenkce phambi kokuba iwele emkhenkceni. Ngamanye amaxesha iiNzululwazi kuye kufuneka zisebenzise iifriji ukugcina iisampulu zabo zishushu!



liphengwini zaseAntarctica

liphengwini zaseAntarctica zininzi nangaphezu kwazo naziphi ezinye iintaka.

Azizwazi ukubhabha kodwa zisebenzisa amaphiko azo amafutshane njengezixhobo zokudada. Zidada ngeyona ndlela. Xa zisemhlabeni, zishixiza zime nkqo okanye zihambe ngokuxhuma-xhuma okufutshane.

liphengwini zinentsiba ezininzi ezolekeleneyo. Ezi ntsiba, zikunye neentsiba ezinoboya kwakunye nenqathe lazo, zikhusela kwimpepho ebandayo, kumoya nakumanzi. Ukuze zifumane ubushushu obongezelelweyo, liphengwini zibuthelana ndawonye zingamaqela.

ILeta evela eAntarctica

USara Wheeler ngomnye weNzululwazi ezisebenza eAntarctica. Ngokufunda ileta ayibhalele umtshana wakhe, uDaniel, ungafunda banzi ngamava akhe aseAntarctic.



EAntarctica

Lwesihlanu, 9 eyoMnga (Disemba)

Daniel endimthandayo,

Nantsi ileta ebendikuthembise ukuba ndakukubhalela yona xa ndiseAntarctica, ikunye nefoto. Khawufan' ucinge indlela endivuya ngayo ukuba ndide ndalapha ekugqibeleni, ndilandela ezinyaweni zabahloli-lizwe abadumileyo. Yahluke kakhulu kweli lizwe ndiliqhelileyo.

Akukho nto ihlaziyekileyo apha - akukho nazivenkile zakutya - ngoko ke kufuneka sitye ukutya okuninzi okomisiweyo, okunkonxiweyo okanye okwenziwe umkhenkce (awude ukufake kwifriza - ungakushiya nje phandle). Sipheka kwizitovu ezincinane zegesi, ezithatha ixesha elidana kunelo lithathwa zezi sipheka ngazo apho ekhaya. Izolo ndenze isipagethi esibizwa ngokuba zii*noodles* ezinentlama yetumato kunye nemifuno ephuma enkonkxeni, zilandelwa zizitrowubheri ezomisiweyo ebezivakala ngathi nditya ikhadibhodi.

Ndikhumbula iiapile neeorenji ezingankonkxwanga - Akwaba ubunokundithumelela!
Ngothando, Sara

Imibuzo I-Antarctica: iLizwe loMkhenkce

1. Ungayifumana ndawoni iAntarctica kwiglowubhu?



2. I-Antarctica yeyona ndawo ibandayo eMhlabeni. Ngawaphi amanye amarekhodi anayo?

- (a) yeyona yomileyo nenamafu
- (b) yeyona imanzi nenomoya ogquthayo
- (c) yeyona inomoya ogquthayo neyomileyo
- (d) yeyona inamafu nephezulu

3. Yeyiphi eyona ndawo ibandayo eAntarctica?



4. Khawucinge ngokuthethwa leli nqaku ngeAntarctica. Nika izizathu ezibini zokuba kutheni abantu abaninzi abatyelela iAntarctica bekhetha ukungayi phakathi kukaEpreli noSeptemba.



1. _____



2. _____

5. Kutheni eli nqaku likuxelela ukuba 'imagi yamanzi abilayo xa ijulwe emoyeni ingangumkhenkce ingekafiki phantsi emkhenkceni'?

- (a) lenzela ukukuxelela indlela ashushu ngayo amanzi eAntarctica
- (b) lenzela ukukubonisa ukuba basela ntoni eAntarctica
- (c) lenzela ukukuxelela ngemisebenzi yeeNzululwazi eAntarctica
- (d) lenzela ukukubonisa indlela ekubanda ngayo eAntarctica

6. Ngokweli nqaku, iiphengwini ziwasebenzisa entweni amaphiko azo?

- (a) ekubhabheni
- (b) ekudadeni
- (c) ekufudumezeni amantshontsho
- (d) ekuhambeni zime nkqo

7. Nika iindlela ezintathu iiphengwini ezizigcina zifudumele ngazo eAntarctica.

1. _____
2. _____
3. _____

8. Zeziphi izinto **ezimbini** ozifundileyo malunga nokutya kwaseAntarctica kwileta evela kuSara?



1. _____



2. _____

9. Cinga malunga nokuba ungathanda na ukutyelela eAntarctica. Sebenzisa oko ukufunde kuwo omabini la manqaku *Ukwazisa ngeAntarctica* kunye ne*Leta evela eAntarctica* ukucacisa ukuba kutheni ungathanda okanye ungathandi ukuyityelela.



10. Yeyiphi indawo kweli nqaku ekuxelela indlela ongqindilili ngayo umkhenkce eAntarctica?

- (a) Yintoni iAntarctica?
- (b) IMozulu yaseAntarctica
- (c) Iiphengwini zaseAntarctica
- (d) ILeta evela eAntarctica

11. Kweli ngaku, kukho iindlela ezimbini ezahlukeneyo zokuva ngeAntarctica:

- *Ukwazisa ngeAntarctica*
- *ILeta evela eAntarctica*

Ngezphi iintlobo zenkcukhacha ozifumanise zikunika umdla kwaye kutheni?



*Le leta ivela kuSara Wheeler ilungiselelwe isuka kwi**Letters from Antarctica**, ngokubhalwa nguSara Wheeler, 1997. Iveliswe ngokutsha ngemvume yeHodder and Sloughton Ltd. Iifoto © Guillaume Dargaud*

Scoring Guide: I-Antarctica: Ilizwe loMkhenkce

1. Impendulo Eyamkelekileyo
Ezimpendulo zichonga indawo ecaciswe gca eAntarctica. Impendulo ithi iAntarctica isemazantsi eglobubhu, okanye iyicacisa njengesemazantsi eplanethi. [1]
 2. C [1]
 3. Impendulo Eyamkelekileyo
Ezimpendulo zichonga indawo ecaciswe gca neyeyona ndawo ibandayo eAntarctica. Impendulo ethi Incam esemazantsi yeyona ndawo ibandayo. ("Indawo ephakathi" ikwamkelekile.) [1]
 4. Uvavanyo Lokuqonda Olupheleleyo
Ezimpendulo zibonisa uvavanyo lokuqonda olupheleleyo ngokutolika iinkcukacha malunga neemeko zaseAntarctica ebusika. Impendulo icacisa iimeko zasebusika ezibekwe phaya kwinqaku: 1) ingqele egqithisileyo, okanye 2) nobumnyama obungapheliyo. (Qaphela: ayompendulo ilungileyo ukuthi nje kusebusika; kufunele ukuba impendulo iquke ingqele egqithisileyo okanye ubumnyama obungapheliyo basebusika.)
Umzekelo:
Ivaleleka kwiinyanga ezintandathu zobumnyama obungapheliyo. Imagi yamanzi abilileyo ejulwe emoyeni ingangumkhenkce phambi kokuba iwele emkhenkce. [2]
- OKANYE
5. Uvavanyo Lokuqonda Oluyinxalenye
Ezimpendulo zibonisa uvavanyo lokuqonda oluyinxalenye ngokutolika enye inkcukacha malunga nemeko yaseAntarctica ebusika. Le mpendulo icacisa enye yezimeko zasebusika zichazwe kwelinqaku: 1) ingqele egqithisileyo OKANYE 2) ubumnyama obungapheliyo. (Qaphela: akuchanekanga ukuthi nje kusebusika; kufunele impendulo iquke ingqele egqithisileyo okanye ubumnyama basebusika.)
Umzekelo:
Kubanda kakhulu ngelo xesha lonyaka [1]
 6. D [1]
 7. Uvavanyo Lokuqonda Olunabileyo
Ezimpendulo zibonisa uvavanyo lokuqonda olunabileyo ngokuchonga iimpindulo ezininzi ezikwelinqaku ekunokuqikelelwa ngazo ukuba iiphengwini ziyakwazi ukuzigcina zifudumele. Lempindulo idweliswe ngezantsi icacisa ubuncinane bendlela ezintathu; iiphengwini ezikwazi ngazo ukuzigcina zifudumele.... [1]
- OKANYE [3]

Uvavanyo Lokuqonda Olwaneleyo

Ezimpendulo zibonisa uvavanyo lokuqonda olwaneleyo ngokuchonga izimvo ezithile ezikwelinqaku ekunokuqikelelwa ngazo ukuba iiphengwini ziyakwazi ukuzigcina zifudumele. Lempendulo idweliswe ngezantsi icacisa iindlela ezimbini iiphengwini ezikwazi ngazo ukuzigcina zifudumele.

[2]

OKANYE

Uvavanyo Lokuqonda Oluncinane

Ezimpendulo zibonisa uvavanyo lokuqonda oluncinane ngokuchonga uluvo olunye olukwelinqaku ekunokuqikelelwa ngalo ukuba iiphengwini ziyakwazi ukuzigcina zifudumele. Impendulo edweliswe ngezantsi icacisa enye indlela kuphela yeephengwini ezikwazi ukuzigcina zifudumele.

[1]

Izimvo zamaNqaku eziCacisa indlela iiphengwini ezizigcina zifudumele ngazo

- *Zineentsiba ezininzi ezolekeleneyo.*
- *Zineentsiba ezingathi buboya phaya emazantsi.*
- *Zineentsiba (ibalwa njengoluvo olwahlukileyo ukuba nalunye kwezizimvo zimbini zokuqala ezimalunga neentsiba).*
- *Zinenqathe elityebileyo.*
- *Zibuthelana kunye ngamaqela.*

8. Uvavanyo Lokuqonda Olupheleleyo

Ezimpendulo zibonisa uvavanyo lokuqonda olupheleleyo ngokuchonga izimvo ezicaciswe gca ngokubhekiselele ekutyeni eAntarctica. Lempendulo ichonga ubuncinane bezimvo ezimbini kwizimvo ezidweliswe apha ngezantsi.

[2]

OKANYE

Uvavanyo Lokuqonda Oluyinxalenye

Ezimpendulo zibonisa uvavanyo lokuqonda oluyinxalenye ngokuchonga olunye uluvo kuphela kwezo zidweliswe apha ngezantsi.

[1]

Izimvo ezivela kwiLeta kaSara Malunga noKutya kwaseAntarctica

- *Azikho iivenkile zokutya.*
- *Kukho ukutya okuninzi okomisiweyo, okunkonkxiweyo okanye okukhenkciweyo (isibaluli esinye okanye ngaphezulu samkelekile njengoluvo)/ Akukho nto intsha.*
- *Ukutya akude kufakwe kwifriza./ Ukutya kungashiywa nje phandle.*
- *Bapheka ezitovini zegesi.*
- *Kuthatha ixesha elide ukupheka.*
- *Batya iinoodles ezinentlama yetumato nemifuno.*
- *Izitrowubheri zivakala ngathi yikhadibhodi.*
- *Abanama-apile nama-orenji.*
- *USara akakuthandi ukutya kwaseAntarctica./ Akumnandanga.*

9. Uvavanyo Lokuqonda Olupheleleyo
Ezi mpendulo zibonisa uvavanyo lokuqonda okupheleleyo ngokudibanisa iinkcukacha ezisuka kwizicatshulwa ezibini ezahlukeneyo ukwenzela ukuxhasa ngokupheleleyo uluvo lwakho olumalunga nomxholo wesicatshulwa. E mpendulo ithi okanye ibonisa uluvo olulolwakhe malunga nokutyelela iAntarctica ukwanika iinkcukacha ezizodwa ezisuka kuzo zombini ezizicatshulwa – Ukwazisa ngeAntarctica kunye neLeta evela eAntarctica – ukunxhasa olo luvo. Ngeenkcukacha ezifanelekileyo zesicatshulwa ngasinye, jonga kuletshati ingezantsi.

Umzekelo:

Hayi, kuba yeyona ndawo ibandayo ehlabathini yaye akukho kutya kutsha kunokukutyiwa.

[2]

OKANYE

Uvavanyo Lokuqonda Oluyinxalenye

Ezi mpendulo zibonisa uvavanyo lokuqonda oluyinxalenye ngokuzixhasa ngoluvo lwakho malunga nomxholo wesicatshulwa, uzixhasa ngeenkcukacha ezivela kwisicatshulwa. Le mpendulo ithi okanye ibonisa uluvo olulolwakhe malunga nokutyelela iAntarctica ukwanika iinkcukacha ezizodwa ezisuka kwisicatshulwa esinye – Ukwazisa ngeAntarctica OKANYE iLeta evela eAntarctica – ukuxhasa oluluvo. Ngeenkcukacha ezifanelekileyo ngesicatshulwa ngasinye, jonga kule tshati ingezantsi.

Umzekelo:

Ewe, kuba abahloli-lizwe abaninzi selebakhe baya.

[1]

Izihloko/Izimvo Ezivela Kwisicatshulwa Ngasinye Ezinokusetyenziselwa

Ukuxhasa Uluvo

UKwazisa iAntarctica

- *Ingqele egqithisileyo*
- *Ubumnyama obungapheliyo*
- *Iiphengwini zihlala khona*
- *Bambalwa abantu abahlala khona*
- *Iinzululwazi zihlala khona*

ILeta evela eAntarctica

- *Ukutya (ukuba kutsha, kunkonkxiwe/komisiwe, ukupheka, ukuthenga)*
- *Ingqele*
- *Abahloli-lizwe abadumileyo bayile khona*

10. A

[1]

11. Impendulo Eyamkelekileyo

Ezimpendulo zibonisa ukuqonda uhlobo leenkcukacha ezinikwe ubuncinane kwisicatshulwa esinye kwezi zibini. Lempendulo inika uluvo malunga nokuba sesiphi esona sicutshulwa sinika umdla. Ukwangeza, iquka ingcaciso ecacisa gca imiba ethile yomxholo, ulwazi, isimo okanye imvakalo yobuncunane besicutshulwa esinye.

Umzekelo:

Ileta kaSara kuba ikwenza ukuqonde ukuba kunjani ukuba phaya.

[1]

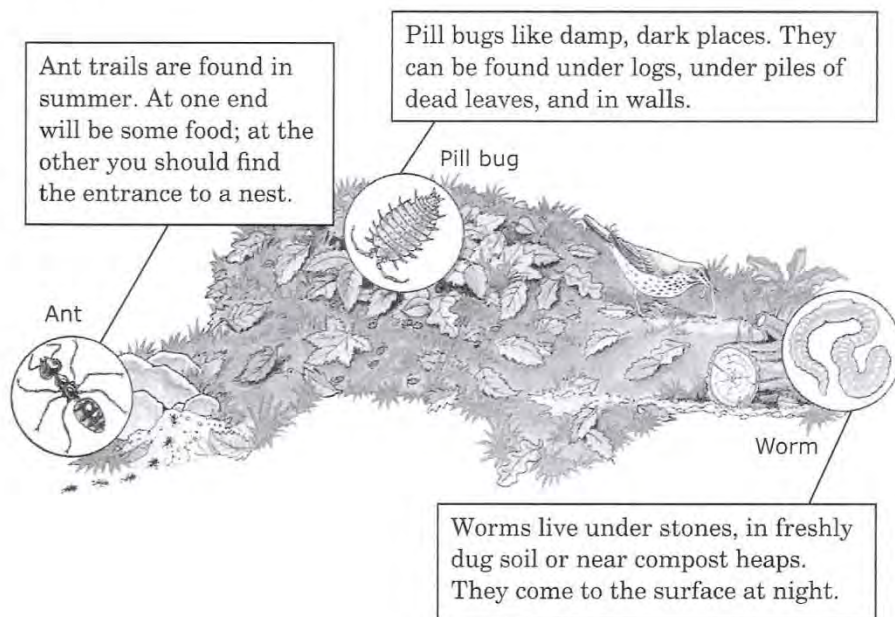
[Total = 16 marks]

Searching for Food

Here are three projects about the things small creatures eat and the ways they search for food. First you need to find actual ants, pill bugs, and worms. Treat them carefully and make sure you put them back where you found them after you have finished studying them.

- Follow an Ant Trail
- Study Pill Bugs
- Make a Wormery

Where to find ants, pill bugs, and worms





Follow an Ant Trail

Ants live together in nests. When an ant finds some food it makes a trail for others to follow. To do this experiment you will need to find an ants' nest. You will also need the following materials: a sheet of paper, a small piece of apple, a handful of soil.

1. Put the piece of apple on the sheet of paper and lay the paper close to an ants' nest. Wait for some ants to find the apple. They should all follow the same trail.
2. Move the apple. Do the ants go straight to it?
3. Now sprinkle soil on the paper to cover the trail. The ants should scurry around for a while. Do they make a new trail?

What happens?

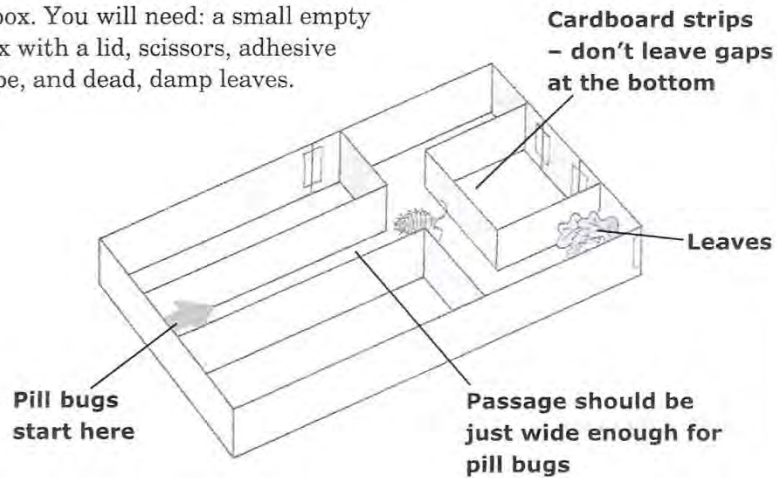
Even after the food has moved, the ants still follow the old trail until a new one is laid.

Why?

Once an ant has found some food, it produces special chemicals that leave a scent trail. Other ants from the nest use their antennae, or feelers, to sense this scent.

Study Pill Bugs

Pill bugs have sensitive antennae. Make this box, then collect six pill bugs in a container. Watch how they find their way when you put them in a box. You will need: a small empty box with a lid, scissors, adhesive tape, and dead, damp leaves.



1. Use the lid to make three long strips for making the passages in the picture.
2. Let your pill bugs walk along the passage one at a time. When they reach the end of the passage, some will turn left and some will turn right.
3. Put damp leaves in the right hand side of the box. Now let the pill bugs walk through the box again. Which way do they go?

What happens?

The pill bugs will turn to the right toward the food.

Why?

The pill bugs can sense the food with their antennae. They use them to find the leaves.

Make a Wormery

Worms are hard to study because they don't like the light. As soon as they sense it, they wriggle away, trying to find a dark place again. To see how worms live and feed, make a wormery like the one shown here. Then find two or three worms to put in it. It is important to remember

not to pull on the worms or you may hurt them. They are covered with bristles that grip the soil tightly.

You will need

- Shoe box
- Adhesive tape
- Pen
- Scissors
- Large plastic bottle
- 1 mug of sand
- 3 mugs of damp, crumbly soil
- Small cubes of onion and potato

1. Tape one side of the shoe box lid to the box, so it opens like a door. Poke holes in the top of the box with the pen to let air and light into the wormery.

2. Cut the top off the bottle. Then fill it with loosely packed layers of soil and sand. Scatter potato and onion on the surface.

3. Gently drop in your worms, then stand the bottle in the box and close the door. Leave it outside in a cool, dry place for four days.

4. After four days, go back and look at the bottle. What is different about the sand and soil?

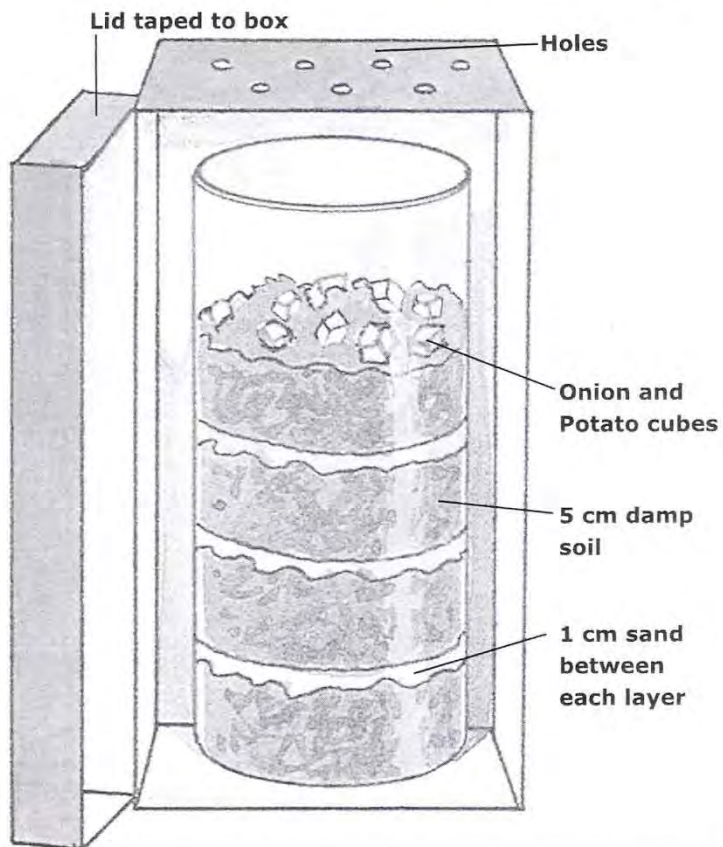
Don't forget: when you've finished with this project, put the worms back where you found them.

What happens?

After four days, the layers of sand and soil will have been mixed together.

Why?

The worms mix the sand and soil coming to the surface to eat the food and then tunneling underground to get away from the light.



From *Animal watching in the Usborne Big Book of Experiments* published in 1996 by Usborne Publishing Ltd., London. An effort has been made to obtain copyright permission.

Questions: Searching for Food

1. What is the main purpose of the article?
- (A) to describe different projects you can do
 - (B) to give information about ant trails
 - (C) to show what small creatures look like
 - (D) to explain what worms eat

2. What is one thing you should do to take care of the creatures?
- (A) search for them under rocks and stones
 - (B) find out all about them
 - (C) collect as many as you can
 - (D) put them back where you found them

Questions 3-5 are about the Ant Project

3. Why do you put the apple by the ants' nest?

- (A) to block the ants' trail
- (B) so the ants will make a trail
- (C) to confuse the ants
- (D) so the ants will scurry around

4. Once an ant finds some food, how do the other ants from the nest find it too?

- (A) They watch the first ant and follow it.
- (B) They run around until they find the food.
- (C) They sense the scent left by the first ant.
- (D) They smell the food on the piece of paper.

5. Why do the ants scurry around after you've sprinkled the soil?



6. How do pill bugs find the food?

- (A) They walk down the passage.
- (B) They sense food with their antennae.
- (C) They follow the scent trail.
- (D) They see the food in the dark.

7. Look at the picture for Study Pill Bugs. How does the picture help you to know what to do in the experiment?



8. Why do you need to let your pill bugs walk along the passage before putting the leaves in the box?

- (A) To see if they can learn the maze.
- (B) To see what they do when there is no food.
- (C) To see if the box is put together correctly.
- (D) To see which ones turn which way.

9. In Step 3 of the pill bugs project, what do you think will happen if you move the damp leaves to the left corner of the box?



10. What is similar in the way ants and pill bugs find their food?



11. Number the steps in the order you would follow to make a wormery
The first one has been done for you.

_____ put the bottle in the shoebox

1 poke holes in the top of the shoebox

_____ drop in the worms

_____ add potato and onion

_____ fill the bottle with soil and sand

12. Explain why it is important to put layers of soil and sand in
the bottle.



13. Explain why putting the onion and potato on the surface of the soil is important to the wormery project.



14. Each project has *What happens* and *Why* in a separate box. What is the purpose of these boxes?

- (A) to explain the steps of the project
- (B) to tell you what you need for the project
- (C) to tell you what to do when you have finished
- (D) to explain what you have seen

15. Which of the three projects did you find the most interesting? Use information from the text to explain your answer.



Scoring Guide: Searching for Food

1. A [1]
2. D [1]
3. B [1]
4. C [1]
5. Acceptable Response
The response demonstrates understanding that the ants scurry because they have lost their trail (and therefore have to make a new one) or because they are looking for the food.
Example:
They have to make a new trail. [1]
6. B [1]
7. Complete Comprehension
The response provides an explanation of the necessity of the picture to know how to make the box, to know where to put things in the box, or to know what the box should look like.
Example:
It helps you to understand where you have to put the cardboard strips. [1]
- Or, the response shows understanding that it is the visual image of the box that makes it possible to make one the same way.
Example:
It shows what it is meant to look like. [2]
- OR
- Partial Comprehension
The response describes the features of the picture without indicating how they are useful to doing the experiment.
Example:
It uses arrows and labels. [1]
8. B [1]
9. Acceptable Response
The response provides the appropriate inference from the text that the pill bugs will (eventually) turn to the left toward the leaves. Note that it is appropriate to state that the pill bugs will turn to where the food is or will turn the other way from the original directions in the experiment without having to specifically mention the left corner.
Example:
They will sense the food and find it. [1]

10. Acceptable Response
The response demonstrates understanding that ants and pill bugs find their food using their antennae or feelers to sense their food.

Example:

They use their feelers.

[1]

11. Acceptable Response

The response accurately numbers the steps as shown below.

In order to receive full credit, each step must have the appropriate number.

Appropriate Ordering of Steps

5 put the bottle in the shoebox

1 poke holes in the top of the shoebox

4 drop in the worms

3 add potato and onion

2 fill the bottle with soil and sand

[1]

12. Acceptable Response

The response demonstrates understanding that the effect of the tunnelling (the mixing of the soil and the sand) will be visible because of the layers.

Example:

To make it possible to see the effect of the worms tunnelling.

[1]

13. Acceptable Response

The response provides an appropriate explanation for putting the worms on the surface in order for the worms to tunnel up to the top to eat (and tunnel down to avoid the light).

Example:

To make the worms go to the top.

[1]

14. D

[1]

15. Complete Comprehension

The response selects a project with specific information referring to the text, or may provide an inference clearly reflecting specific information in the text.

Example:

The ant project because I would like to see if ants would make a trail with food other than an apple.

[2]

OR

Partial Comprehension

The response selects a project and provides a general explanation that is related to the text, but could apply to any of the projects.

Example:

The pill bug project because it would be fun to find them.

[1]

[Total = 17 marks]

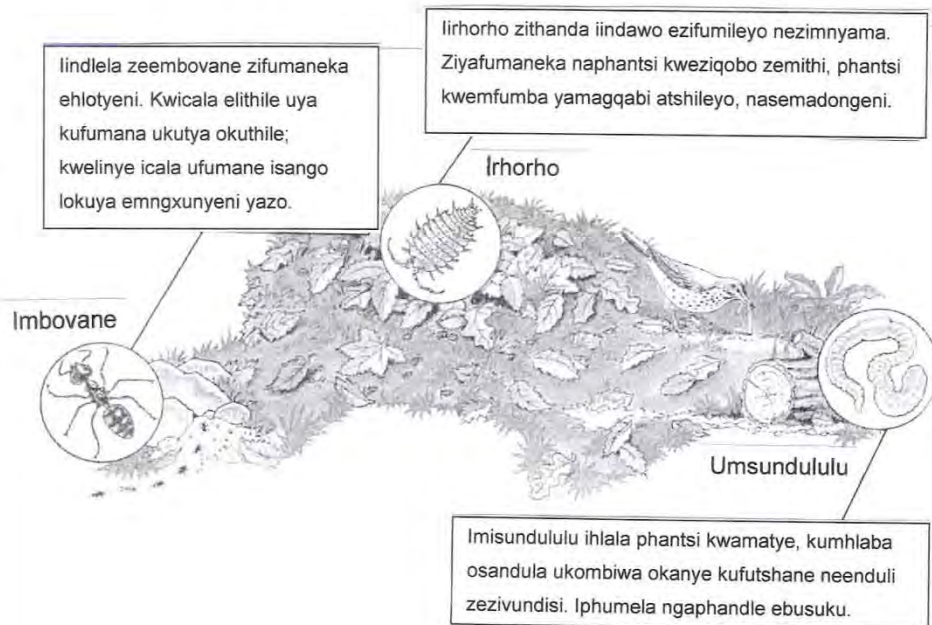
[Mullis, et al., 2007]

UkuPhanda ngoKutya

Nazi iiprojekthi ezintathu ezimalunga nezinto ezityiwa zizinambuzane ezincinane kunye nendlela ezikukhangela ngayo ukutya. Okokuqala kufuneka ukhangela elona qobo lwembovane, lerhorho kunye nemisundululu. Ziphathe kakuhle uze uqiniseke ukuba uziphindisela kule ndawo ubuzifumene kuyo wakugqiba ukufunda ngazo.

- Landela iNdlela yeeMbovane
- Funda ngerhorho
- Yenza indwana yomsundululu

Apho ungafumana khona iimbovane, iirhorho nemisundululu





Landela iNdlela yeeMbovane

Iimbovane zihlala kunye emingxunyeni. Xa imbovane ifumene ukutya iye yenze indlela eya kulandelwa zezinye. Ukuze uwenze lo mfuniselo kufuneka ukhangele umngxuma weembovane. Kuya kufuneka ube nezi zinto zilandelayo: iphepha, iqhekeza elincinci leapile, isandla esizele umhlaba.

1. Beka iqhekeza leapile ephepheni uze elo phepha ulibeke kufutshane nomngxuma weembovane. Linda ukuba iimbovane zilifumane iapile. Zonke ziya kulandela loo ndlela inye.
2. Susa iapile. Ngaba iimbovane ziye ngqo kwiapile?
3. Ngoku ke fefa umhlaba kwiphepha ukugquma le ndlela. Iimbovane ziyakujikeleza ndawo ninye okomzuzwana. Ngaba zenza enye indlela?

Kwenzeka ntoni?

Kanga ngokuba nokuba ukutya sele kususiwe, iimbovane ziyakundela landlela indala kude kubekho enye indlela.

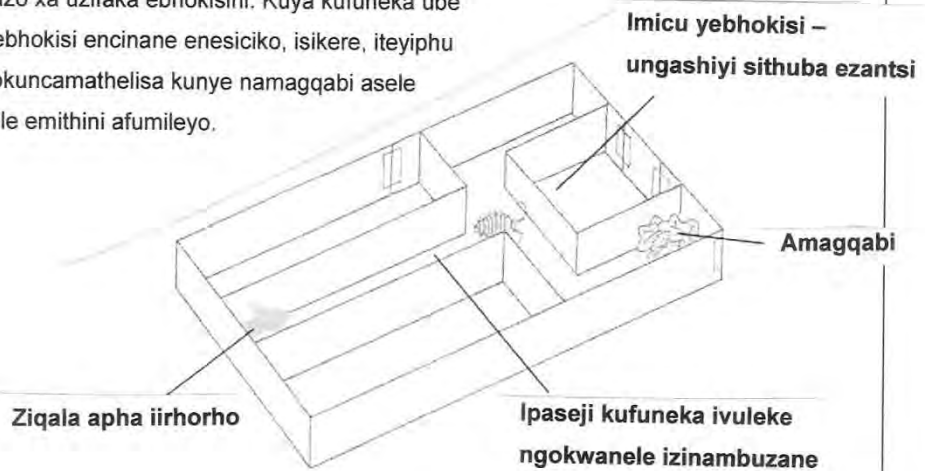
Kutheni?

Xa imbovane ithe yakufumana okunye ukutya, ikhupha iikhemikhali ezithile ezishiya indlela yevumba. Ezinye iimbovane ezisemngxunyeni zisebenzisa iimpondo zaso okanye iimpondo zokuhlola, ukuva eli vumba.

Funda ngerhorho

Iirhorho zinempondo zokuva ezibukhali kakhulu (eziva ngokukhawuleza). Yenza le bhokisi, uze uqokelele iirhorho zibe zintandathu uzifake entweni.

Jonga indlela eziyikhangela ngayo indlela yazo xa uzifaka ebhokisini. Kuya kufuneka ube nebhokisi encinane enesiciko, isikere, iteyiphu yokuncamathelisa kunye namagqabi asele wile emithini afumileyo.



1. Sebenzisa isiciko ukwenza imicu emide emithathu yokwenza ezi paseji zisemfanekisweni.
2. Iirhorho yakho mawuhambe epasejini ube mnye ngexesha. Wakufika ekupheleni kwepaseji, ezinye ziyakujikela ngasekhohlo ize ezinye zijikele ngasekunene.
3. Beka amagqabi afumileyo kwicala langasekunene lale bhokisi. Ngoku ke nika iirhorho ithuba lokuhamba apha ebhokisini kwakhona. Ziya kweliphi icala?

Kwenzeka ntoni?

Iirhorho zizakujika ziye ngasekunene zisiya ekutyeni.

Kutheni?

Iirhorho ziyakwazi ukunukisa ukutya ngeempondo zazo zokuva. Zisebenzisa zona ukukhangela amagqabi.

Yenza indlwana yomsundululu

Kunzima ukufunda ngemisundululu kuba ayikuthandi ukukhanya. Ithi isakukuva ukukhanya, itshibilize imke, izama ukuphinda ifumane indawo emnyama. Ukubona indlela eziphila nezitya ngayo imisundululu, yenza indlwana yemisundululu efana nale iboniswe apha. Emva koko khangela imisundululu emibini okanye emithathu uyifake

Uya kufuna

- Ibhokisi yezihlangu
- Iteyiphu yokuncamathelisa
- Ibolpeni
- Isikere
- Ibhotile enkulu yeplastikhi
- Imagi enye (1) yesanti
- Iimagi ezintathu (3) zomhlaba ofumileyo oqhumkayo
- Itswele netapile, zidayiswe (zenziwe amadayisi amancinci)

kuyo. Kubalulekile ukukhumbula ukuba akufanelekanga uyitsale imisundululu kuba usenokuyenzakalisa. Igqunywe sisikhumba esimanzi esibambelelayo emhlabeni.

1. Ncamathelisa elinye icala lesiciko sebhokisi yezihlangu, ukwenzela ukuba ivuleke okocango. Vula imingxuma kumphezulu webhokisi ngebholpeni ukwenzela ukuba kungene umoya nokukhanya kule ndlwana yomsundululu.
2. Sika umtla webhotile. Uze ugqwalise ngomhlaba owalekwa ngesanti ngokuphindaphindayo, ungaxinani. Sasaza iitapile netswele apha ngaphezulu.
3. Faka imisundululu yakho ngobunono, uze uyimise ibhotile ebhokisini uvale ucango. Yishiye phandle kwindawo epholileyo neyomileyo iintsuku ezine.
4. Emva kweentsuku ezine, hamba uye kujonga ebhotileni. Yintoni etshintshileyo kwisanti nomhlaba?

Ungalibali: wakugqiba ukwenza le projekthi, imisundululu yiphindisele apho ubuyifumene khona.

Kwenzeka ntoni?

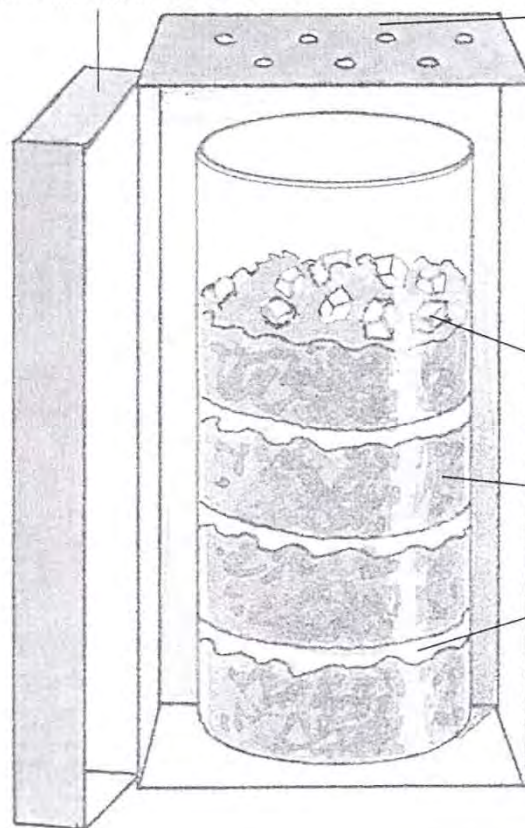
Emva kweentsuku ezine, umhlaba obuwahlulwe ngesanti uza kube uxubene.

Kutheni?

Imisundululu idibanisa isanti nomhlaba ngethuba isiza ngaphezulu izokutya ukutya ize iphinde ityhutyhe ukubuyela ezantsi kuba ibaleka ukukhanya.

Isiciko esincanyathiselwe ebhokisini

Imingxuma



Itswele netapile ezidayisiweyo

Umhlaba ofumileyo oyi5 cm

Isanti eyi1 cm eyohlula imihlaba emibini

Imibuzo:

UkuPhanda ngoKutya

1. Yintoni eyona njongo yeli nqaku?
 - (a) kukuchaza iiprojekthi ezahlukeneyo ongazenza
 - (b) kukunika ulwazi ngeendlela zeembovane
 - (c) kukubonisa ukuba zibonakala njani izinambuzane ezincinane
 - (d) kukucacisa ukuba itya ntoni imisundululu

2. Yintoni enye ekufuneka uyenzile ukwenzela ukukhusela izinambuzane?
 - (a) kukuzikhangela phantsi kwamatye
 - (b) kukufunisa malunga nazo
 - (c) kukuziqokelela kangangoko
 - (d) kukuzibuyisela kuloo ndawo ubuzifumene kuyo

Imibuzo 3-5 imalunga neProjekthi yeeMbovane

3. Kutheni ubeka iapile ngasemngxunyeni weembovane?
- (a) uvala indlela yeembovane
 - (b) ukwenzela ukuba iimbovane zenze indlela yazo
 - (c) ubhidisa iimbovane
 - (d) ukwenzela ukuba iimbovane zijikeleze ndawo ninye
4. Xa ithe enye imbovane yafumana ukutya ezinye iimbovane ezisemngxunyeni zikufumana njani ukutya zona?
- (a) Zijonga imbovane yokuqala ze ziyilandele.
 - (b) Zibaleka ndawo ninye zide zikufumane ukutya.
 - (c) Zinukisa ivumba elishiywe yimbovane yokuqala.
 - (d) Zijoja ukutya okusephepheni.
5. Kutheni iimbovane zijikeleza nje emva kokuba uchithe umhlaba?

6. Iirhorho zikufumana njani ukutya?

- (a) Zihla ngepaseji.
- (b) Zinukisa ukutya ngeempondo zazo zokuva.
- (c) Zilandela indlela yevumba.
- (d) Zikubona ukutya ebumnyameni.

7. Jonga kumfanekiso wokufunda ngerhorho. Ukunceda njani lo mfanekiso ekubeni wazi ukuba kufuneka wenze ntoni kulo msebenzi?

8. Kutheni kufuneka uziyeke iirhorho zihambe epasejini phambi kokuba ubeke amagqabi ebhokisini?

- (a) Ukubona ukuba zingakwazi ukufunda umqathango
- (b) Ukubona ukuba zenzani xa kungekho ukutya.
- (c) Ukubona ukuba ibhokisi idityanise kakuhle.
- (d) Ukubona ukuba zeziphi eziya kweliphi icala.

9. KwiNqanaba lesi-3 leprojekthi yerhorho, ucinga ukuba kuya kwenzeka ntoni xa unokususa amagqabi afumileyo, uwase kwikona engasekhohlo yale bhokisi?

10. Yintoni efanayo kwindlela iimbovane nerhorho ezikukhangela ngayo ukutya kwazo?

11. Landelelanisa ngokwamanani amanqanaba ekunokufuneka uwalandele xa usenza indlwana yemisundululu. Elokuqala inqanaba sele ulenzelwe.

___ faka ibhotile ebhokisini yezihlangu

___1_ gqobhoza imingxuma ngaphezulu kwebhokisi yezihlangu

___ faka imisundululu

___ faka itapile netswele

___ gcwalisa ibhotile ngomhlaba nesanti

12. Cacisa ukuba kutheni kubalulekile ukuba waleke umhlaba nesanti ebhotileni.

13. Cacisa ukuba kutheni kubalulekile nje ukufaka itswele netapile ngaphezu komhlaba kule projekthi yendlwana yemisundululu.

14. Iprojekthi nganye kunamagama athi *Kwenzeka ntoni* nelithi *Kutheni* ebhokisini eyodwa. Yintoni injongo yezi bhokisi?

- (a) kukucacisa amanqanaba aloo projekthi
- (b) kukukuxelela into onokuyifuna ngale projekthi
- (c) kukukuxelela into ekufuneka uyenzile xa ugqibile
- (d) kukucacisa into oyibonileyo

15. Yeyiphi kwezi projekthi zintathu oyifumene iyeyona inika umdla? Sebenzisa ulwazi olukwiscatshulwa ukucacisa impendulo yakho.

Scoring Guide: Ukuphanda ngoKutya

1. A [1]
2. D [1]
3. B [1]
4. C [1]
5. Impendulo Eyamkelekileyo
Impendulo ibonisa ukwazi ukuba iimbovane zithi saa kuba ziyilahlile indlela yazo (yaye ke ngoko kufuneka zenze indlela entsha) okanye kuba zikhangela ukutya.
Umzekelo:
Kufuneka zenze indlela entsha. [1]
6. B [1]
7. Uvavanyo Lokuqonda Olupheleleyo
Impendulo inika ingcaciso imfuneko yal mfanekiso ukuze ukwazi ukwenza le bhokisi, ukwazi ukuba izinto uzibeka phi ebhokisini, okanye wazi ukuba ibhokisi kufuneka ibe njani.
Umzekelo:
Ikunceda ekuqondeni ukuba kufuneka uyibeke phi imicu yebhokisi.
Okanye, impendulo ibonisa ukuqonda ukuba ngumfanekiso obonakalayo webhokisi owenza kukwazeke ukwenza enye ngokufanayo.
Umzekelo:
Ibonisa ukuba ifanele ukuba njani. [2]
- OKANYE
- Uvavanyo Lokuqonda Oluyinxalenye
Impendulo icacisa inkangeleko yomfanekiso ngaphandle kokuxela ukuba kubaluleke njani ekwenziweni kwalo msebenzi.
Umzekelo:
Isebenzisa uphawu lotolo neeleyibheli. [1]
8. B [1]
9. Impendulo Eyamkelekileyo
Impendulo inika ingqikelelo efanelekileyo esuka kwisicatshulwa ethi le rhorho iya (kugqibela ngo-) kuya ngasekhohlo kwicala elinamagqabi. Qaphela ukuba kwanele ukuthi irhorho iyakujika iyekwicala elinokutya okanye uyakujika umke kwicala ibiqale isiya ngakula msebenzi nokuba akadanga wacacisa ukuba yikona yangasekhohlo.
Umzekelo:
Iya kunukisa ukutya ikufumane. [1]

10. Impendulo Eyamkelekileyo
Impendulo ibonisa ukuqonda ukuba iimbovane nerhorho zikufumana ukutya ngokunukisa zisebenzisa iimpondo zazo zokuva okanye izivi zazo.
Umzekelo:
Zisebenzisa izivo zazo. [1]
11. Impendulo Eyamkelekileyo
Impendulo iwabala ngokuchanekileyo amanqanaba ngale ndlela iboniswe apha ngezantsi.
Ukuze afumane amanqaku apheleleyo, inqanaba ngalinye malibe nenani elifanelekileyo.
- Ukulandelelaniswa Kakuhle Kwamanqanaba**
- | | |
|---|---|
| 5 | faka ibhotile ebhokisini yezihlangu |
| 1 | gqobhoza imingxuma ngaphezulu kwebhokisi yezihlangu |
| 4 | faka imisundululu |
| 3 | faka itapile netswele |
| 2 | gcwalisa ibhotile ngomhlaba nesanti |
- [1]
12. Impendulo Eyamkelekileyo
Impendulo ibonisa ukuqonda ukuba isiphumo sokugqobhoza (ukudityaniswa komhlaba nesanti) siya kubonakala ngenxa yokwalekwa kwazo.
Umzekelo:
Ukwenzela ukuba ukwazi ukubona isiphumo sokugqobhoza kwemisundululu. [1]
13. Impendulo Eyamkelekileyo
Impendulo inika ingcaciso efanelekileyo yokufaka ukutya ngaphezulu ukwenzela ukuba imisundululu igqibhozele phezulu isiya kutya (ize iphinde igqobhoze ukuhla kuba ibaleka ilanga).
Umzekelo:
Ukwenzela ukuba imisundululu inyuke. [1]
14. D [1]
15. Uvavanyo Lokuqonda Olupheleleyo
Impendulo ikhetha iprojekthi eneenkcukacha ezithile ezibhekise kwisicatshulwa, okanye inganika ingqikelelo ebonisa ngokucacileyo ulwazi oluthile olukwisicatshulwa.
Umzekelo:
Iprojekthi yeembovane kuba ndingathanda ukubona ukuba iimbonvane zingenza indlela ngokutya okune-apile. [2]

OKANYE

Uvavanyo Lokuqonda Oluyinxalenye

Impendulo ikhetha iprojekthi ize inike ingcaciso nje enxulumene nesicatshulwa, kodwa inakho ukwenzeka nakweyiphi na kwezi projekthi.

Umzekelo:

Iprojekthi yorhorho kuba kungamnandi ukuzikhangela.

[1]

[Total = 17 marks]

APPENDIX H: Order of Testing - WMLS (Language Proficiency) & PIRLS (Reading Comprehension)

		WMLS			PIRLS			
		WMLS	Date: isiXhosa	Date: English	RC Text 1	Date: isiXhosa & English	RC Text 2	Date: isiXhosa & English
	2008 Academic Position							
sos_15	1	x-e	09/05/26	09/05/27	e-x	09/11/17	x-e	09/11/18
sos_6	2	e-x	09/05/27	09/05/26	x-e	09/11/17	e-x	09/11/18
sos_20	3	x-e	09/05/25	09/05/26	e-x	09/11/17	x-e	09/11/18
sos_12	3	e-x	09/05/27	09/05/25	x-e	09/11/17	e-x	09/11/18
sos_3	4	e-x	09/05/26	09/05/25	x-e	09/11/17	e-x	09/11/18
sos_22	5	x-e	09/05/26	09/05/27	e-x	09/11/17	x-e	09/11/18
sos_25	6	x-e	09/05/26	09/05/27	e-x	09/11/17	x-e	09/11/18
sos_21	7	e-x	09/05/26	09/05/25	x-e	09/11/17	e-x	09/11/18
sos_14	7	x-e	09/05/25	09/05/26	e-x	09/11/17	x-e	09/11/18
sos_8	8	e-x	09/05/27	09/05/26	x-e	09/11/17	e-x	09/11/18
sos_2	9	e-x	09/05/26	09/05/26	x-e	09/11/17	e-x	09/11/18
sos_19	10	e-x	09/05/27	09/05/25	x-e	09/11/17	e-x	09/11/18
sos_23	10	x-e	09/05/25	09/05/26	e-x	09/11/17	x-e	09/11/18
sos_26	11	x-e	09/05/26	09/05/27	e-x	09/11/17	x-e	09/11/18
sos_24	new	e-x	09/05/27	09/05/26	x-e	09/11/17	e-x	09/11/18
sos_27	new	x-e	09/05/26	09/05/27	e-x	09/11/17	x-e	09/11/18

e-x : English followed by isiXhosa version;

x-e : isiXhosa followed by English version

**ADDITIVE BILINGUAL LANGUAGE EDUCATION (ABLE)
PROJECT**

Information Sheet

The members of the ABLE research project involved at Sosebenza Community School are:

Cordelia Foli, Monica Hendricks, Mary-Jane Jackson, Lulama Kahla, Elize Koch, Yolisa Madolo and Brian Ramadiro.

The ABLE project is a long-term research project with two primary aims:

1. to investigate the practical implementation of the National Language-in-Education Policy in the classroom, by developing a model of teaching and learning that supports additive multilingual development and provides children with access to the cognitive, academic, linguistic and social advantages associated with additive bilingual instruction and learning.
2. to research learners' language development in both isiXhosa and English, their cognitive processing skills and their academic achievement over an extended period of time.

Information is required for the current phase of the research project which will run from 2009 – 2011. This information will be collected in various ways, for example, through classroom observations, language and cognitive tests, interviews and document analysis.

Your participation/the participation of your child is entirely voluntary, and you/your child may withdraw from the project at any point.

In carrying out the research we promise to acknowledge the help of those who participate, respect their confidentiality and guarantee their anonymity.

Members of the ABLE team will publicize the findings of the research in theses towards formal University qualifications, in conference papers and in articles. We undertake to provide the teachers concerned with a copy of these papers as work in progress so that they can check the accuracy of the information. We will also provide the school with a copy of any published article for its own record.

**ADDITIVE BILINGUAL LANGUAGE EDUCATION (ABLE)
PROJECT**

Consent Form for Parents

I....., the parent/ guardian
of, a Grade learner
at Sosebenza Community School, understand the aims of the ABLE
research project and am willing to participate/ for my child to
participate in the research.

The researchers agree to respect your/ your child's confidentiality and
to protect your anonymity. We understand that your / your child's
participation is entirely voluntary and that as a willing participant
you/ your child can withdraw from the process at any stage.

We will acknowledge the participants in any report or paper that we
write.

Signatures

Learner: Date:

ABLE Team Representative:.....Date:.....

**ADDITIVE BILINGUAL LANGUAGE EDUCATION (ABLE)
PROJECT**

Consent Form for Learners

I,, a learner in Grade..... at Sosebenza Community School, understand the aims of the ABLE research project. I am willing to participate in the research.

The researchers agree to respect your confidentiality and to protect your anonymity. We understand that your participation is entirely voluntary and that as a willing participant you can withdraw from the process at any stage.

We will acknowledge the participants in any report or paper that we write.

Signatures

Learner: Date:

ABLE Team Representative:.....Date:.....

**ADDITIVE BILINGUAL LANGUAGE EDUCATION (ABLE)
PROJECT**

Consent Form for Teachers

I,, a teacher at Sosebenza Community School understand the aims of the ABLE research project. I am willing to participate in the research.

The researchers agree to respect your confidentiality and to protect your anonymity. We understand that your participation is entirely voluntary and that as a willing participant you can withdraw from the process at any stage.

We will acknowledge the participants in any report or paper that we write.

Signatures

Teacher: Date:

ABLE Team Representative:.....Date:.....

**IPROJEKTHI IADDITIVE BILINGUAL LANGUAGE EDUCATION
(ABLE)**

Iphepha loLwazi

Amalungu eprojekthi yophando iABLE abandakanyeka eSosebenza Community School ngala:

Cordelia Foli, Monica Hendricks, Mary-Jane Jackson, Lulama Kahla, Elize Koch, Yolisa Madolo noBrian Ramadiro.

Iprojekthi iABLE iprojekthi yophando yethuba elide enezi njongo ziphambili zimbini:

1. ukuphanda ukwenziwa okubonakalayo koMgaqo-nkqubo kaZwelonke woLwimi lweMfundo eklasini, ngokuyila imodeli yokufundisa nokufunda exhasa ukuphuhliswa kokusetyenziswa kweelwimi ezininzi okongezelelwayo nenika abantwana ithuba lokufikelela kwimiba ekhulisa ingqondo, imfundo, ulwimi nezinto zentlalo, zinto ezo zinxulunyaniswa nokufundiswa nokufunda ngeelwimi ezimbini.
2. ukuphanda ngophuhliso lolwimi lwabafundi kokubini ngesiXhosa nesiNgesi, izakhono zabo zokuqiqa kunye nempumelelo yabo yemfundo ngethuba lexesha elithile.

Kufuneka ulwazi kwesi sigaba sangoku sale projekthi yophando eya kuqhuba ukususela ngo2009 kude kube ngu2011. Olu lwazi luya kuqokelelwa ngeendlela ngeendlela, umzekelo, ngoqwalaselo lwaseklasini, iimvavanyo zolwimi nengqiqo, udliwano-ndlebe kunye nohlalutyo lwamaxwebhu.

Ukuthatha kwakho / komntwana wakho inxaxheba kokokuzithandela kuphela, yaye wena / umntwana wakho angarhoxa kule projekthi nanini na.

Ekwenzeni olu phando sithembisa ukulukhankanya uncedo lwabo bantu bathatha inxaxheba, sihloniphe ubumfihlo bemcimbi yabo sikwathembisa nokungawaxeli amagama abo.

Amalungu eqela leABLE aya kupapasha iziphumo zolu phando ngezifundo zawo aseYunivesithi, kumaphepha afundwa ezinkomfeni nakumanqaku apapashwayo. Sizimisele ukunika ezo titshala zichaphazelekayo ikopi yala maphepha njengomsebenzi oqhubekayo ukwenzela ukuba bajonge ukuchaneka kolo lwazi. Siya kuphinda sinike isikolo ikopi yalo naliphi na inqaku elipapashiweyo ukwenzela ukuba sizigcinele.

IPROJEKTHI IADDITIVE BILINGUAL LANGUAGE EDUCATION (ABLE)

IFomu yeMvume yaBazali

Mna....., mzali/mkhathaleli
ka....., umfundi weBanga
..... eSosebenza Community School, ndiyaziqonda iinjongo zale
projekthi yophando iABLE yaye ndizimisele ukuthatha inxaxheba /
ukuba umntwana wam athathe inxaxheba kolu phando.

Abaphandi bayavuma ukuhlonipha ubumfihlo bakho / bomntwana
wakho nokukhusela ukungaziwa kwakho/ kwakhe. Siyaqonda
ukuba ukuthatha kwakho / komntwana wakho inxaxheba
kokokuzithandela kuphela, kwanokuba njengomthathi-nxaxheba
ozithandelayo wena / umntwana wakho angarhoxa kule projekthi
nanini na.

Siya kubakhankanya abathathi-nxaxheba kuyo nayiphi ingxelo okanye
iphepha esilibhalayo.

Utyikityo

Umfundi: Umhla:

UmMeli weQela leABLE:.....Umhla:.....

I-PROJEKTHI I-ADDITIVE BILINGUAL EDUCATION (ABLE)

IFomu yeMvume yaBafundi

Mna,, umfundi
weBanga eSosebenza Community School, ndiyaziqonda iinjongo
zale projekthi yophando iABLE. Ndizimisele ukuthatha inxaxheba
kolu phando.

Abaphandi bayavuma ukuhlonipha ubumfihlo bakho nokukhusela
ukungaziwa kwakho. Siyaqonda ukuba ukuthatha kwakho inxaxheba
kokokuzithandela kuphela kwanokuba njengomthathi-nxaxheba
ozithandelayo ungarhoxa kule nkqubo nanini na.

Siya kubakhankanya abathathi-nxaxheba kuyo nayiphi ingxelo okanye
iphepha esilibhalayo.

Utyikityo

Umfundi: Umhla:

UmMeli weQela leABLE:.....Umhla:.....

IPROJEKTHI IADDITIVE BILINGUAL LANGUAGE EDUCATION (ABLE)

IFormu yeMvume yeeTitshala

Mna,, utitshala
waseSosebenza Community School, ndiyaziqonda iinjongo zale
projekthi yophando iABLE. Ndizimisele ukuthatha inxaxheba kolu
phando.

Abaphandi bayavuma ukuhlonipha ubumfihlo bakho nokukhusela
ukungaziwa kwakho. Siyaqonda ukuba ukuthatha kwakho inxaxheba
kokokuzithandela kuphela kwanokuba njengomthathi-nxaxheba
ozithandelayo ungarhoxa kule nkqubo nanini na.

Siya kubakhankanya abathathi-nxaxheba kuyo nayiphi ingxelo okanye
iphepha esilibhalayo.

Utyikityo

Utitshala: Umhla:

UmMeli weQela leABLE:.....Umhla:.....

APPENDIX K: Woodcock-Muñoz Language Survey - Individual Scores (English & isiXhosa)

Group	M/F	Age	Order of tests	isiXhosa				English				
				Picture Vocabulary	Verbal Analogies	Letter-Word Identification	Dictation	Picture Vocabulary	Verbal Analogies	Letter-Word Identification	Dictation	
	Maximum Score			58	35	57	56	58	35	57	56	
sos_2	Together from Grade 1	F	11	e-x	31	24	54	42	22	9	39	20
sos_3	Together from Grade 1	F	12	e-x	25	24	50	29	18	5	34	18
sos_6	Together from Grade 1	F	12	e-x	40	22	50	32	24	6	37	21
sos_8	Together from Grade 1	M	12	e-x	36	22	47	27	21	9	31	14
sos_12	Together from Grade 1	M	12	e-x	30	23	55	37	24	12	43	20
sos_14	Together from Grade 1	M	11	x-e	26	23	52	32	23	9	46	23
sos_15	Together from Grade 1	M	11	x-e	42	26	57	44	31	17	42	24
sos_19	Together from Grade 1	M	14	e-x	36	23	48	35	28	14	44	20
sos_20	Together from Grade 1	M	12	x-e	27	21	50	40	23	15	44	21
sos_21	Pilot Repeaters	M	13	e-x	34	15	42	23	20	7	27	12
sos_22	New in Grade 2	F	12	x-e	24	18	41	22	13	3	22	16
sos_23	Numerous Repeaters	M	15	x-e	27	16	43	18	20	6	25	11
sos_24	New in Grade 6	F	11	e-x	33	18	44	27	17	4	30	17
sos_25	Pilot Repeaters	M	13	x-e	37	22	38	25	24	10	28	14
sos_26	Together from Grade 1	M	13	x-e	35	22	49	28	24	7	29	15
sos_27	New in Grade 6	F	13	x-e	26	25	57	42	20	2	42	18

**APPENDIX L: Progress in International Reading Literacy Survey
Individual Scores – Social-Information
(English & isiXhosa)**

counterbalance (x=isiXhosa first; e=English first)		Antarctica: Land of Ice											I-Antarctica: Ilizwe loMkhenkce													
GROUP		1	2	3	4	5	6	7	8	9	10	11	Total	1	2	3	4	5	6	7	8	9	10	11	Total	
Total per Question		1	1	1	2	1	1	3	2	2	1	1	16	1	1	1	2	1	1	3	2	2	1	1	16	
sos_2	Together from Grade 1	x	1	0	1	1	1	0	0	0	0	1	0	5	1	0	0	0	1	0	0	0	2	0	0	4
sos_3	Together from Grade 1	x	1	0	0	0	1	0	0	1	1	1	0	5	1	0	1	1	1	0	0	2	2	0	0	8
sos_6	Together from Grade 1	x	1	1	1	1	1	1	0	0	1	1	0	8	0	1	1	1	1	1	0	1	2	0	0	8
sos_8	Together from Grade 1	x	1	0	0	1	1	1	0	1	0	0	0	5	0	0	0	1	0	1	1	2	1	0	0	6
sos_12	Together from Grade 1	x	1	0	1	2	1	0	0	1	1	0	0	7	0	0	0	1	1	0	0	1	2	0	0	5
sos_14	Together from Grade 1	e	0	1	1	0	1	1	0	1	1	0	0	6	0	0	1	1	1	1	0	1	1	0	1	7
sos_15	Together from Grade 1	e	1	1	1	1	1	1	2	1	1	0	0	10	0	1	1	1	1	1	3	0	2	0	0	10
sos_19	Together from Grade 1	x	1	1	0	1	1	1	1	2	1	0	0	9	0	0	1	1	0	1	1	2	2	0	1	9
sos_20	Together from Grade 1	e	1	1	1	1	1	1	0	0	2	0	1	9	0	0	1	0	1	1	0	1	2	0	0	6
sos_21	Pilot Repeaters	x	0	0	0	0	1	1	0	0	0	0	0	2	0	0	0	0	1	1	0	1	0	0	0	3
sos_22	New in Grade 2	e	1	0	1	0	1	1	0	0	0	0	0	4	0	1	0	0	1	1	0	0	2	0	0	5
sos_23	Numerous Repeaters	e	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	2
sos_24	New in Grade 6	x	0	0	0	0	0	0	0	0	1	0	1	2	0	0	0	1	1	0	0	1	1	1	1	6
sos_25	Pilot Repeaters	e	0	0	0	1	1	1	1	2	0	0	0	6	0	0	1	1	0	0	0	1	0	0	1	4
sos_26	Together from Grade 1	e	0	0	0	0	0	1	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0
sos_27	New in Grade 6	e	1	1	0	1	0	0	0	0	0	0	0	3	1	0	0	1	0	0	0	0	0	0	0	2

- ESI Focus on and Retrieve Explicitly Stated Information
- SIN Make Straightforward Inferences
- INT Interpret and Integrate Ideas and Information
- EVA Examine and Evaluate Content, Language and Textual Elements (Structure)

**Appendix M: Reading Comprehension Text 1_Social-Information:
Frequency of Correct Responses per Question
Category**

Question Categories + Question No.	Question Type (MC= Multiple Choice; CR= Constructed Response)	Max Score Possible	<i>Antarctica: Land of Ice</i>			<i>I-Antarctica: Ilizwe loMkhenkce</i>		
			Total Actual Score	No. Correct Responses	% Correct Responses	Total Actual Score	No. Correct Responses	% Correct Responses
ESI #1	CR	1	10	10	62.5	4	4	25
ESI #3	CR	1	7	7	43.75	7	7	43.75
ESI #8	CR	2	10	8	50	13	10	62.5
ESI Total		4	27	25	52.08	24	21	43.75
SIN #2	MC	1	6	6	37.5	3	3	18.75
SIN #6	MC	1	11	11	68.75	8	8	50
SIN #7	CR	3	4	3	18.75	5	3	18.75
SIN Total		5	21	20	41.67	16	14	29.17
INT #4	MC	2	10	9	56.25	10	10	62.5
INT #5	CR	1	12	12	75	10	10	62.5
INT #9	CR	2	8	7	43.75	19	11	68.75
INT Total		5	30	28	58.33	39	31	64.58
EVAL #10	MC	1	5	5	31.25	1	1	6.25
EVAL #11	CR	1	1	1	6.25	5	5	31.25
EVAL Total		2	6	6	18.75	6	6	18.75
		16	84	79	30.86	85	72	28.12

**APPENDIX N: Progress in International Reading Literacy Survey
Individual Scores – Procedural-Information
(English & isiXhosa)**

counterbalance (x= isiXhosa first; e=English first)			Searching for Food															UkuPhanda ngoKutya															
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
GROUP			1	1	1	1	1	1	2	1	1	1	1	1	1	1	2	17	1	1	1	1	1	1	2	1	1	1	1	1	1	2	17
Total per Question			1	1	1	1	1	1	2	1	1	1	1	1	1	2	17	1	1	1	1	1	1	2	1	1	1	1	1	2	17		
sos_2	Together from Grade 1	e	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
sos_3	Together from Grade 1	e	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
sos_6	Together from Grade 1	e	1	1	1	0	0	1	1	0	0	0	0	1	0	1	7	1	1	0	0	0	1	1	0	0	1	0	0	0	0	5	
sos_8	Together from Grade 1	e	1	0	1	0	0	0	0	1	0	0	0	0	0	0	3	1	1	0	0	1	0	1	0	0	0	0	0	0	1	5	
sos_12	Together from Grade 1	e	0	0	0	0	1	0	0	0	0	0	0	1	0	0	2	1	0	1	0	1	0	0	1	1	0	0	0	0	0	5	
sos_14	Together from Grade 1	x	0	1	0	0	1	0	0	1	0	0	0	0	1	0	4	0	1	0	0	0	0	0	1	0	0	0	0	1	0	3	
sos_15	Together from Grade 1	x	0	1	0	1	0	1	0	1	0	1	0	0	0	0	5	0	1	1	1	1	1	0	1	1	1	0	0	0	0	8	
sos_19	Together from Grade 1	e	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	1	0	0	0	1	0	3	
sos_20	Together from Grade 1	x	1	1	1	0	1	1	2	0	0	0	0	0	0	0	7	1	1	0	0	1	1	0	1	0	0	0	0	0	1	6	
sos_21	Pilot Repeaters	e	1	0	0	0	0	0	0	1	0	0	0	0	0	0	2	0	1	0	0	0	1	0	0	0	0	0	0	0	0	2	
sos_22	New in Grade 2	x	0	0	1	0	0	0	0	1	0	0	0	0	0	0	2	1	1	0	0	0	1	0	0	0	0	0	0	0	0	3	
sos_23	Numerous Repeaters	x	0	1	1	0	0	1	0	0	0	0	0	0	0	0	3	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2	
sos_24	New in Grade 6	e	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	1	0	0	0	1	0	0	0	0	3	
sos_25	Pilot Repeaters	x	0	1	0	0	0	1	0	0	0	0	0	0	0	0	2	0	1	0	0	0	1	0	0	0	0	0	0	0	0	2	
sos_26	Together from Grade 1	x	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	
sos_27	New in Grade 6	x	1	0	0	0	0	1	0	0	0	0	0	0	0	0	2	1	0	0	0	1	1	0	0	0	0	0	0	1	0	4	

- ESI Focus on and Retrieve Explicitly Stated Information
- SIN Make Straightforward Inferences
- INT Interpret and Integrate Ideas and Information
- EVA Examine and Evaluate Content, Language and Textual Elements (Structure)

**Appendix O: Reading Comprehension Text 2_Procedural-
Information: Frequency of Correct Responses per Question Category**

Question Categories + Question No.	Question Type (MC= Multiple Choice; CR= Constructed Response)	Max Score Possible	<i>Searching for Food</i>			<i>UkuPhanda ngoKutya</i>		
			Total Actual Score	No. Correct Responses	% Correct Responses	Total Actual Score	No. Correct Responses	% Correct Responses
ESI #2	MC	1	7	7	43.75	10	10	62.5
ESI #6	MC	1	6	6	37.5	8	8	50
ESI Total		2	13	13	40.63	18	18	56.25
SIN #3	MC	1	6	6	37.5	3	3	18.75
SIN #4	MC	1	1	1	6.25	2	2	12.5
SIN #11	CR	1	0	0	0	0	0	0
SIN Total		3	7	7	14.58	5	5	10.42
INT #5	CR	1	3	3	18.75	5	5	31.25
INT #8	MC	1	6	6	37.5	5	5	31.25
INT #9	CR	1	0	0	0	2	2	12.5
INT #10	CR	1	1	1	6.25	4	4	25
INT #12	CR	1	0	0	0	0	0	0
INT #13	CR	1	2	2	12.5	1	1	6.25
INT #15	CR	2	1	1	6.25	2	2	12.5
INT Total		8	13	13	9.38	19	19	14.84
EVAL #1	MC	1	7	7	43.75	7	7	43.75
EVAL #7	CR	2	3	2	12.5	2	2	12.5
EVAL #14	MC	1	1	1	6.25	2	2	12.5
EVAL Total		4	11	10	15.63	11	11	22.92
		17	44	43	15.81	53	53	19.49