Language and Grade 4 reading literacy achievement in
prePIRLS 2011

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EXECUTIVE SUMMARY

The aim of this report is to illustrate South African Grade 4 learner reading literacy achievement by utilising the preProgress in International Reading Literacy Study (prePIRLS) 2011 results. The report aims to contribute to a fuller understanding of the learning deficits faced by these learners at the end of the Foundation Phase by providing achievement on a range of comprehension process skills from a selection of released reading passages from the prePIRLS 2011 assessment cycle.

Evidence presented in the current report focuses on Grade 4 learner achievement on four released reading passages from the prePIRLS 2011 cycle. Two of the passages ('The lonely giraffe' and 'Brave Charlotte') aimed at assessing learners' abilities to read and understand short stories of fictional content. The two other passages ('Caterpillar to butterfly' and 'Two giant dinosaurs') aimed at assessing learners' abilities to read and understand content of a factual and informational nature. All four passages were accompanied by a range of multiple choice questions and extended response questions to a maximum of two points, where learners were required to provide some written support from what they were able to read and understand from the text.

Overall achievement by South African Grade 4 learners on each of the items presented in these passages was firstly compared to achievement by Grade 4 learners from Colombia and Botswana, the only other participating countries in the prePIRLS 2011 study. Colombia consistently outperformed South African learners on all the items of the passages. While South African learners performed better percentage-wise on some items when compared to learners from Botswana, it has to be kept in mind that Botswana only tested learners in English and not in any African language. While Botswana outperformed South Africa in the overall prePIRLS 2011 achievement (as presented in Appendix I), this difference was not statistically substantial.

Evidence of achievement per item by each of the 11 official languages for the four selected reading passages in which testing took place suggests very poor performance, especially for learners from African language backgrounds. Grade 4 learners who were tested in English, followed by achievement for learners who were tested in Afrikaans, consistently outperformed learners who were tested in the African languages. It has to be kept in mind that for purposes

of prePIRLS 2011 the language of testing did not necessarily coincide with the learners' home language. Rather, the language of testing usually coincided with the language of instruction to which the learners were exposed during the Foundation Phase. No discernable difference in achievement was detected by passage type, meaning that the fictional passages were not answered with greater ease than the informational passages or vice versa.

The evidence presented here further points to no difference in achievement based on item format. While it could be expected that multiple choice items could be answered with greater ease as compared to extended response items that would require learners to demonstrate their understanding in writing, this was not the case. The percentages of correct answers to multiple choice questions did not outweigh correct percentages for constructed response items. Anecdotal evidence obtained during the data collection process would suggest that learners were in many cases not familiar with multiple choice items, evidence that would suggest that teachers do not use this item format as part of teaching reading or assessing reading comprehension.

The prePIRLS 2011 assessment framework, as presented in Appendix I, details the processes of comprehension assessed by each of the items that accompanied the reading passages. These four processes of comprehension include the ability to: (1) focus on and retrieve explicitly stated information, (2) make straightforward inferences, (3) interpret and integrate ideas and information and (4) evaluate content, language and textual elements. The processes of comprehension become hierarchically more difficult, starting with a basic skill of focusing on and retrieving explicit information to skills of increasing difficulty. One would therefore expect that at Grade 4 level, learners would find 'focus on and retrieve' items easier to respond to, as these items measure basic skills and to find items that would require them to 'examine and evaluate content, language and textual elements' within reason more difficult. It has to be kept in mind that as an easier reading assessment, the items contained across passages in the prePIRLS 2011 reading assessment consisted mostly of items that assessed learners' abilities to focus on and retrieve explicitly stated information

Despite the way that these four processes of comprehension were designed, evidence from the current analyses of the four released passages for the South African prePIRLS 2011 data suggests no discernable difference in achievement by process of comprehension. This means that Grade 4 learners did not perform any better on the most basic of reading skills (i.e. focus

on and retrieve explicitly stated information), than on the more advanced skills (i.e. evaluating content, language and textual elements).

Grade 4 learners in South African primary schools who participated in prePIRLS 2011 were unable to achieve satisfactory levels of reading competence. The gravity of this finding is exacerbated by the fact that these learners were tested with an easier assessment and in the language of instruction to which they had been exposed during the Foundation Phase of schooling. This report lastly provides evidence for differences in achievement as a result of discrepancies between home language and Language of Teaching and Learning (LoLT) when controlling for learner background factors such as age, sex and socio economic status. Findings illustrate a substantial effect on reading literacy achievement when a discrepancy exists between language of the test and home language when controlling for learner background characteristics. Learners from African language backgrounds are most severely affected when the language of the test and their home language did not coincide and across all African languages reading literacy achievement scores can be expected to decrease substantially when this discrepancy between language of the test and home language exists. Belonging to a different language group than what the test was written in results in a 29 point decrease in reading literacy achievement, a decrease by almost three quarters of a year for learners who wrote the test in a language outside the broader language group to which they belong. The effect of the teacher who switches language during class to support understanding was significant, yet not so for the effect of the teacher who allows learners to switch language in class to illustrate their understanding.

The remainder of the report is structured as follows:

Section I provides a detailed description of Grade 4 achievement for each of the items for two selected Literary passages (i.e. 'The lonely giraffe' and 'Brave Charlotte'). These reading passages took the form of fictional, narrative passages with accompanying questions testing a range of comprehension skills to which learners had to respond. Results in this section are presented in terms of percentage correct responses provided by Grade 4 learners for each item individually disaggregated by each of the 11 languages of testing.

Section II details Grade 4 learner responses to items accompanying two prePIRLS 2011 Informational passages (i.e. 'Caterpillar to butterfly' and 'Two giant dinosaurs'). These passages took the form of factual texts and tested learners' abilities on the same range of reading comprehension skills than those presented in the Literary passages. Similar to Section I, results here too are presented in terms of the percentage of correct answers for each item individually disaggregated by each of the 11 languages of testing.

Section III provides evidence from regression analysis to explain Grade 4 reading literacy achievement taking into account discrepancies between the language of the test and home language for Grade 4 learners who participated in the South African prePIRLS 2011 study. This evidence paints a picture for each language of testing individually by controlling for learner characteristics (such as learner age, sex and home language), and socio economic effects by means of a learner asset scale and a school asset scale. Possible significant effects were tested with discrepancies between:

1. Language of the test and home language (Afrikaans, English, isiNdebele, isiXhosa, isiZulu, Sepedi, Sesotho, Setswana, SiSwati, Tshivenda and Xitsonga).
2. Language of the test and membership to one of five groups of languages (Afrikaans, English, Nguni, Sotho and Tshivenda).
3. Codeswitching variables as evidenced by teachers who make use of the practice or who allow learners to make use of the practice as additional variables to the model.

The report concludes with a summary of main conclusions and patterns as observed from the results.

Appendix I describes the prePIRLS 2011 study in terms of its design and methodology as it was administered in South Africa. This section also provides an overview of overall reading achievement, overall reading achievement per language and achievement on the international benchmarks as a preamble to discussing achievement in more detail in sections to follow.

SECTION I:

SOUTH AFRICAN GRADE 4 LEARNER ACHIEVEMENT IN READING FOR LITERARY EXPERIENCE TEXTS

1. INTRODUCTION

Section I provides examples of South African Grade 4 learner performance in the prePIRLS 2011 literary texts. As explained in Appendix I, these text types took the form of fictional stories to allow the learner to become involved in imagined events, settings, actions, consequences, characters, atmosphere, feelings and ideas.

Section I firstly provides an overview of the released literary reading passages that are used for purposes of this report. The first passage, entitled 'The lonely giraffe' took the form of a short story, accompanied by 15 items, nine of which were multiple choice items with the remaining six items being constructed response items, all worth one point. Learner responses to the passage will be reported across all 11 official languages of testing.

Overall results and results per language will then be presented for the second fictional story, called 'Brave Charlotte'. Similar to 'The lonely giraffe', this story too took the form of fictional narrative to tell the story of a little sheep that saves the flock's shepherd after an accident when all others were too scared to do so. This story was accompanied by 18 items, six of which were multiple choice items with the other items taking the form of constructed response items worth one point and one item worth a maximum of two points.

The IEA made the International Database Analyser (IDB Analyzer) software available for the analysis of the PIRLS and prePIRLS datasets (IEA 2012). This software was used for purposes of data analysis for the report.

2. RESULTS FOR 'THE LONELY GIRAFFE'

Table 2.1 presents an outline of items that accompanied 'The lonely giraffe' text per process of comprehension. As indicated by Table 2.1, most items were pitched at the most basic of reading skills as assessed by the prePIRLS 2011 assessment framework, namely the learners' abilities to focus on and retrieve explicitly stated information. Only item 13 was aimed at assessing learners' abilities to examine and evaluate content, language and textual elements,

the most difficult of the processes of comprehension as assessed by prePIRLS 2011. It has to be mentioned here that the processes of comprehension become hierarchically more difficult, starting with a basic skill of focusing on and retrieving explicit information to skills of increasing difficulty, including making straightforward inferences, interpreting and integrating ideas and information and examining and evaluating content, language and textual elements. One would therefore expect that at Grade 4 level, learners would find 'focus on and retrieve' items easier to respond to, as these items measure basic skills and to find items that would require them to 'examine and evaluate content, language and textual elements' within reason more difficult.

Table 2.1: Item summary for 'The lonely giraffe' and processes of comprehension

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

2.1. Overall performance per item

Figure 2.1 illustrates South African Grade 4 learners' overall performance in each of the items, expressed as the percentage of correct responses per item. Figure 2.1 draws a comparison between South African Grade 4 learners and Grade 4 learners from Botswana and Colombia, the only other prePIRLS 2011 participating countries:
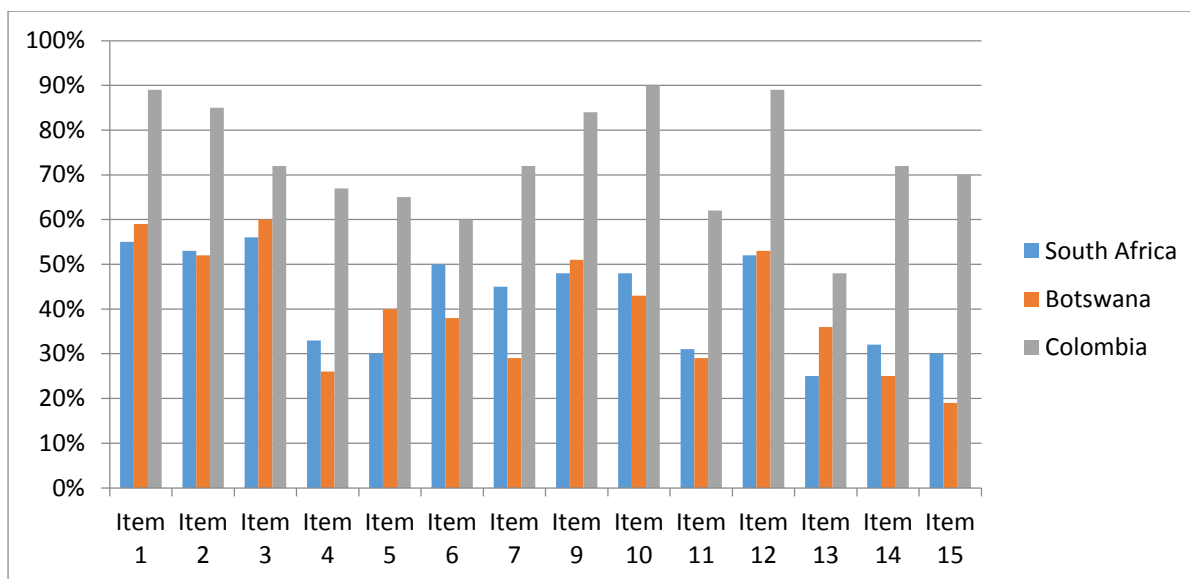
Figure 2.1: Overall performance per item as compared between South Africa, Botswana and Colombia.

Figure 2.1 illustrates that learners from Colombia consistently outperformed South African learners on all the items of the passage. While South African learners performed better percentage-wise on some items when compared to learners from Botswana, it has to be kept in mind that Botswana only tested learners in English and not in any African language. South African learner performance was poorest for item 13, an item that required learners to construct a response that would indicate their ability to examine and evaluate content, language and textual elements.

2.2. Performance per item per language of the test

The following section disaggregates South African Grade 4 learner performance on each of the items (except item 8 that was not administered) in 'The lonely giraffe' passage per language. At this point it has to be stated that the language of testing did not always coincide with the learners' home language. Here, language of testing usually coincided with the language in which the learners received instruction during the Foundation Phase.

Table 2.2 indicates Grade 4 learner achievement for each item of 'The lonely giraffe' passage per language that was tested.

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Table 2.2: Performance per item by language for 'The lonely giraffe'

Item 1	Afrikaans	English	IsiNdebele	IsiXhosa	IsiZulu	Sepedi	Sesotho	Setswana	SiSwati	Tshivenda	Xitsonga
N	360	531	337	257	275	242	336	315	538	257	270
Percent correct	73	77	49	52	59	29	41	47	55	29	30
SE	0.03	0.04	0.06	0.05	0.04	0.04	0.03	0.04	0.03	0.04	0.04
Item 2	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	337	517	315	235	238	184	284	287	504	203	220
Percent correct	75	75	59	54	55	45	52	42	59	52	41
SE	0.03	0.03	0.09	0.04	0.04	0.05	0.04	0.03	0.02	0.05	0.04
Item 3	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	359	530	331	246	268	233	327	316	531	246	260
Percent correct	75	75	49	61	53	33	43	47	60	33	39
SE	0.03	0.04	0.05	0.06	0.05	0.05	0.03	0.04	0.04	0.04	0.04
Item 4	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	338	518	311	228	245	189	286	292	508	195	216
Percent correct	55	46	44	25	38	28	34	33	24	29	28
SE	0.04	0.04	0.03	0.04	0.04	0.04	0.04	0.03	0.02	0.04	0.03
Item 5	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	337	504	312	224	247	191	279	290	501	198	216
Percent correct	40	58	21	21	30	15	30	22	27	22	19
SE	0.03	0.04	0.03	0.04	0.04	0.02	0.04	0.03	0.02	0.03	0.02
Item 6	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	344	520	317	229	257	190	292	291	512	196	225
Percent correct	63	63	54	55	59	45	55	49	45	42	40
SE	0.03	0.03	0.03	0.06	0.04	0.04	0.02	0.04	0.03	0.04	0.03

Item 7	Afrikaans	English	IsiNdebele	IsiXhosa	IsiZulu	Sepedi	Sesotho	Setswana	SiSwati	Tshivenda	Xitsonga
N	346	517	315	225	256	187	288	286	510	191	227
Percent correct	62	63	49	47	49	40	51	29	48	38	34
SE	0.04	0.03	0.04	0.04	0.04	0.02	0.04	0.02	0.02	0.04	0.04
Item 8	Afrikaans	English	IsiNdebele	IsiXhosa	IsiZulu	Sepedi	Sesotho	Setswana	SiSwati	Tshivenda	Xitsonga
Not administered											
Item 9	Afrikaans	English	IsiNdebele	IsiXhosa	IsiZulu	Sepedi	Sesotho	Setswana	SiSwati	Tshivenda	Xitsonga
N	342	515	310	221	258	190	286	286	513	195	224
Percent correct	70	74	51	55	54	23	31	34	48	30	24
SE	0.03	0.03	0.07	0.06	0.05	0.05	0.03	0.04	0.03	0.05	0.03
Item 10	Afrikaans	English	IsiNdebele	IsiXhosa	IsiZulu	Sepedi	Sesotho	Setswana	SiSwati	Tshivenda	Xitsonga
N	340	512	305	218	255	190	276	282	508	189	222
Percent correct	72	72	46	51	49	33	40	41	46	28	34
SE	0.03	0.03	0.05	0.05	0.04	0.05	0.03	0.02	0.02	0.06	0.03
Item 11	Afrikaans	English	IsiNdebele	IsiXhosa	IsiZulu	Sepedi	Sesotho	Setswana	SiSwati	Tshivenda	Xitsonga
N	347	504	301	216	235	207	279	274	479	198	239
Percent correct	52	52	29	30	34	16	22	27	24	13	17
SE	0.04	0.04	0.05	0.05	0.04	0.03	0.04	0.04	0.02	0.04	0.04
Item 12	Afrikaans	English	IsiNdebele	IsiXhosa	IsiZulu	Sepedi	Sesotho	Setswana	SiSwati	Tshivenda	Xitsonga
N	341	499	302	220	241	177	280	274	499	182	219
Percent correct	77	75	51	63	57	37	56	48	60	43	38
SE	0.03	0.04	0.06	0.04	0.04	0.04	0.05	0.04	0.03	0.04	0.03
Item 13	Afrikaans	English	IsiNdebele	IsiXhosa	IsiZulu	Sepedi	Sesotho	Setswana	SiSwati	Tshivenda	Xitsonga
N	353	517	307	230	239	227	305	294	508	223	251
Percent correct	36	42	30	18	20	22	33	27	26	15	12

SE	0.03	0.04	0.09	0.03	0.04	0.03	0.04	0.02	0.03	0.04	0.02
Item 14	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	350	511	302	224	232	221	298	292	501	222	245
Percent correct	54	56	34	27	34	15	30	18	31	15	13
SE	0.04	0.04	0.05	0.06	0.05	0.04	0.03	0.02	0.02	0.04	0.03
Item 15	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	346	507	288	218	225	208	282	273	489	211	232
Percent correct	47	52	24	36	33	10	25	16	26	0.06	0.07
SE	0.03	0.04	0.02	0.07	0.04	0.02	0.03	0.02	0.02	0.02	0.01
Average for the item per language	60.79	62.86	42.14	42.5	44.57	27.93	38.79	34.29	41.36	27.79	26.36

Learners who were tested in Afrikaans and English consistently achieved the highest overall percentage correct responses for these items. Grade 4 learners who were tested in English performed the best on item 1 (77%, SE=0.04), item 2 (75%, SE=0.03), item 3 (75%, SE=0.04), and item 12 (75%, SE=0.04). Grade 4 learners who tested in African languages achieved below 60% on all of these items regardless of the process of comprehension that was being assessed, with the exception of 61% (SE=0.06) correct for item 3 for learners who were tested in isiXhosa. Learners who were tested in Sepedi, Tshivenda and Xitsonga failed to achieve 30% average on the items in this passage and represent the lowest performance for specific languages across the tested languages, with average percent correct achieved by learners tested in Sepedi at 27.93%, learners tested in Tshivenda at 27.8% and learners tested in Xitsonga at 26.36%.

The information in Table 2.2 also indicates that no discernable differences in achievement occurred based on item formats. Multiple-choice questions were not answered with more ease than constructed response items, even if such constructed responses only required of learners in the prePIRLS 2011 assessment to write a single sentence in attempts to provide a plausible answer to the question.

3. RESULTS FOR 'BRAVE CHARLOTTE'

Table 3.1 presents an outline of items that accompanied the 'Brave Charlotte'[1] text per process of comprehension. As indicated by Table 3.1, nine of the 18 items were pitched at the most basic of reading skills as assessed by the prePIRLS 2011 assessment framework, namely the learners' abilities to focus on and retrieve explicitly stated information. Only item 4 was aimed at assessing learners' abilities to examine and evaluate content, language and textual elements, the most difficult of the processes of comprehension as assessed by prePIRLS 2011.

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[1] With the permission of the International Study Centre, 'Brave Charlotte' was renamed to 'Brave Betty' for the purposes of testing in South Africa. This was done for the sake of ease of reading, as perhaps South African Grade 4 learners would find Betty an easier name to read.

Table 3.1: Item summary for 'Brave Charlotte' and processes of comprehension

Item	Item format	Maximum score	Process of comprehension
Item 1	Constructed response	1	Focus on and retrieve explicitly stated information
Item 2	Constructed response	1	Focus on and retrieve explicitly stated information
Item 3	Constructed response	2	Interpret and integrate ideas and information
Item 4	Multiple choice question	1	Examine and evaluate content, language and textual elements
Item 5	Constructed response	1	Making straightforward inference
Item 6	Multiple choice question	1	Focus on and retrieve explicitly stated information
Item 7	Constructed response	1	Focus on and retrieve explicitly stated information
Item 8	Constructed response	2	Making straightforward inference
Item 9	Multiple choice question	1	Making straightforward inference
Item 10	Constructed response	1	Focus on and retrieve explicitly stated information
Item 11	Constructed response	1	Focus on and retrieve explicitly stated information
Item 12	Multiple choice question	1	Focus on and retrieve explicitly stated information
Item 13	Not administered		
Item 14	Multiple choice question	1	Making straightforward inference
Item 15	Constructed response	1	Focus on and retrieve explicitly stated information
Item 16	Constructed response	1	Focus on and retrieve explicitly stated information
Item 17	Constructed response	1	Interpret and integrate ideas and information
Item 18	Constructed response	1	Interpret and integrate ideas and information

3.1. Overall performance per item

Figure 3.1 illustrates South African Grade 4 learners' overall performance in each of the items, expressed as the percentage of correct responses per item. Figure 3.1 draws a comparison between South African Grade 4 learners and Grade 4 learners from Botswana and Colombia, the only other prePIRLS 2011 participating countries:
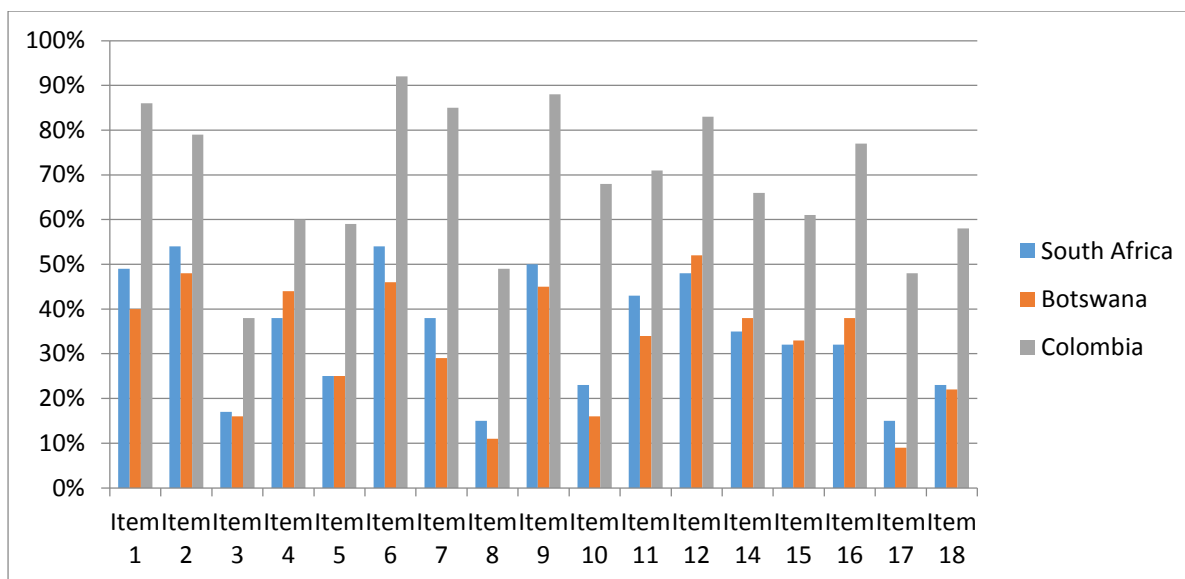
Figure 3.1: Overall performance per item as compared between South Africa, Botswana and Colombia.

Similar to achievement per item in 'The lonely giraffe' passage, Figure 3.1 illustrates that learners from Colombia consistently outperformed South African learners on all the items of the 'Brave Charlotte' passage. Of interest is that South African Grade 4 learners performed better percentage-wise on 10 items when compared to learners from Botswana. South African learner performance was poorest for items 3, 8 and 17, items that required learners to construct a response that would indicate their ability to make straightforward inferences (item 8) and interpret and integrate ideas and information (items 3 and 17). Items 3 and 8 were for a maximum of 2 points and item 17 for a maximum of one point. For reporting purposes, the percentages presented here for items 3 and 8 respectively are for those learners who obtained full credit (i.e. obtaining two points out of the possible two points).

3.2. Performance per item per language of the test

The following section disaggregates South African Grade 4 learner performance on each of the items (except for item 13 that was not administered) in the 'Brave Charlotte' passage per language, keeping in mind that the language of testing here refers to the language in which the learners received instruction during the Foundation Phase.

Table 3.2 indicates Grade 4 learner achievement for each item of the 'Brave Charlotte' passage per language that was tested. Similar to 'The lonely giraffe' passage, 'Brave Charlotte'

consisted mostly of 'focus on and retrieve explicitly stated information' as process of comprehension that was assessed. One would therefore expect that at Grade 4 level, learners would find focus on and retrieve items easier to respond to, as these items measure basic skills. Reading tasks that may exemplify this type of comprehension process include identifying information that is relevant to the specific goal of reading, looking for specific ideas, searching for definitions, words or phrases, identifying the setting of a story (e.g. in terms of time or place) or finding the main idea when explicitly stated.

Table 3.2: Performance per item by language for 'Brave Charlotte'

Item 1	Afrikaans	English	IsiNdebele	IsiXhosa	IsiZulu	Sepedi	Sesotho	Setswana	SiSwati	Tshivenda	Xitsonga
N	356	555	331	250	284	263	333	315	535	253	283
Percent correct	62	71	52	39	49	21	45	42	40	40	32
SE	0.04	0.04	0.02	0.05	0.05	0.03	0.05	0.03	0.03	0.04	0.05
Item 2	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	356	553	333	248	281	260	330	316	534	252	284
Percent correct	70	72	57	53	46	34	46	49	60	49	40
SE	0.03	0.04	0.03	0.05	0.05	0.03	0.04	0.03	0.04	0.04	0.07
Item 3	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	350	546	319	247	268	254	317	306	533	234	267
Percent correct*	44	49	38	27	38	22	31	29	38	19	16.5
SE	0.05	0.04	0.14	0.07	0.07	0.04	0.06	0.05	0.05	0.04	0.06
Item 4	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	328	525	310	202	246	192	281	266	502	188	228
Percent correct	59	61	40	41	36	24	28	36	36	36	26
SE	0.03	0.04	0.03	0.06	0.05	0.02	0.03	0.04	0.02	0.04	0.04
Item 5	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	327	514	280	206	226	224	285	269	485	212	224
Percent correct	46	47	24	19	31	10	8	16	16	11	16
SE	0.04	0.03	0.03	0.04	0.06	0.02	0.01	0.03	0.03	0.03	0.02
Item 6	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	331	526	309	207	246	202	278	278	511	182	233
Percent correct	73	76	70	65	55	39	52	52	64	55	53
SE	0.04	0.03	0.07	0.06	0.04	0.03	0.04	0.03	0.03	0.04	0.04
Item 7	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	343	536	315	228	253	245	311	299	525	226	259
Percent correct	60	61	33	40	38	11	30	25	35	26	19

	Afrikaans	English	IsiNdebele	IsiXhosa	IsiZulu	Sepedi	Sesotho	Setswana	SiSwati	Tshivenda	Xitsonga
SE	0.04	0.04	0.02	0.04	0.04	0.02	0.04	0.04	0.04	0.03	0.04
Item 8	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	346	531	309	216	248	234	No data available	288	525	221	253
Percent correct*	48	45	15	15	15	12		16	19	11	9
SE	0.07	0.07	0.03	0.05	0.06	0.04		0.6	0.05	0.05	0.04
Item 9	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	332	523	308	198	235	198	274	260	510	176	228
Percent correct	77	74	50	50	59	33	45	43	51	41	49
SE	0.04	0.03	0.02	0.03	0.05	0.04	0.04	0.04	0.03	0.04	0.03
Item 10	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	336	522	295	212	243	230	291	268	505	217	243
Percent correct	54	47	17	17	14	6	11	14	23	9	4
SE	0.04	0.04	0.02	0.03	0.03	0.01	0.02	0.03	0.03	0.2	0.01
Item 11	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	341	527	295	205	237	225	303	263	511	206	233
Percent correct	63	65	31	45	50	25	32	28	54	37	38
SE	0.04	0.04	0.05	0.05	0.04	0.04	0.05	0.04	0.03	0.05	0.04
Item 12	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	329	506	290	182	219	196	269	257	500	173	216
Percent correct	68	73	58	62	51	45	40	43	63	52	43
SE	0.03	0.03	0.03	0.04	0.02	0.04	0.04	0.03	0.03	0.05	0.05
Item 13 Not administered	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
Item 14	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
Percent correct	65	61	33	30	34	31	33	29	30	34	42
SE	0.03	0.04	0.03	0.06	0.03	0.02	0.04	0.03	0.02	0.03	0.03
Item 15	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	338	508	288	205	224	224	278	248	494	206	229

Percent correct	59	55	26	34	27	16	30	29	43	13	19
SE	0.04	0.04	0.05	0.05	0.05	0.02	0.04	0.04	0.02	0.02	0.04
Item 16	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	335	502	284	198	216	221	265	242	489	201	221
Percent correct	66	66	22	29	28	8	15	11	23	18	21
SE	0.05	0.04	0.04	0.04	0.05	0.02	0.03	0.03	0.03	0.03	0.04
Item 17	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	328	489	275	191	203	216	260	231	478	195	208
Percent correct	27	39	12	10	11	4	7	6	8	5	12
SE	0.03	0.03	0.03	0.03	0.03	0.02	0.03	0.02	0.02	0.02	0.03
Item 18	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	319	473	264	158	193	194	251	215	446	169	198
Percent correct	52	52	17	22	22	6	13	14	20	17	8
SE	0.04	0.04	0.03	0.06	0.04	0.02	0.03	0.03	0.02	0.03	0.03
Average for the item per language	58.41	59.65	35	35.18	35.53	20.41	27.41	28.35	36.65	27.82	26.32

Results at item-level for the passage 'Brave Charlotte' shows similar patterns to those observed for the passage 'The lonely giraffe'. Learners who were tested in Afrikaans and English consistently achieved the highest overall percentage correct responses for these items. Grade 4 learners who were tested in Afrikaans performed the best on item 9 (77%, SE=0.04), and learners who were tested in English in item 6 (76%, SE=0.03) and item 12 (73%, SE=0.03). Learners who were tested in African languages achieved 60% on all of these items regardless of the process of comprehension that was being assessed, with the exception of learners tested in isiXhosa on item 6 (64%, SE=0.03), item 7 (65%, SE=0.06) and item 12 (62%, SE=0.04) and item 6 for learners who were tested in isiNdebele (70%, SE=0.07) and Siswati (64%, SE=0.03). On average, learners who were tested in the African languages performed at 35% and below, while learners who were tested in Sepedi performed the worst by only reaching 20% of correct responses provided for any item across the passage.

Table 3.2 also indicates similar yet again to responses from the passage 'The lonely giraffe', that no discernable differences in achievement occurred based on item formats. Multiple-choice questions were not answered with more ease than constructed response items, even if such constructed responses only required of learners in the prePIRLS 2011 assessment to write a single sentence in attempts to provide a plausible answer to the question. Item 8 in this passage consisted of two points and while 15% (SE=1.2) of learners received full credit as reported by Foy and Drucker (2013), only an additional 33% (SE=1.6) of Grade 4 learners were able to obtain at least one point in responding to this item.

SECTION II:

SOUTH AFRICAN GRADE 4 LEARNER ACHIEVEMENT IN READING FOR INFORMATIONAL PURPOSES TEXTS

1. INTRODUCTION

Section II provides examples of South African Grade 4 learner performance in the prePIRLS 2011 Informational texts. As explained in Appendix I, these text types took the form of non-fictional passages aimed not only at the acquisition of knowledge and information, but also at assessing the learner's ability to use reasoning (Mullis et al., 2009). For the purposes of reading to acquire and use information, text formats in the prePIRLS 2011 assessment took the form of factual articles.

Section II firstly provides an overview of the first reading passage that is used for purposes of this report. The passage, entitled 'Caterpillar to butterfly' took the form of a factual text, accompanied by 16 items, half of which were multiple choice items with the remaining half being constructed response items, all worth one point.

Overall results and results per language are then presented for the second information text, called 'Two giant dinosaurs'. Similar to 'Caterpillar to butterfly', this passage too took the form of a factual article to provide facts on two different types of dinosaur that lived a long time ago. This passage was accompanied by 16 items, seven of which were multiple choice items with the other items taking the form of constructed response items worth one point with one of these items worth a maximum of two points.

2. RESULTS FOR 'CATERPILLAR TO BUTTERLFY'

Table 2.1 presents an outline of items that accompanied the 'Caterpillar to Butterfly' text per process of comprehension. As indicated by Table 2.1, most items were pitched at the most basic of reading skills as assessed by the prePIRLS 2011 assessment framework, namely the learners' abilities to focus on and retrieve explicitly stated information. Only item 16 was aimed at assessing learners' abilities to examine and evaluate content, language and textual elements, the most difficult of the processes of comprehension as assessed by prePIRLS 2011.

As stated in Section I, it has to be kept in mind that the processes of comprehension become hierarchically more difficult, starting with a basic skill of focusing on and retrieving explicit information to skills of increasing difficulty, including making straightforward inferences, interpreting and integrating ideas and information and examining and evaluating content, language and textual elements. One would therefore expect that at Grade 4 level, learners would find focus on and retrieve items easier to respond to, as these items measure basic skills and to find items that would require them to examine and evaluate content, language and textual elements within reason more difficult.

Table 2.1: Item summary for 'Caterpillar to butterfly' and processes of comprehension

Item	Item format	Maximum score	Process of comprehension
Item 1	Constructed response	1	Focus on and retrieve explicitly stated information
Item 2	Constructed response	1	Focus on and retrieve explicitly stated information
Item 3	Constructed response	1	Interpret and integrate ideas and information
Item 4	Multiple choice question	1	Focus on and retrieve explicitly stated information
Item 5	Multiple choice question	1	Making straightforward inference
Item 6	Multiple choice question	1	Interpret and integrate ideas and information
Item 7	Constructed response	1	Focus on and retrieve explicitly stated information
Item 8	Constructed response	1	Focus on and retrieve explicitly stated information
Item 9	Constructed response	1	Focus on and retrieve explicitly stated information
Item 10	Multiple choice question	1	Making straightforward inference
Item 11	Multiple choice question	1	Focus on and retrieve explicitly stated information
Item 12	Multiple choice question	1	Making straightforward inference
Item 13	Multiple choice question	1	Making straightforward inference
Item 14	Multiple choice question	1	Focus on and retrieve explicitly stated information
Item 15	Constructed response	1	Interpret and integrate ideas and information
Item 16	Constructed response	1	Examine and evaluate content, language and textual elements

2.1. Overall performance per item

Figure 2.1 illustrates South African Grade 4 learners' overall performance in each of the items, expressed as the percentage of correct responses per item. Figure 2.1 draws a comparison between South African Grade 4 learners and Grade 4 learners from Botswana and Colombia, the only other prePIRLS 2011 participating countries:
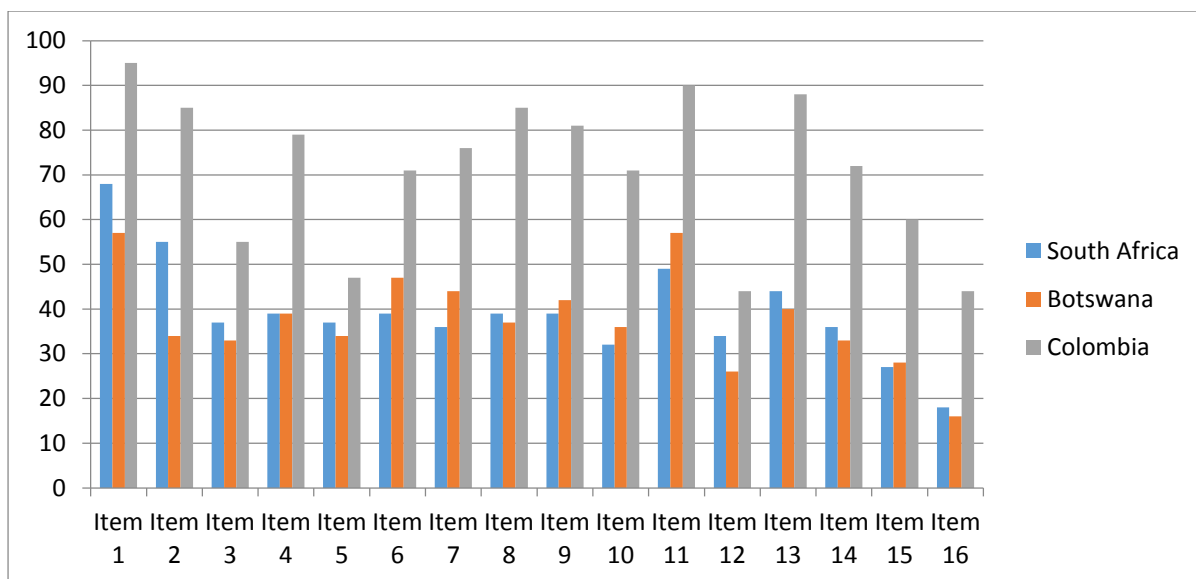
Figure 2.1: Overall performance per item as compared between South Africa, Botswana and Colombia.

Figure 2.1 illustrates that learners from Colombia consistently outperformed South African learners on all the items of the passage. South African learners outperformed learners from Botswana on nine of the items. South African learner performance was poorest for item 16, an item that required learners to construct a response that would indicate their ability to examine and evaluate content, language and textual elements.

2.2. Performance per item per language of the test

The following section disaggregates South African Grade 4 learner performance on each of the items in the 'Caterpillar to butterfly' passage per language. As stated in Section I, the language of testing did not always coincide with the learners' home language.

Table 2.2 indicates Grade 4 learner achievement for each item of 'Caterpillar to butterfly' per language that was tested.

Table 2.2: Performance per item by language for 'Caterpillar to butterfly'

Item 1	Afrikaans	English	IsiNdebele	IsiXhosa	IsiZulu	Sepedi	Sesotho	Setswana	SiSwati	Tshivenda	Xitsonga
N	370	541	329	255	292	264	340	326	546	272	291
Percent correct	82	79	59	65	68	56	61	61	78	58	53
SE	0.03	0.03	0.02	0.04	0.04	0.04	0.03	0.04	0.03	0.05	0.04
Item 2	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	366	536	330	251	286	261	340	327	545	271	287
Percent correct	63	68	57	59	54	40	62	41	67	39	32
SE	0.04	0.03	0.03	0.05	0.04	0.04	0.02	0.03	0.03	0.04	0.03
Item 3	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	369	535	324	241	281	251	329	325	539	262	283
Percent correct	48	56	24	27	38	27	38	29	27	10	16
SE	0.04	0.04	0.06	0.03	0.05	0.03	0.04	0.03	0.02	0.02	0.03
Item 4	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	344	528	308	216	254	212	293	290	506	212	236
Percent correct	59	58	47	38	39	34	31	44	27	23	31
SE	0.04	0.04	0.05	0.03	0.04	0.02	0.03	0.04	0.03	0.02	0.03
Item 5	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	350	515	308	220	257	212	294	293	508	214	244
Percent correct	49	50	33	40	43	28	42	31	40	30	30
SE	0.04	0.04	0.02	0.03	0.03	0.04	0.04	0.03	0.03	0.03	0.04
Item 6	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	351	513	305	213	249	205	293	276	511	210	239
Percent correct	64	62	30	38	37	25	34	36	28	26	33
SE	0.03	0.04	0.02	0.03	0.04	0.02	0.04	0.04	0.03	0.03	0.02

Item 7	Afrikaans	English	IsiNdebele	IsiXhosa	IsiZulu	Sepedi	Sesotho	Setswana	SiSwati	Tshivenda	Xitsonga
N	366	525	315	231	263	249	325	314	525	255	269
Percent correct	62	61	22	39	25	10	41	25	22	19	31
SE	0.04	0.04	0.02	0.04	0.03	0.03	0.03	0.04	0.03	0.03	0.05
Item 8	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	363	521	309	229	256	243	317	308	523	249	267
Percent correct	68	68	30	33	34	13	26	27	25	20	27
SE	0.03	0.03	0.03	0.04	0.05	0.03	0.03	0.04	0.03	0.04	0.04
Item 9	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	365	527	297	236	266	249	320	307	530	251	273
Percent correct	58	61	26	39	32	24	38	29	31	25	24
SE	0.04	0.03	0.04	0.04	0.04	0.03	0.04	0.03	0.03	0.04	0.03
Item 10	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	346	519	292	212	256	218	292	285	507	208	243
Percent correct	49	52	38	40	23	15	16	30	27	14	36
SE	0.04	0.03	0.03	0.03	0.02	0.02	0.02	0.04	0.03	0.03	0.03
Item 11	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	353	517	298	208	256	223	296	286	518	206	248
Percent correct	78	74	51	47	49	34	56	43	55	36	40
SE	0.03	0.03	0.02	0.05	0.04	0.02	0.03	0.05	0.03	0.05	0.04
Item 12	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	350	513	296	210	252	217	290	278	513	203	249
Percent correct	46	47	40	35	41	31	30	24	16	13	38
SE	0.03	0.03	0.05	0.07	0.03	0.03	0.03	0.02	0.02	0.02	0.03
Item 13	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**

	Afrikaans	English	IsiNdebele	IsiXhosa	IsiZulu	Sepedi	Sesotho	Setswana	SiSwati	Tshivenda	Xitsonga
N	350	512	288	214	248	215	286	279	511	194	246
Percent correct	65	67	35	49	51	25	35	30	45	27	36
SE	0.03	0.04	0.03	0.05	0.05	0.03	0.04	0.04	0.03	0.04	0.04
Item 14	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	347	507	284	209	242	216	282	278	503	196	245
Percent correct	62	51	28	47	39	24	30	28	42	23	34
SE	0.04	0.03	0.04	0.06	0.04	0.03	0.04	0.02	0.02	0.03	0.03
Item 15	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	350	491	278	172	209	196	273	277	477	191	209
Percent correct	49	55	33	19	28	16	22	21	27	19	18
SE	0.05	0.04	0.03	0.05	0.04	0.04	0.05	0.04	0.03	0.04	0.03
Item 16	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	350	494	268	207	227	219	274	270	496	213	231
Percent correct	32	38	18	6	17	13	17	14	27	4	9
SE	0.03	0.04	0.03	0.02	0.03	0.03	0.03	0.03	0.03	0.02	0.02
Average for the item per language	58.38	59.20	35.69	38.81	38.63	25.94	36.19	32.06	36.5	24.13	30.5

Achievement on the information texts in prePIRLS 2011 does not provide any better results than those obtained by Grade 4 learners in the literary texts. Learners who were tested in Afrikaans and English consistently achieved the highest overall percentage correct responses for these items. Learners who were tested in Afrikaans and English achieved the highest percentage correct responses for item 1 (82%, SE=0.03, 79%, SE=0.03 respectively) and item 11 (78%, SE=0.03, 74%, SE=0.03). Much the same patterns emerge as compared to the literary passages, since all learners tested in African languages achieved below 40% on average for all of these items regardless of the process of comprehension that was being assessed. Grade 4 learners who were tested in Sepedi and Tshivenda performed the worst (24.13% and 25.94% respectively), failing to reach a 40% average of correct responses across the items of the passage.

The information in Table 2.2 also indicates that no discernable differences in achievement occurred based on item formats. Multiple-choice questions were not answered with more ease than constructed response items, even if such constructed responses only required of learners in the prePIRLS 2011 assessment to write a single sentence in attempts to provide a plausible answer to the question.

3. RESULTS FOR 'TWO GIANT DINOSAURS'

Table 3.1 presents an outline of items that accompanied the 'Two giant dinosaurs' text per process of comprehension. As indicated by Table 3.1, seven of the 16 items were pitched at the most basic of reading skills as assessed by the prePIRLS 2011 assessment framework, namely the learners' abilities to focus on and retrieve explicitly stated information. Only three items were aimed at assessing learners' abilities to examine and evaluate content, language and textual elements, the most difficult of the processes of comprehension as assessed by prePIRLS 2011.

Table 3.1: Item summary for 'Two giant dinosaurs' and processes of comprehension

Item	Item format	Maximum score	Process of comprehension
Item 1	Constructed response	1	Focus on and retrieve explicitly stated information
Item 2	Multiple choice question	1	Focus on and retrieve explicitly stated information
Item 3	Constructed response	1	Making straightforward inference

Item 4	Constructed response	1	Making straightforward inference
Item 5	Constructed response	2	Examine and evaluate content, language and textual elements
Item 6	Multiple choice question	1	Focus on and retrieve explicitly stated information
Item 7	Multiple choice question	1	Focus on and retrieve explicitly stated information
Item 8	Multiple choice question	1	Focus on and retrieve explicitly stated information
Item 9	Constructed response	1	Focus on and retrieve explicitly stated information
Item 10	Constructed response	1	Focus on and retrieve explicitly stated information
Item 11	Multiple choice question	1	Making straightforward inference
Item 12	Constructed response	1	Making straightforward inference
Item 13	Multiple choice question	1	Making straightforward inference
Item 14	Multiple choice question	1	Interpret and integrate ideas and information
Item 15	Constructed response	1	Examine and evaluate content, language and textual elements
Item 16	Constructed response	1	Examine and evaluate content, language and textual elements

3.1.   Overall performance per item

Figure 3.1 illustrates South African Grade 4 learners' overall performance in each of the items, expressed as the percentage of correct responses per item. Figure 5 draws a comparison between South African Grade 4 learners and Grade 4 learners from Botswana and Colombia, the only other prePIRLS 2011 participating countries:
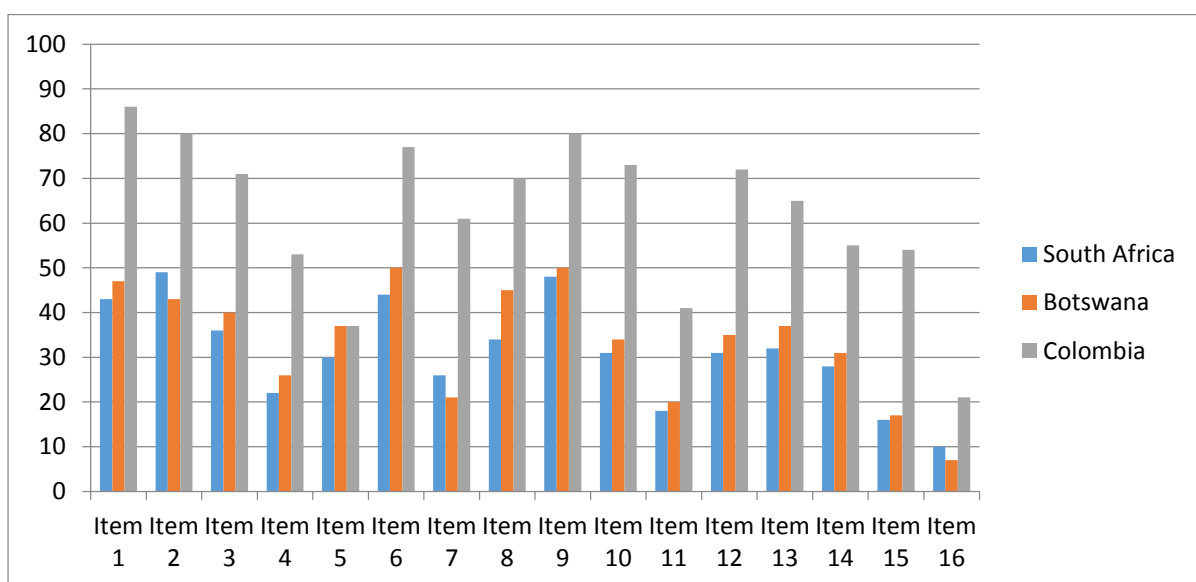
Figure 3.1: Overall performance per item as compared between South Africa, Botswana and Colombia.
Similar to achievement per item in the 'Caterpillar to butterfly' passage, Figure 3.1 illustrates that learners from Colombia consistently outperformed South African learners on all the items

of the 'Tow giant dinosaurs' passage. Of interest is that South African Grade 4 learners performed better percentage-wise only on three items when compared to learners from Botswana. South African learner performance was poorest for items 15 and 16, items that required learners to construct a response that would indicate their ability to examine and evaluate content, language and textual elements. For reporting purposes, the percentages presented here for item 5 are for those learners who obtained full credit (i.e. obtaining two points out of the possible two points).

3.2. Performance per item per language of the test

The following section disaggregates South African Grade 4 learner performance on each of the items in the 'Two giant dinosaurs' passage per language, keeping in mind that the language of testing here refers to the language in which the learners received instruction during the Foundation Phase.

Table 3.2 indicates Grade 4 learner achievement for each item of the 'Two giant dinosaurs' passage per language that was tested. Similar to the 'Caterpillar to butterfly' passage, for 'Two giant dinosaurs' almost half of the items consisted of focus on and retrieve explicitly stated information as process of comprehension that was assessed. One would therefore expect that at Grade 4 level, learners would find focus on and retrieve items easier to respond to, as these items measure basic skills As mentioned in Appendix I, reading tasks that may exemplify this type of comprehension process include identifying information that is relevant to the specific goal of reading, looking for specific ideas, searching for definitions, words or phrases, identifying the setting of a story (e.g. in terms of time or place) or finding the main idea when explicitly stated.

Table 3.2: Performance per item by language for 'Two giant dinosaurs'

Item 1	Afrikaans	English	IsiNdebele	IsiXhosa	IsiZulu	Sepedi	Sesotho	Setswana	SiSwati	Tshivenda	Xitsonga
N	364	526	328	244	282	257	341	316	519	258	277
Percent correct	66	74	26	34	45	13	22	28	20	20	18
SE	0.04	0.04	0.04	0.05	0.06	0.03	0.02	0.03	0.02	0.03	0.03
Item 2	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	327	508	296	233	255	174	286	253	498	199	224
Percent correct	67	66	31	57	62	47	39	40	57	43	41
SE	0.04	0.03	0.04	0.04	0.04	0.03	0.03	0.04	0.02	0.03	0.03
Item 3	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	356	519	324	244	272	257	336	315	534	264	275
Percent correct	46	58	29	31	40	17	23	26	29	24	12
SE	0.04	0.03	0.04	0.06	0.04	0.03	0.02	0.03	0.03	0.03	0.02
Item 4	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	357	525	318	243	266	250	327	311	532	259	271
Percent correct	45	47	20	15	10	6	4	17	16	10	12
SE	0.03	0.04	0.03	0.05	0.04	0.01	0.01	0.05	0.02	0.03	0.02
Item 5	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	358	517	317	243	265	248	331	312	533	265	274
Percent correct*	60	66	40	34	42	21	35	35	44	22	25
SE	0.07	0.06	0.08	0.11	0.1	0.06	0.05	0.09	0.06	0.05	0.06
Item 6	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	336	508	300	223	260	194	275	266	505	204	232
Percent correct	62	63	54	45	46	47	47	45	43	45	40
SE	0.03	0.03	0.06	0.05	0.05	0.07	0.03	0.04	0.02	0.05	0.03
Item 7	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	330	497	293	216	250	194	263	261	499	197	232
Percent correct	46	42	16	28	26	19	27	14	33	18	21
SE	0.06	0.04	0.02	0.04	0.05	0.03	0.05	0.02	0.03	0.02	0.02
Item 8	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**

N	336	502	284	225	253	193	268	259	490	184	225
Percent correct	50	55	35	36	34	26	29	30	35	35	34
SE	0.04	0.04	0.05	0.05	0.04	0.05	0.03	0.03	0.04	0.04	0.04
Item 9	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	356	518	323	239	261	236	323	292	525	248	272
Percent correct	69	68	46	41	57	27	45	35	53	26	39
SE	0.04	0.04	0.03	0.05	0.04	0.04	0.03	0.04	0.03	0.04	0.06
Item 10	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	351	516	315	236	247	231	308	285	518	241	271
Percent correct	45	51	26	26	32	17	29	19	30	21	21
SE	0.04	0.04	0.06	0.04	0.05	0.03	0.04	0.03	0.02	0.04	0.03
Item 11	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	312	462	242	189	213	145	237	210	430	147	185
Percent correct	38	41	15	15	14	12	12	13	17	17	17
SE	0.03	0.03	0.03	0.04	0.02	0.03	0.03	0.02	0.02	0.04	0.04
Item 12	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	346	495	295	227	246	223	299	269	500	225	256
Percent correct	50	53	28	24	43	13	16	22	38	17	18
SE	0.05	0.04	0.04	0.03	0.05	0.03	0.02	0.04	0.04	0.03	0.03
Item 13	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	327	478	278	212	226	168	263	250	468	180	202
Percent correct	49	54	20	35	33	33	36	34	19	36	30
SE	0.05	0.04	0.03	0.04	0.04	0.03	0.03	0.04	0.01	0.02	0.03
Item 14	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	318	471	271	185	229	166	248	230	470	179	199
Percent correct	44	45	19	33	34	28	32	35	26	33	31
SE	0.04	0.04	0.02	0.03	0.04	0.02	0.04	0.03	0.03	0.04	0.05
Item 15	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	340	492	277	199	228	210	287	253	473	211	234
Percent correct	34	31	14	16	16	8	8	8	11	5	8

SE	0.04	0.04	0.05	0.05	0.04	0.02	0.02	0.02	0.01	0.02	0.02
Item 16	**Afrikaans**	**English**	**IsiNdebele**	**IsiXhosa**	**IsiZulu**	**Sepedi**	**Sesotho**	**Setswana**	**SiSwati**	**Tshivenda**	**Xitsonga**
N	323	469	261	187	214	201	255	225	443	213	229
Percent correct	18	25	7	6	11	3	5	6	6	4	5
SE	0.03	0.03	0.03	0.02	0.03	0.01	0.01	0.02	0.01	0.01	0.02
Average for the item per language	49.31	52.43	26.62	29.75	34.07	21.06	25.56	25.44	29.81	23.5	23.25

Results at item-level for the passage 'Two giant dinosaurs' show similar patterns to those observed for the passage 'Caterpillar to butterfly', although on average, this passage was more difficult for learners to complete. Learners who were tested in Afrikaans and English consistently achieved the highest overall percentage correct responses for these items, although learners who were tested in Afrikaans only obtained an average of 49.31% overall for this passage. Learners who were tested in English performed the best on item 1, with 74% (SE=0.04) correct responses for a focus on and retrieve explicitly stated information item. Learners who were tested in isiZulu managed to obtain on average close to 35% correct responses on most items that accompanied this passage, but learners from the other African languages failed to reach a 30% average with learners who were tested in Sepedi only managing an average of 21.06%, followed by Xitsonga (23.25% average), Tshivenda (23.5% average), Setswana (25.44% average), Sesotho (25.56% average) and isiNdebele (26.62% average).

Table 3.2 also indicates, similar yet again to responses from the passage 'Caterpillar to butterfly', that no discernable differences in achievement occurred based on item formats. Multiple-choice questions were not answered with more ease than constructed response items, even if such constructed responses only required of learners in the prePIRLS 2011 assessment to write a single sentence in attempts to provide a plausible answer to the question. Item 5 in this passage consisted of two points and while the percentage of learners who received full credit is reported in 3.1 earlier in this section (30, SE=1.8) only an additional 52% (SE=1.8) of Grade 4 learners were able to obtain at least one point in responding to this item.

SECTION III

FURTHER ANALYSIS

1. INTRODUCTION

Section III provides evidence from regression methods to explain Grade 4 reading literacy achievement taking into account discrepancies between the language of the test and home language for Grade 4 learners who participated in the South African prePIRLS 2011 study. For analysis purposes, the following questions are:

1. What are the differences in reading literacy achievement between home language and language of the test across the 11 official languages with English test language as reference category?
2. To what extent does the discrepancy between the language of the test and membership to a broader linguistic group contribute to reading achievement at Grade 4 when controlling for learner characteristics?[2]
3. What is the effect of the teacher switching to other languages in order to facilitate understanding during the lesson?
4. What is the effect of the learner switching to other languages to express their understanding of what was taught?

In attempts to answer these questions, the methods used are detailed in the following section before presenting the results of the analyses.

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[2] Here, broader linguistic groups refer to the reduction of the 11 official languages to five language groups based upon linguistic similarities. These are Afrikaans, English, Nguni group (consisting of isiNdebele, isiZulu, isiXhosa, SiSwati and Xitsonga), Sepedi (consisting of Sepedi, Sesotho and Setswana) and Tshivenda. The 11 individual languages were reduced to language groups in order to increase robustness and validity of analyses with greater sample sizes based on the close relatedness of languages within groups.

2. METHOD

2.1. Participants

A nationally representative sample of 15 744 South African Grade 4 learners from 342 schools participated in the prePIRLS 2011 study. The sample consisted of 7 548 girls and 8 196 boys. Learners were assessed across all 11 official languages and were assessed in the Language of Learning and Teaching (LoLT) to which they were exposed in Foundation Phase. Table 1 shows the number of learners assessed in prePIRLS 2011 by language of the test.

Table 2.1: Number of Grade 4 prePIRLS 2011 learners tested by language

Language	N
Afrikaans	1 463
English	2 205
isiNdebele	1 393
isiXhosa	1 090
isiZulu	1 209
Sepedi	1 099
Sesotho	1 431
Setswana	1 293
SiSwati	2 186
Tshivenda	1 187
Xitsonga	1 188

Table 2.2: Number of Grade 4 prePIRLS 2011 learners tested by language group

Language	N
Afrikaans	1 463
English	2 205
Nguni (isiNdebele, isiXhosa, isiZulu, SiSwati and Xitsonga	7 066
Sotho	3 823

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Tshivenda   1 187

2.2.   Data collection instruments

2.2.1.   Achievement tests

The prePIRLS 2011 assessment consisted of a reading literacy test in the form of two types of texts, namely reading for literary experience (or literary texts) and reading to acquire and use information (or informational texts). Reading texts were followed by a range of multiple choice questions and open response questions to a maximum of three points. Reporting of reading achievement results in prePIRLS 2011 are presented in terms of achievement above or below the fixed international centre point of 500 through the use of five overall Plausible Values [3]as derived from Item Response analyses.

2.2.2.   Background questionnaires

Grade 4 learners, their parents, teachers of the Grade 4 learners and school principals responded to contextual background questionnaires that addressed a wide range of topics on aspects such as reading behaviour, attitudes, teaching reading and school organisation. Learner and parent questionnaires were administered in all 11 official languages to suit the language preference of learners and parents optimally, while teachers and school questionnaires were administered in English.

2.2.3.   Selection of variables

A number of variables were selected from the prePIRLS 2011 learner and teacher questionnaires. Learner sex (variable ITSEX), age (variable ITBIRTHY) and home language (variable ITLANG) were taken from the learner questionnaire to control for learner characteristics. To additionally

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[3] Plausible Values are derived by multiple imputation techniques. Learners respond to different, but through a matrix design linked reading texts, hence a single proficiency score is not generated to represent reading achievement on the prePIRLS 2011 assessment.

control for learner background, an asset scale was created using multiple correspondence analysis[4] from the variable ASBG05A-N by analysing the pattern of relationships of the possessions learners reported to have in the home. These items included a computer, study desk, books of your own, your own room, internet connection, daily newspaper, own cellphone, calculator, dictionary, electricity, running tap water, television, video/CD/DVD player, and water-flush toilets.

Learners were asked to indicate their home language (or the language they speak most at home) in the Learner Questionnaire (variable ASBG03). This data was compared to the language in which the learners were tested. The discrepancy between the language of the test and the home language (or language spoken most at home as reported by learners) was calculated for each of the 11 official languages individually. A discrepancy was also calculated between the language of the test and the language group to which a learner belonged. In order to do this, the language of the test was reduced to five language groups namely Afrikaans, English, the Nguni group (consisting of isNdebele, isiXhosa, isiZulu, SiSwati and Xitsonga)[5], the Sotho group (Sepedi, Sesotho, Setswana) and Tshivenda group.

To answer research questions around the possible extent of the effect of codeswitching, two variables were taken from the Teacher Questionnaire, namely 'Do you ever change to another language to support understanding when teaching your Grade 4 class?' (variable ATNR22C) and 'Do you allow learners to use another language to explain their understanding of what has been taught?' (variable ATNR22D). Both these variables formed part of the national option questions posed to teachers in the South African prePIRLS 2011 questionnaire.

3. PROCEDURE

Background data is available for 15 744 Grade 4 learners and 416 teachers of Grade 4 learners. For purposes of generating descriptive statistics for the variables used in this investigation, the International Database Analyser (IDB) was used. The IDB Analyser is a plug-in for the Statistical

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[4] MCA weights an asset index of categorical variables; the most unequally distributed component is weighted the heaviest according to the standard deviation of its variable (Pritchett and Filmer 2001).

[5] Xitsonga is sometimes regarded as a Nguni language, other times it is regarded as a language by itself and part of the Shangaan family of languages. For analysis purposes here, Xitsonga is regarded as one of the Nguni languages as referenced by Mesthrie (2002).

Package for the Social Sciences (SPSS) and was developed by the IEA's Data Processing and Research Centre. It was developed specifically to combine and analyse data from large scale data sets such as those designed for PIRLS and prePIRLS 2011.

To control for learner characteristics, a learner asset scale and a school asset scale, learner age, sex and home language were used as controls for the regression analysis using Stata version 13.0 software to test for significant effects of discrepancy between:

- Language of the test and home language (Afrikaans, English, isiNdebele, isiXhosa, isiZulu, Sepedi, Sesotho, Setswana, SiSwati, Tshivenda and Xitsonga).
- Language of the test and membership to one of five groups of languages (Afrikaans, English, Nguni, Sotho and Tshivenda).
- Codeswitching variables as evidenced by teachers who make use of the practice or who allow learners to make use of the practice as additional variables to the model.

The current study takes learner characteristics, such as age, sex (coded as the effect of being female in the model), asset scale and language of the test into account in order to isolate the effect of discrepancies for those learners who wrote in the best performing languages, namely Afrikaans and English. The overall plausible values from the prePIRLS 2011 data were used as outcome variable.

4. Results

4.1. Summary of Descriptive Statistics for Variables Used

PrePIRLS 2011 results place South African Grade 4 learners substantially below the international centre point of 500 at 461 (SE=3.7). In South Africa, 48% of the prePIRLS 2011 sample was girls and the average age of learners who participated in prePIRLS 2011 was 10.5 years. Two percent of South African learners had many resources at home and most of these learners come from the groups assessed in Afrikaans or English, in addition to a few assessed in isiNdebele, siSwati, Tshivenda and Xitsonga.

In total, 66.5% of learners did the prePIRLS 2011 test in their home language with a remaining 22.6% of learners doing the test in a language different from their home language (10.9% of data was missing). Table 4.1 provides information on reading literacy achievement per language and rank orders the percentage of learners per language where differences between home language and language of the test are observed from the largest percentage where language of the test and home language coincided to the smallest percentage:

Table 4.1: prePIRLS 2011 achievement per language and percentage coincidence of home language and test language.

Test Language	N	Mean Score	SE	% of learners: Language of the test same as home language (arranged from highest to lowest)
isiXhosa	1 090	428	10.4	94
isiZulu	1 209	442	9.3	92
Afrikaans	1 463	525	9.9	90
Tshivenda	1 187	395	7.6	89
SiSwati	2 186	451	5.8	88
Xitsonga	1 188	406	8.4	87
isiNdebele	1 393	435	5.4	77
Sesotho	1 431	425	7.2	76
Setswana	1 293	428	4.9	74
Sepedi	1 099	388	7.4	54
English	2 205	530	10.1	33

Figure 4.1 indicates the difference in achievement for learners who did the prePIRLS 2011 test in their home language compared to those learners who did the test in a language different from their home language. In most languages the achievement was substantially higher when learners wrote in their home language with the exception of Afrikaans, isiZulu and Sepedi where there was no significant difference.
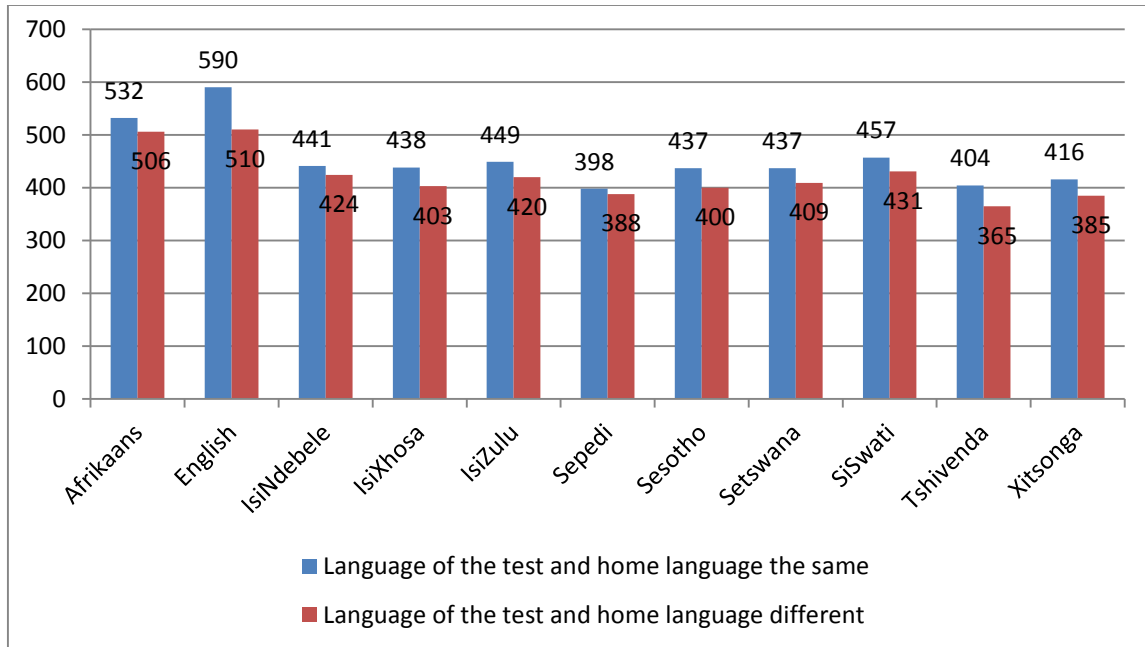
Figure 4.1: South African Grade 4 learner performance by test language in the same or different language to their home language

Figure 4.1 indicates that the largest difference in achievement is observed for learners who did the prePIRLS 2011 test in English when it was not their home language. A difference of 80 points means a two year difference in educational terms for those children who wrote the test in English in home language compared to those children who wrote the test in English when it was not home language.

A majority of 83% of teachers of Grade 4 learners indicated that they switch to other languages when teaching their class how to read/reading. Similarly, a majority of 79% of teachers of Grade 4 learners indicated that they allow their learners to express themselves in languages other than the language of instruction. It has to be noted that questions regarding code switching practices were categorical and asked of teachers only whether they engaged in such practices or not. The questions did not ask when code switching was mostly applied (e.g. to explain content) or to which languages teachers and learners were most likely to code switch to.

4.2. Regression Results

Multiple regression analysis was used to determine the strength of evidence for the effect of the difference in reading achievement when tested in home language compared to being tested in a language other than home language on reading achievement as response or dependent variable.

The first research question asked: What are the differences in reading literacy achievement between home languages and languages of the test across the 11 official languages, with English test language as reference category? Table 4.2 provides regression results for each of the languages. English test language and English home language are used as reference groups against which all comparisons are made.

Table 4.2: Model Results by learners who wrote in the language of the test

Constant	**604.4**	**12.04**	
Factor	**Coefficient**	**SE**	**t-value**
Afrikaans test language	-0.0126	11.03	-0.00
Afrikaans home language	-33.27	7.78	-4.28***
IsiNdebele test language	-63.55	8.87	-7.16***
IsiNdebele home language	-30.30	6.50	-4.66***
IsiXhosa test language	-38.60	11.47	-3.37***
IsiXhosa home language	-30.69	6.22	-4.93***
IsiZulu test language	-40.91	12.01	-3.41***
IsiZulu home language	-35.05	7.35	-4.77***
Sepedi test language	-91.48	10.83	-8.45***
Sepedi home language	-41.03	7.66	-5.36***
Sesotho test language	-50.49	9.49	-5.32***
Sesotho home language	-35.64	6.03	-5.91***
Setswana test language	-65.11	8.71	-7.48***
Setswana home language	-27.47	7.31	-3.76***
SiSwati test language	-62.74	8.34	-7.52***
siSwati home language	-22.41	7.29	-3.07***
Tshivenda test language	-78.90	13.98	-5.64***
Tshivenda home language	-22.95	10.96	-2.09***
Xitsonga test language	-71.48	10.97	-6.52***
Xitsonga home language	-34.65	8.38	-4.13***
Female learners	26.38	1.38	19.16***
Learner age	-8.02	0.86	-9.33***
Learner asset scale	4.58	0.47	9.54***
Learner asset scale squared	-0.26	0.27	-0.96

School assets	28.88	2.75	10.50***
Constant	604.4	7.397	81.71***
Observations	12,780		
R-squared	0.39		

***Indicates p<.0.01

Table 4.2 indicates significant coefficients in each of the language scenarios except for Afrikaans test language for which there is no significant difference when compared to English test language. Of interest to see is that Afrikaans home language and African language performance (both test language and home language) all indicate significant lower expected achievement in comparison to having both English test language and English home language. Achievement for Grade 4 learners who were tested in African languages is adversely worse for those learners by test language – these coefficients would indicate performance for learners who were tested in an African language when that language was not their home language. So, for example, table 3 illustrates that learners who had Tshivenda as home language can be expected to achieve 22.95 (SE 10.96) points lower when compared to learners who were tested in English. Learners who were tested in Tshivenda can be expected to achieve as much as 78.90 (13.98) points lower when compared to learners who were tested in English, an already heterogeneous group of learners. This same pattern of expected achievement is observed across all the African languages and would therefore suggest African home and test language already predicts significantly lower results as compared to English.

In terms of the background variables that were controlled for in table 3, gender is a significant variable in favour of female learners who can be expected to achieve 26.38 (1.38) points more than male learners. For each year increase in learner age while remaining in Grade 4, reading achievement decreases with 8.02 (0.86) points. In addition, learners having more assets at home significantly increases reading achievement scores by 4.58 points (0.47), similarly to school assets that significantly increase reading achievement scores by 28.88 points (2.75). The learner asset scale was squared to illustrate the non-linear effect, where it can be expected that after a certain threshold of assets, test score gains level out. In the current model, this squared value was not statistically significant. The model presented in table 3 accounts for 39% of the variance in the data.

The second research question in the current study asked to what extent does the discrepancy between the language of the test and membership to a broader linguistic group contribute to reading achievement at Grade 4 when controlling for learner characteristics. Table 4.3 provides the model results for this discrepancy:

Table 4.3: Model Results including a dummy variable for a Discrepancy between the Language of the Test and the Home Language group of learners

Constant	603.3	12.03	
Factor	**Coefficient**	**SE**	**t-value**
Discrepancy dummy	-28.94	2.81	10.3***
Afrikaans test language	-14.77	9.86	1.5
Afrikaans home language	-25.37	6.1	4.16***
IsiNdebele test language	-67.30	8.32	8.09***
IsiNdebele home language	-33.89	5.78	5.86***
IsiXhosa test language	-67.09	11.53	5.82****
IsiXhosa home language	-9.94	5.73	1.73*
IsiZulu test language	-68.27	11.70	5.84***
IsiZulu home language	-15.03	7.04	2.13**
Sepedi test language	-96.11	10.22	9.40***
Sepedi home language	-37.43	6.69	5.59***
Sesotho test language	-71.42	9.03	7.91***
Sesotho home language	-19.32	5.23	3,69***
Setswana test language	-74.27	7.22	10,29***
Setswana home language	-22.93	6.15	3.73***
SiSwati test language	-71.83	7.9	9.09***
siSwati home language	21.38	6.62	3.23***
Tshivenda test language	-85.34	12.48	6.84***
Tshivenda home language	24.78	8.77	2.83***
Xitsonga test language	-87.21	9.19	9.49***
Xitsonga home language	-25.85	6.73	3.84***
Female learners	26.45	1.37	19.31***
Learner age	-7.94	0.84	9.45***
Learner asset scale	4.57	0.46	9.93***
Learner asset scale squared	-0.19	0.27	0.70
School assets	24.54	2.64	9.67***
Constant	584.5	11.69	50***
Observations	12,780		
R-squared	0.40		

***Indicates p<.0.01

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The discrepancy dummy turns one, when the home group and the test language group do not coincide. The dummy remains zero when home and test languages groups coincide. Hence, regression results suggest a highly significant and relatively large disadvantage on test score averages of 28.94 points, when learners test in a language that does not form part of their home language group. Adding the discrepancy dummy alters the other variables' coefficients, for example the home language coefficients for isiZulu, Sesotho and isiXhosa show a considerable decrease. This decrease is due to those learners who were not tested in their home language or another language in their language group, and are now captured by the discrepancy dummy. All test language coefficients increase by adding the discrepancy dummy. This is caused by filtering out the mother tongue tested learners and now only catching the non-mother tongue tested learners and those perform weaker. Comparing coefficient sizes hints at larger test score disadvantage from test language – representing school quality – rather than from home language – representing ethnical background. Hence, this is another record in support of the South African school quality discussion.

The third and fourth research questions asked about the effect of the teacher switching to other languages in order to facilitate understanding during the lesson, as well as the effect of the learner switching to other languages to express their understanding of what was taught. As indicated by Table 4.4, teachers who switch to other languages resulted in a significant effect of 10.56 lower expected reading score as tested at the 90% confidence interval. Learners who switch to other languages showed no significant results in the current model.

Table 4.4: Model results for the effect of code switching by teachers and learners

Constant	613.3	13.31	
Factor	Coefficient	SE	t-value
Teacher switches to other language	-10.56	6.32	-1.67*
Learners switch to other language	1.27	5.82	0.22
Female learners	25.56	1.44	17.75
Learner age	-7.93	0.94	8.44
Learner asset scale	4.87	0.48	10.15

Learner asset scale squared	-0.08	0.28	0.29
School assets	23.68	2.75	8.61
Constant	613.3	13.34	45.97***
Observations	11,340		
R-squared	0.401		

***Indicates p<0.1

These findings illustrate a substantial effect on reading literacy achievement when a discrepancy exists between language of the test and home language when controlling for learner background characteristics. Learners from African language backgrounds are most severely affected when the language of the test and their home language did not coincide and across all African languages reading literacy achievement scores can be expected to decrease substantially when this discrepancy between language of the test and home language exists.

Belonging to a different language group than what the test was written in results in a 29 point decrease in reading literacy achievement, a decrease by almost three quarters of a year for learners who wrote the test in a language outside the broader language group to which they belong. The effect of the teacher who switches language during class to support understanding was significant, yet not so for the effect of the teacher who allows learners to switch language in class to illustrate their understanding. While these findings provide little evidence of the statistically significant effect of codeswitching at learner-level in the current model, it has to be kept in mind that codeswitching practices may still be of educational consequence as it is neither encouraged among learners nor encouraged as part of teacher training practice as stated by work done by Probyn (2009).

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CONCLUSIONS

Grade 4 students in South African primary schools who participated in prePIRLS 2011 were unable to achieve satisfactory levels of reading competence. The gravity of this finding is exacerbated by the fact that these students were tested with an easier assessment and in the language of instruction to which they had been exposed during the Foundation Phase of schooling.

South African Grade 4 learners who participated in prePIRLS 2011 and who were tested in English consistently outperform learners from other languages. As best achieving language of testing, English is the most heterogeneous group of learners from the most diverse language and socio economic backgrounds.

Achievement closest to learners who were tested in English (apart from Afrikaans) are learners who were tested in isiZulu, the best performing language on average for the four passages presented here. Grade 4 learners tested in IsiZulu are closely followed by learners who were tested in isiXhosa.

Of concern is the performance for learners who were tested in Sepedi and two minority African languages, namely Tshivenda and Xitsonga. These learners were not able to achieve adequate percentages of correct responses to many items across these passages. Learners tested in Sepedi were consistently the worst performers at item level.

Achievement patterns showed no difference in item formats. The percentage of correct responses learners were able to provide was not greater for multiple choice items than for constructed response items. Of concern is that learners were not able to respond adequately to constructed response items, even when these items placed very little demand on learners and were only worth one point in most cases.

Achievement also showed no difference between lower level and higher level comprehension processes. At the lower end of the assessment framework, learner achievement was similar when tested on the ability to focus on and retrieve explicitly stated information as when tested on higher order skills such as examining and evaluating content, language and textual elements. Reading

achievement is therefore inadequate and equally worrying for items that require basic skills versus those that require learners to interact at a higher level with the text.

Literary texts required of learners to read and follow a fictional story, while information texts required of learners to access information when presented to them in text boxes, tables and illustrations. Both purposes for reading yielded the same underachievement and it cannot be concluded that learner achievement was dependent on the text type to which learners were exposed. However, based on average achievement across languages per passage, literary passages were answered with more ease, while the passage 'Two Giant Dinosaurs' was most difficult for learners to respond to.

Section III provided regression analyses results that point to a substantial effect on reading literacy achievement when a discrepancy exists between language of the test and home language when controlling for learner background characteristics. Learners from African language backgrounds are most severely affected when the language of the test and their home language did not coincide and across all African languages reading literacy achievement scores can be expected to decrease substantially when this discrepancy between language of the test and home language exists.

Belonging to a different language group than what the test was written in results in a 29 point decrease in reading literacy achievement, a decrease by almost three quarters of a year for learners who wrote the test in a language outside the broader language group to which they belong. The effect of the teacher who switches language during class to support understanding was significant, yet not so for the effect of the teacher who allows learners to switch language in class to illustrate their understanding.

Findings from the current analyses are presented against a language in education policy background with aims to address issues of equity, equality and the development of all 11 official South African languages. The complexity of the language in education context of the South African education system, coupled with lack of adequate infrastructure and language resources in specifically disadvantaged communities continue to contribute to the widening educational gap and poor quality education despite goals of equity and equality. In making a case for the gradual introduction of bilingual education, Edwards and Ngwaru (2011) are of the opinion that teachers

will be reluctant to teach in African languages if quality material and resources are not available in these languages. Arguments for and against English as language of instruction were raised in this study. Current evidence allows for speculation that English as language of instruction could be a solution to a complex linguistic problem, but only if students were acquiring English effectively with support from parents and schools where resources and infrastructure are available. The South African reality is however one where most African language students come from impoverished areas, and where English remains an unattainable goal, not only as a learning area, but also as a means through which knowledge can be accessed (Desai, 2001). Where schools apply English as language of instruction, the switch may simply be in adherence to policy. Improved educational outputs are unlikely if other indicators of quality remain the same.

The findings of the current study supports ideas expressed by Brock-Utne (2007) who stated that it is not enough to refer to quality education, but to ask what quality education would entail. Against a background of linguistic complexity, the minimum prerequisite should be the type of education that builds on what students already know and that takes the culture, language and experiences into account. Findings from the current study provides clear evidence that African children stand to be disadvantaged the most when a strong mother tongue base has not been developed in the early years and when education for these children is only available through a medium of instruction other than the mother-tongue. In cases where it is not practically possible to have students taught in their mother-tongue, the current study provides evidence that exposure to a language that at least shares linguistic similarities to the home language could have a positive effect. The exposure to and testing of students in languages other than home language results in nothing more than what Desai (2001) referred to as 'incomprehensible education'. While the development of African languages should be paramount in the implementation of the Language in Education Policy, success can only follow if greater currency is afforded to African languages in society, business and government and when the speakers of African languages assert their rights and greater currency for their languages.

APPENDIX I

1. **BACKGROUND TO THE PROGRESS IN INTERNATIONAL READING LITERACY STUDY (PIRLS) IN SOUTH AFRICA**

The Progress in International Reading Literacy Study (PIRLS) is an international comparative evaluation of reading literacy of Grade 4 (9 year-old) learners. The study was established to provide countries with information about learners' achievement in the core curriculum area of reading, to complement the mathematics and science data provided by the Trends in International Mathematics and Science study (TIMSS).

PIRLS is run under the auspices of the International Association for the Evaluation of Educational Achievement (the IEA). As an organisation, the IEA undertakes international studies that benchmark performance of school-going children in mathematics, science, civic education, information, communication, technology and reading, inter ala.

Poor learner achievement is evident in South Africa's poor track record in international assessments. South African learners' poor performance in reading literacy was evidenced by the PIRLS 2006 results. As an international comparative study, PIRLS is administered in five-year cycles and assesses the reading literacy of learners who have had four years of schooling (Mullis, Martin, Kennedy, and Foy 2007). PIRLS 2006 aimed to describe trends and international comparisons for the reading achievement of Grade 4 learners. The assessment also focused on learners' reading behaviours and attitudes, the impact of the home environment and how parents foster reading literacy, the implementation of the curriculum, time and reading materials for learning to read in schools and classroom approaches to reading instruction as measured by background questionnaires administered to learners, their parents, teachers and school principals (Mullis, Kennedy, Martin, and Sainsbury 2004).

Both Grade 4 and Grade 5 learners participated in PIRLS 2006 in South Africa. The Grade 4 learners were the main sample, but Grade 5 learners were also included in attempts to obtain measures of progress from Grade 4 to Grade 5. Grade 4 learners achieved on average 253 points

(SE=4.6), well below the international average. South African Grade 5 learners achieved the lowest score of the 45 participating education systems of 302 (SE=5.6) in PIRLS 2006. Average achievement for both these grades was well below the fixed international reference average of 500 points (Howie, Venter, van Staden, Zimmerman, Long, du Toit, Scherman, and Archer 2009).

In PIRLS 2011, South Africa elected to participate in the preProgress in International Reading Literacy Study (prePIRLS) 2011 where Grade 4 learners were assessed across all 11 official languages. As a less difficult version of PIRLS, prePIRLS allowed developing countries to assess children's reading comprehension with shorter texts, easier vocabulary, simpler grammar and less emphasis on higher-order reading skills (Mullis, Martin, Foy, and Drucker 2012). PrePIRLS was designed to test basic reading skills that are prerequisites for success in PIRLS (Mullis et al., 2012).

PrePIRLS 2011 results pointed to continued underperformance by South African learners with little evidence of improved reading literacy scores, even when administering an easier assessment (Mullis et al., 2012). The prePIRLS 2011 study results revealed that South African Grade 4 learners obtained 461 (SE=3.7), the lowest reading achievement score in comparison with the international centre point of 500. In contrast, learners from Botswana achieved 463 (SE=3.5) while learners from Colombia obtained 576 (SE=3.4) (Mullis et al., 2012). While Botswana managed to achieve two scale points higher than South Africa, this difference is not statistically substantial (Howie, van Staden, Tshele, Dowse & Zimmerman, 2012).

Figure 1.1 indicates the performance of South African Grade 4 learners as measured in each of the 11 official languages:
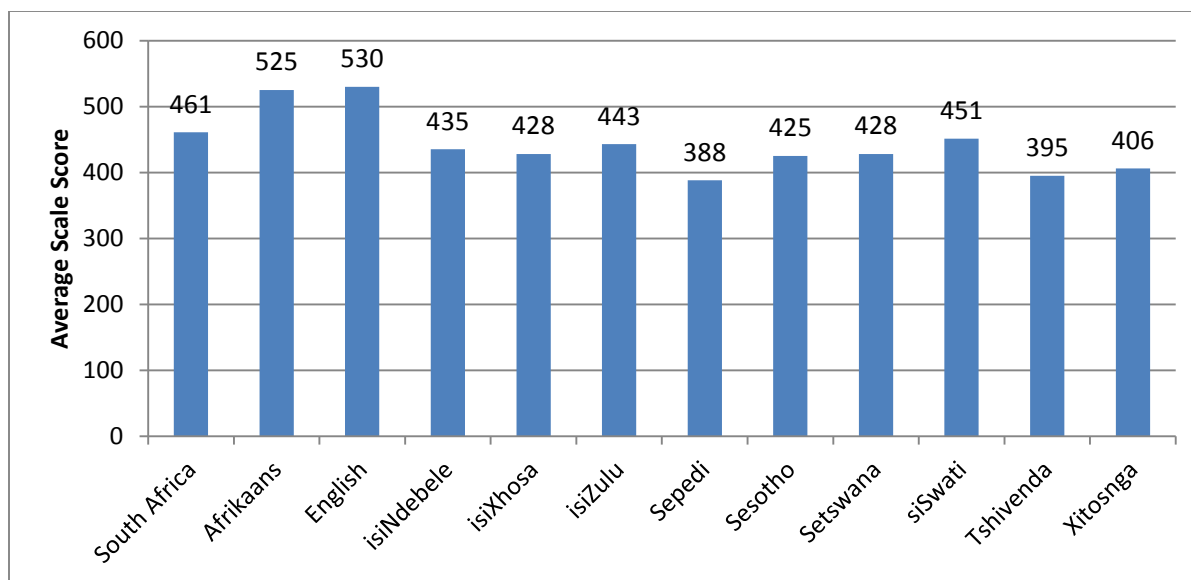
Figure 1.1: South African Grade 4 Learner Performance in prePIRLS 2011 by Language of the Test (Howie et al, 2012)

Learners who wrote in siSwati (451, SE=5.8) achieved the highest overall scores in the African languages, closely followed by those writing in isiZulu (443, SE=9.3). Learners writing in siSwati achieved higher scores than learners in six other African languages. Learners writing in isiZulu achieved higher scores than those writing in three other African languages. Learners who were assessed in Sepedi (388, SE=7.4) and Tshivenda (395, SE=7.6) obtained the lowest average scores of all 11 languages and were significantly lower than eight other African languages. The average scores obtained by learners from all African languages were well below the International Centre point score of 500 (Howie et al., 2012).

In the international studies, achievement is also reported on four different points on the achievement scale which provide deeper insight into how children are performing. Each score represents a benchmark in terms of skill and knowledge in terms of how children's performance can be described. These are the Low International Benchmark (achievement at a maximum of 400 points), the Intermediate International Benchmark (achievement at a maximum of 475 point), the High International Benchmark (achievement at a maximum of 550 points) and the Advanced International Benchmark (achievement at 625 points or more). Figure 2 illustrates benchmark achievement for each of the 11 official languages:
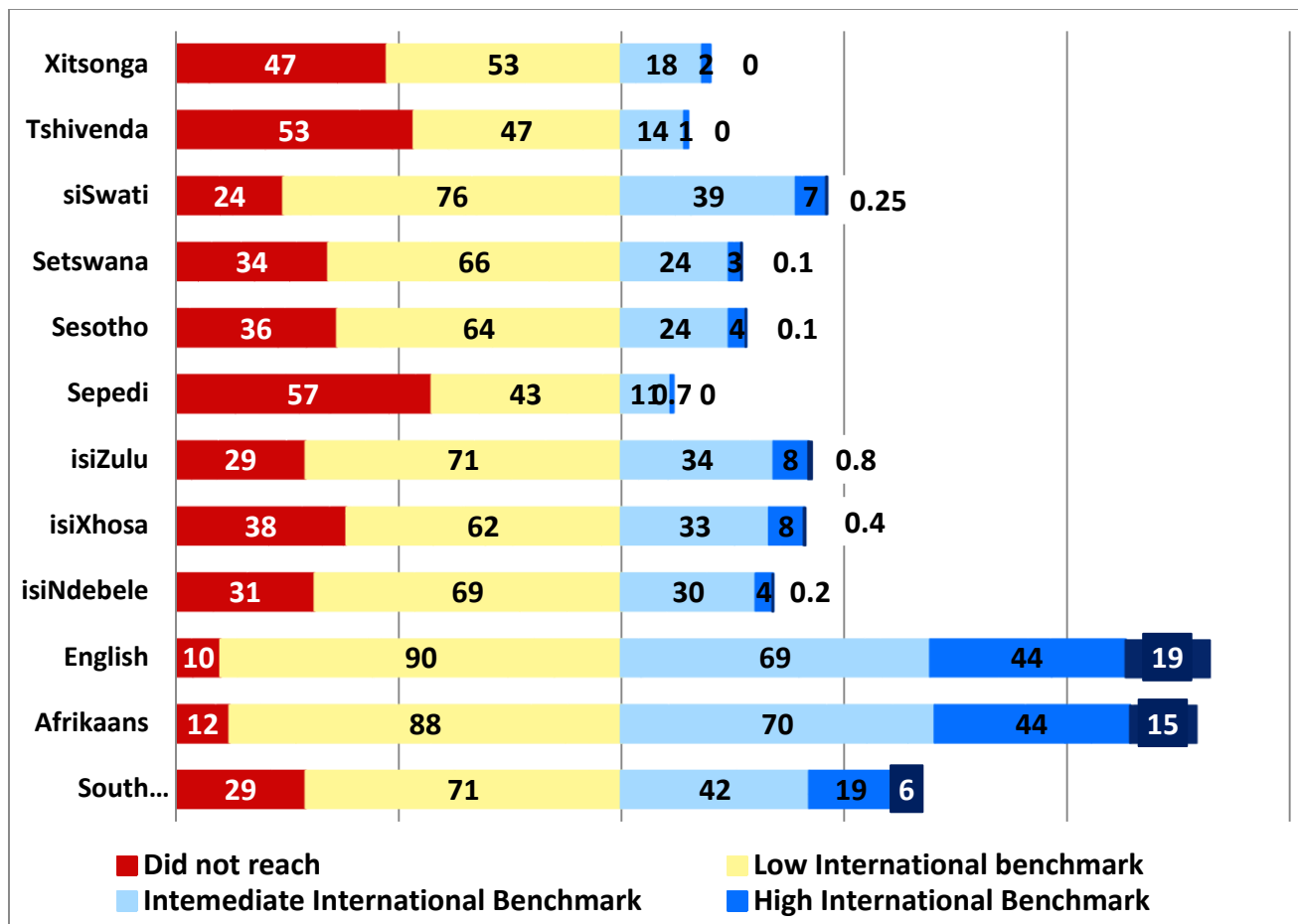
Figure 1.2: Benchmark achievement per language (Howie et al., 2012)

Also illustrated by figure 1.2 is the percentage of Grade 4 learners per language who did not attain the Low International benchmark. When reading Literary texts, these learners cannot locate and retrieve an explicitly stated detail. When reading Information texts, these learners cannot locate and reproduce two or three pieces of information from within the text or use subheadings, text boxes and illustrations to locate parts of the text (Howie et al., 2012). These learners are of concern and are at risk as they have not yet achieved the reading literacy necessary for them to read to learn and meet the academic demands in Grade 4

2. THE PIRLS 2011 FRAMEWORK FOR LITERACY

The PIRLS 2011 and prePIRLS 2011 study was based on the same assessment framework. Both assessments used of a wide range of text types within each purpose for reading, with an equal

proportion of material assessing each reading purpose to create an authentic reading experience. However, while the PIRLS 2011 achievement instruments consisted of 800 words per reading text that learners had to read and respond to, the prePIRLS 2011 achievement instruments consisted only of 400 words per text with shorter, easier vocabulary and simpler syntax printed in a larger font to enable ease of reading.

Mullis, Martin, Kennedy, Trong and Sainsbury (2009) state that PIRLS focuses on three aspects of reading literacy. Firstly, *processes of comprehension* are ways in which readers construct meaning from text. They focus on and retrieve specific ideas, make inferences, interpret and integrate information, while also examining the text features. Secondly, *purposes for reading* are two types of reading that account for most of the reading young learners do, namely reading for literary experience and reading to acquire and use information. Subsequent sections of this document will pay particular attention to the types of reading comprehension and the purposes for reading found specifically in the prePIRLS 2011 assessment. Thirdly, *reading behaviours and attitudes* refer to those behaviours and attitudes that would promote lifelong reading habits as assessed by the background questionnaires administered to learners, their parents, teachers and school principals.

Table 1.1 (below) provides a breakdown of the aspects of reading literacy as measured by prePIRLS 2011.

Table 1.1: prePIRLS 2011 Aspects of Reading Literacy

Processes of Comprehension	1. Focus on and retrieve explicitly stated information 2. Make straightforward inference 3. Interpret and integrate ideas and information 4. Examine and evaluate content, language and textual elements
Purposes for Reading	Reading for Literary Experience Reading to Acquire and Use Information
Reading Behaviours and Attitudes	Contextual Questionnaires internationally administered to: - School principals - Grade 4 Teachers - Grade 4 Learners - Grade 4 Learners' Parents

For purposes of the current report, focus is placed only on the processes of comprehension and purposes for reading as evident form the prePIRLS 2011 achievement data obtained by South African grade 4 learners and not the data of reading behaviours and attitudes emanating from the various background questionnaires.

In naming its 1991 study, the IEA decided to join the terms 'literacy' and 'reading' to convey the notion that literacy includes the ability to reflect on what is read and reading is a tool to achieve personal and societal goals. Thus, according to Campbell et al. (2001), the framework for literacy that applies to PIRLS is as follows:

> ...the ability to understand and use those written language forms required by society and [or] valued by the individual. Young readers can construct meaning from a variety of texts. They read to learn, to participate in communities of readers and for enjoyment. (Campbell, Mullis, Martin & Sainsbury, 2001:3).

With this definition of reading literacy, the PIRLS 2011 framework regards reading literacy as a constructive and interactive process. According to Brinkley and Kelly (2003), the reader is regarded as actively constructing meaning and as knowing effective reading strategies. Such readers have positive attitudes towards reading and read for the purposes of recreation and information acquisition. Meaning is constructed in the interaction between reader and text, in the context of a particular reading experience. Reading implies that the reader brings with him or her a repertoire of knowledge, skills, cognitive and metacognitive strategies.

The prePIRLS 2011 framework for reading literacy acknowledges that reading is a constructive and interactive process involving interaction between the reader and the text. The context of reading is an important element in how readers create meaning and the choice of skills and strategies they use in order to do so. The framework also acknowledges that the structural elements of a text will influence a reader's strategies. In short, the assessment framework conveys the notion that reading helps develop an understanding of text, thinking about text and reading various texts for many different purposes. PrePIRLS 2011 reasonably sought to measure these elements.

3. ASPECTS OF READING LITERACY

PrePIRLS 2011 focused on the three aspects of reading literacy, as presented in Table 1. These aspects are outlined in the following section.

3.1. Processes of Comprehension

The prePIRLS 2011 assessment examines the processes of comprehension as well as purposes for reading. These two aspects do not function in isolation from each other, but rather work together to form the basis of the written test of reading comprehension. According to the PIRLS 2011 Assessment Framework and Specifications (Mullis, Martin, Kennedy, Trong & Sainsbury, 2009), readers construct meaning in different ways when faced with the task of reading. They are likely to:

- focus on and retrieve specific ideas
- make inferences
- interpret and integrate information and ideas
- evaluate and examine text features.

These four types of comprehension processes were used in the prePIRLS 2011 assessment to develop the comprehension questions derived from reading passages that were finally presented to learners. A range of questions, each dealing with a particular process, enabled learners to demonstrate their abilities and skills in constructing meaning from written text.

3.1.1. Focus On and Retrieve Explicitly Stated Information

When focusing on and retrieving explicitly stated information, learners use various strategies to locate and understand content that is relevant to the question posed in the test. Retrieving appropriate text from a reading passage not only means that the learners have to understand what is stated in the text, but to also ascertain how that content is related to the information sought

(Mullis et al., 2009). Reading tasks that may exemplify this type of comprehension process include:

- Identifying information that is relevant to the specific goal of reading
- Looking for specific ideas
- Searching for definitions, words or phrases
- Identifying the setting of a story (e.g. in terms of time or place)
- Finding the main idea when explicitly stated.

3.1.2.   Making Straightforward Inference

Constructing meaning from a text requires readers to make inferences about ideas or information not stated explicitly within it. Making these inferences allows the learner to move beyond what is stated in the text and to fill in the 'gaps' in meaning. Some of these inferences might be straightforward, implying that they are mostly indicated explicitly in the text. Although the ideas might be explicitly stated, the learner still needs to make the connections between ideas, thus the intended meaning of text must be inferred (Mullis et al., 2009).

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

- Inferring that one event caused another event
- Concluding the main point by making a series of arguments
- Determining the referent of a pronoun
- Identifying generalisations made in the text
- Describing the relationship between two characters.

3.1.3.   Interpret and Integrate Ideas and Information

When interpreting ideas and information, the learner is processing text beyond the phrase or sentence level. The learner might focus on local or global meaning, or may relate details to overall themes and ideas. This process is therefore an interpretive one, where learners attempt to construct a more specific or complete understanding of the text by integrating personal knowledge and

experience with meaning found in the text (Mullis et al., 2009). Reading tasks that may exemplify this type of text processing include the following:

- Discerning the overall message or theme of a text
- Considering alternative actions by characters
- Comparing and contrasting text information
- Inferring a story's mood or tone
- Interpreting a real-world application of text information.

3.1.4. Examine and Evaluate Content, Language and Textual Elements

Examining and evaluating content, language and textual elements entail a shift in focus from constructing meaning to critically considering the text itself. According to Mullis et al. (2009), this focus allows for reflecting on textual elements, such as structure and language in order for the learner to examine how meaning is presented. During this process, the learner should draw on his or her knowledge of text genre and structure, an understanding of language conventions, and reflection on the author's devices to convey meaning, purpose, and perspective to the reader. In essence, examining and evaluating content, language and textual elements entail weighing of the learners' understanding of the text against their understanding of the world.

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

- Evaluating the relative likelihood that the course of events described in the text could really happen
- Describing how the author devised a surprise ending
- Judging the completeness or clarity of information in the text
- Determining an author's perspective on the central topic.

4. PURPOSES FOR READING

The prePIRLS 2011 assessment focused on two purposes for reading, namely:

- Reading for literary experience
- Reading to acquire and use information

These two purposes for reading account for most of the reading done by young learners in and out of school. Although the prePIRLS 2011 assessment distinguished between these two purposes for reading, the underlying processes and strategies readers use for both purposes are very similar.

Each of these purposes for reading is often associated with specific types of texts. For example, reading for literary experience is often associated with fictional material, while reading to acquire and use information is more likely to be associated with informative articles and instructional texts. The prePIRLS 2011 assessment took the form of fictional passages when reading for the purposes of literary experience, and articles for the purposes of reading to acquire and use information. However, these purposes for reading do not align strictly with these types of texts. Because tastes and preferences vary so widely, almost any text could conceivably meet either purpose for all learners (Mullis et al., 2009).

4.1. Reading for Literary Experience

In literary reading, the reader engages with the text to become involved in imagined events, settings, actions, consequences, characters, atmosphere, feelings and ideas. The main form of literary texts when reading for literary experience in prePIRLS 2011 assessments is narrative fiction.

4.2. Reading to Acquire and Use Information

When reading to acquire and use information, the learner does not engage in imagined worlds, but with aspects of the real world. By means of informational texts, the learner can understand how

the world is and has been, and why things work the way they do. The corresponding prePIRLS 2011 passages are aimed not only at the acquisition of knowledge and information, but also at assessing the learner's ability to use reasoning (Mullis et al., 2009). For the purposes of reading to acquire and use information, text formats in the prePIRLS 2011 assessment took the form of factual articles.

5. THE prePIRLS 2011 ACHIEVEMENT INSTRUMENTS

This section pays particular attention to the prePIRLS 2011 achievement instruments. These instruments included reading achievement booklets from which learner performance was derived. In the prePIRLS 2011 reading assessment, the two purposes for reading (for literary experience and to acquire and use information) were each represented by a number of reading passages, with accompanying questions learners were required to answer.

The prePIRLS 2011 achievement booklet structure made use of a matrix design technique, whereby the passages and accompanying questions were divided into groups or blocks (Mullis, Kennedy, Martin & Sainsbury, 2009). Individual learner booklets were made up of sets of two of these ten blocks (see Table 1.2, below) according to a specific plan, where testing time was separated into two 40-minute blocks of passages and questions.

The blocks are labeled L1-L4 for the literary passages and I1-I4 for the informational passages (see Table 1.3, below).

Table 1.2: prePIRLS 2011 Matrix Sampling Blocks

Purpose for Reading	Block			
Literary Experience (Literary texts)	L1	L2	L3	L4
Acquire and Use Information (Informational texts)	I1	I2	I3	I4

Table 1.3: prePIRLS 2011 Test Booklet Design

Booklet Number	Reading Passage	Reading Passage
1	L 1	L 2
2	L 2	L 3
3	L 3	L 4
4	L 4	I 1
5	I 1	I 2
6	I 2	I 3

7	I 3	I 4
8	I 4	L 1
9	L 1	I 1
10	I 1	L 2
11	L 3	I 3
12	I 4	L 4

1	L 1	L 2									
	2	L 2	L 3								
		3	L 3	L 4							
			4	L 4	I 1						
				5	I 1	I 2					
					6	I 2	I 3				
						7	I 3	I 4			
							8	I 4	L 1		
								9	L 1	I 1	
									10	I 2	L 2
										11	L 3	I 3
											12	I 4	L 4
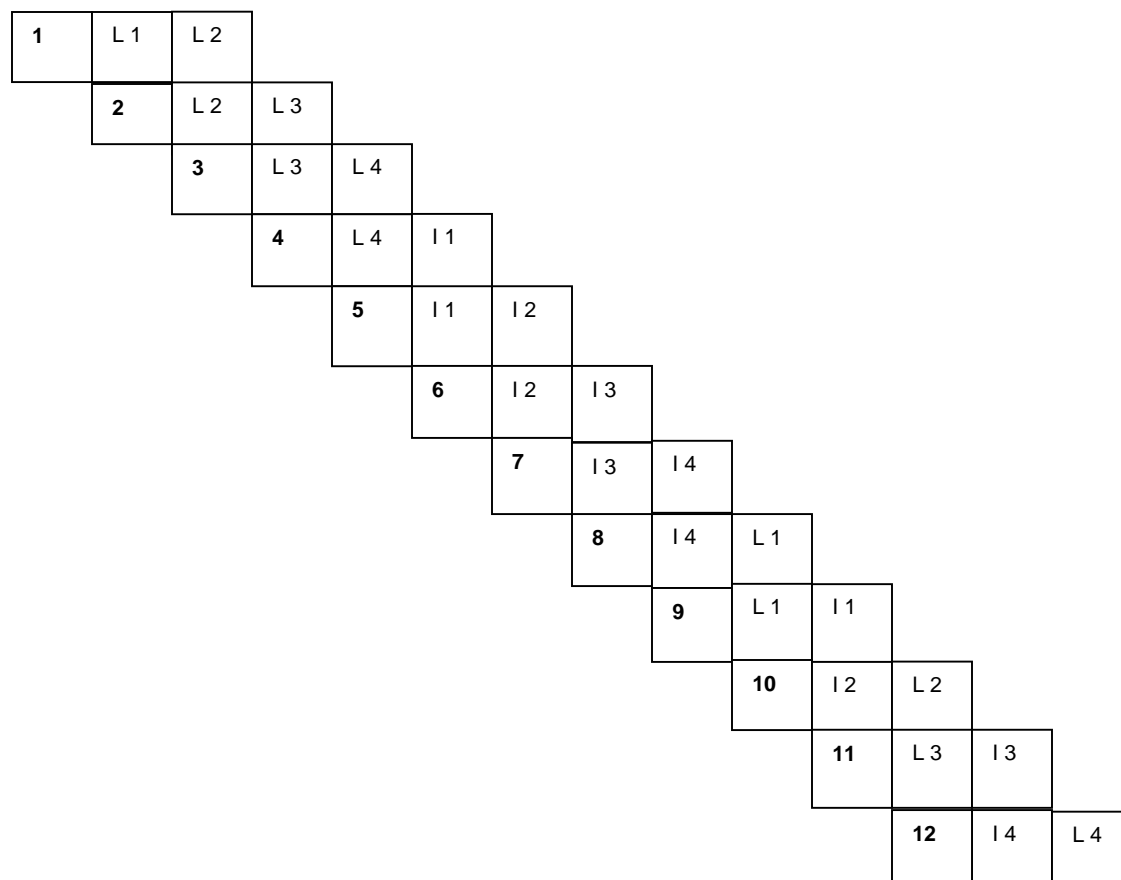
Figure 1.3: Matrix Design per Test Booklet

In the prePIRLS 20011 design, the ten blocks were distributed across 12 possible booklets. During data collection, each learner responded to one such test booklet consisting of two reading passages. Figure 1.3 (above) illustrates the matrix design for each test booklet. Up to and including booklet 9, each second reading passage becomes the first reading passage in the following booklet.

Two question formats were used in the prePIRLS 2011 assessment, i.e. multiple choice and constructed response questions. The former provided learners with four response options, of which only one was correct. Each multiple-choice question was worth one point, while correct answers to constructed response questions were worth one, two or three points, depending on the depth of understanding required.

According to Mullis et al. (2009), multiple-choice questions were used to assess any of the comprehension processes. However, as these types of questions did not allow learners to explain or support statements, they were deemed less suitable to assess learner abilities to make more complex interpretations or evaluations. To remedy this unsuitability, the prePIRLS 2011 comprehension texts also made use of constructed response questions that were considered to be consistent with the definition of literacy underlying the framework. Constructed response questions reflected the interactive, constructive view of reading, where meaning is constructed between the reader, the text and the context of the reading task. To tap the constructed elements, these types of questions required learners to provide support for what was inferred from reading or to make interpretations depending upon background knowledge and experience (Mullis et al., 2009).

6. SAMPLING DESIGN FOR prePIRLS 2011

The prePIRLS 2011 took the form of a cross-sectional survey with the aim of investigating reading literacy at one particular time, within a single learner population for each of the participating countries. The sample design proposed for prePIRLS 2011 is generally referred to as a three-stage stratified cluster sample.

6.1. First-Stage Sampling Units

The first stage of sampling consisted of individual schools that were selected with probabilities proportional to their size. In this case, school size was measured by the estimated number of learners enrolled in the target grade. Prior to sampling, schools in this sampling frame were assigned to a predetermined number of strata, thereby making the stratification implicit, explicit

or both. Joncas and Foy (2010) explain 'explicit stratification' as building separate school lists (or sampling frames) according to a set of explicit stratification variables under consideration.

As the schools were sampled, replacement schools were simultaneously identified should the need have arisen to replace non-participating sampled schools. Non-participating sampled schools in South Africa constituted those schools that were not functional, for example due to fire or floods, or schools that no longer existed, for example where mergers between two neighbouring schools had taken place, but where such mergers had not yet been updated on the national list of schools.

6.2.   Second-Stage Sampling Units

This second stage of sampling refers to classrooms within sampled schools. Within each sampled school, a list of eligible classrooms for the target grade was prepared. From this list, a single eligible classroom was randomly selected. In this regard, each participating country was encouraged to sample two classrooms per school.

6.3.   Third-Stage Sampling Units

The third-stage sampling units refer to learners within sampled classrooms. The prePIRLS 2011 study population desired for subsequent valid inferences was defined as all learners enrolled in the upper of the two adjacent grades that included the largest proportion of 9 year-old learners at the time of testing (Joncas & Foy, 2010). For most participating countries, the upper grade would be Grade 4, otherwise it would refer to the national equivalent.

Generally, all learners in a sampled classroom were selected for the prePIRLS 2011 assessment. For the South African sample, no sub-sampling was attempted, which meant that intact Grade 4 classes were selected and not sub-samples of learners in selected classes.

Each national sample of schools selected was intended to be a representative sample of all eligible schools in a specific country. For this study, teachers linked to the selected learners from sampled classrooms were asked to respond to teacher questionnaires. Unlike schools of a particular country, the teachers who responded to the teacher questionnaire were not regarded as a suitable

representative sample of teachers within the country. Rather, these teachers were regarded as reading teachers who teach a representative sample of learners within a country (Joncas & Foy, 2010).

6.4. Participation Rates and Exclusions

Participation requirements were set out by design at 85% of initially sampled schools. Non-participating schools were substituted by matched 'replacement schools' in order to meet sample size requirements. Although a system of replacement schools was available, participating countries were discouraged from utilising replacement schools too often and were still required to have the participation of at least 50% of the initial (or preferred) sample of schools.

In terms of classroom participation, a high rate of 95% of sampled classrooms was required. The substitution of classrooms was not permitted. In terms of learners and teachers, an 85% participation rate was required. Learner participation was calculated at 85% of the selected learners at the national level, not necessarily for each participating school. As with classroom substitution, teacher substitution was not allowed, since prePIRLS 2011 required teachers of participating Grade 4 classrooms to complete questionnaires relating teaching practices and classroom variables to learner achievement at classroom-level.

Despite these stringent requirements, the prePIRLS 2011 study made provision for exclusions. According to Joncas and Foy (2010), reasons for exclusion were usually of a practical nature, for example increased survey costs, increased complexity in the sample design or difficult test conditions. Exclusions could occur at school-level, where entire schools were excluded, or within schools, where specific learners or specific classrooms were excluded from participation.

School-level exclusions were acceptable in cases where schools were:

- Geographically inaccessible
- Extremely small in size

- Offering a curriculum or school structure radically different from the mainstream educational system

Within-school exclusion criteria allowed for the exclusion of the following learners:

- Intellectually disabled learners who are unable to follow general instructions of the test. This criterion does not include learners with poor academic performance, but only those who have been professionally and psychologically evaluated as intellectually disabled.
- Functionally disabled learners who would not be able to respond physically to a testing situation.
- Non-native language speakers, including those learners who are unable to overcome the language barrier of the test.

Exclusions had to be kept to a minimum, and specifically not more than 5% of the national desired target population, both at school-level and within-school samples.

The prePIRLS 2011 sample size requirements demanded the participation of a minimum of 150 schools and 4 000 tested learners per country. In South Africa, an intended, national sample of 345 schools was drawn. The selected sample of schools was stratified linguistically and covered schools from nine provinces, within which all 11 official languages were represented as languages of instruction. A total of 15 744 Grade 4 learners participated in prePIRLS 2011 in South Africa from a realized sample of 341 schools.

7. TRANSLATION OF THE prePIRLS 2011 ASSESSMENT INSTRUMENTS

The prePIRLS 2011 assessment instruments were developed and prepared in English by the International Study Centre (ISC) at Boston College. National Research Coordinators (NRCs) of participating countries also made contributions. Participating countries subsequently translated the assessment instruments into their local languages of instruction – in South Africa's case, translation of assessment instruments was effected for all 11 official languages.

According to Kelly and Malak (2001), a good translation follows the conventions of the target language and the cultural context, while at the same time conveying the same meaning as the source text. This definition means that:

- Translated text should have the same language level and degree of formality as the source text.
- Translated text should have correct grammar, use of tenses and placement of verbs and prepositions.
- Translated text should not clarify, omit or add information not given in the source text.
- Translated text should have equivalent qualifiers and modifiers in an order appropriate for the target language.
- Idiomatic expressions should be translated appropriately and not necessarily word-for-word.
- Aspects of spelling, punctuation and use of capitals should be appropriate for the target language, the country and cultural context.

In designing the translation process, the ISC had to ensure the standardisation and uniformity of instruments across countries. This objective meant that each participating country had to follow specific procedures, set out in guidelines provided to all NRCs in the PIRLS 2011 Survey Operations Manual. The importance of such a translation process was to ensure that valid comparisons could be made. It was important to ensure equivalence in passages and items across languages, while at the same time acknowledging that differences in expression across countries had to be incorporated in the translations where necessary.

7.1. The Translation of Instruments in South Africa

The prePIRLS 2011 translation guidelines required translation of each instrument from English to the target language. The translation procedure required the following:

1. Identification of the target language (or language of instruction).

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2. Identification of translators for an independent translation. Translators were required to have knowledge of English as well as the target language.

3. Translation of instruments from English to the target language and adaptation in cases deemed necessary.

4. Back-translation of instruments from the target language into English.

5. Comparison and reconciliation of the two independent translations.

6. Documentation of all cultural adaptations.

7.1.1. Identification of the Target Language

For the South African context, the assessment instruments had to be translated into all 11 official languages. This requirement meant that each of the test booklets comprising the reading passages with items was translated for each of the official languages.

7.1.2. Identification of Translators for Independent Translation

Only professional translators, many of whom are registered with the South African Translators Institute, were appointed, to ensure accurate translations of high standard for all the languages. Translators were allowed to change terms and expressions that were not familiar in their culture, given that the change would not affect the substance of the text or question, alter the meaning of the question or affect the reading level of the text.

Participating countries in prePIRLS 2011 were advised to appoint translators with the following abilities or characteristics:

- Knowledge of English
- Knowledge of the target language
- Experience in the country and its cultural context
- Experience with learners in the target population to be tested with the prePIRLS 2011 assessment instruments

- Familiarity with test development

In translating the prePIRLS 2011 instruments, translators had the following responsibilities:

- Identifying and minimising cultural differences in reading texts and background questionnaires
- Finding words and phrases equivalent to those used in English
- Ensuring that the reading level of texts remained the same in the target language as in the original English version
- Ensuring that the meaning of the texts and questions did not change.

7.1.3.   Translation and Adaptation

Translators were allowed to make adaptations to the text in order to make unfamiliar contextual terms culturally acceptable. Acceptable changes included the following:

Table 1.4: Examples of Culturally Acceptable Adaptations

Type of Change:	Change from:	Change to:
Units	inches	centimeters
	miles	kilometers
Common Nouns	candy	sweets
Spelling	recognize	recognise
	centre	center

7.1.4.   Back Translation from Target Language into English

Following the first round of translations, all the assessment instruments and questionnaires were translated back and compared with the English instruments. The back-translation stage involved different translators from those responsible for the first round of translations. Thus, the back translated versions could be compared to the original English versions of the instruments. Any inconsistencies or differences in meaning between the original and back translated versions of the instruments were checked. Where differences in meaning were found, instruments were subsequently sent back to the original translators to make adjustments or changes to their translated versions, and in order to ensure that the same meaning was reflected in the English instruments as in the final versions of any other translated language.

7.1.5. Documentation of Cultural Adaptations

National Adaptation Forms were used to record any and all adaptations made to the achievement items for prePIRLS 2011. The description of each adaptation included the original English term, followed by the translated terms for test items. This documentation was submitted to the IEA secretariat for each language of translation and was used during the translation verification process to evaluate the quality of the translations.

7.1.6. International Verification of Instrument Translations

Upon completion of the translation process of assessment instruments for all 11 official languages, instruments were scrutinised through a process of international translation verification. In order to adhere to strict quality control measures, all translated assessment instruments were submitted to the secretariat at the International Association for the Evaluation of Educational Achievement (the IEA). To ensure standardisation of instruments across countries, the secretariat appointed independent translation verifiers to assure quality and verify translated instruments for each country participating in prePIRLS 2011.

The primary task of translation verifiers was to evaluate the accuracy of the translation of the survey instruments. This task involved making recommendations for improvements in the translations where necessary, as well as notifying the national research coordinators of any deviations from the international version in the layout of the translated instruments. Their task thus involved the evaluation of accuracy of translations and justification for and adequacy of any cultural adaptations. More specifically, verifiers had to ensure the following criteria were satisfied by the translated material submitted for verification:

- The difficulty or meaning of the text was not affected by the translation
- Questions did not become more difficult or easy as a result of translation
- Information was not added or omitted
- All assessment booklets comprised the correct passages and all the items
- All background questionnaires included all the original items

The verification process required verifiers to review the translated instruments and record any deviations in 'Translation Verification Records'. For the purposes of these verification records, severity codes were used, ranging from 1 (indicating major changes or errors) to 4 (indicating acceptable changes).

Major changes or errors related to translations included:

- Incorrect order of choices in a multiple-choice question
- Omission of questions
- Incorrect translations resulting in the question revealing the answer
- Incorrect translation that changed the meaning or difficulty of a passage or question

Minor changes or errors included spelling errors that did not affect comprehension. Minor changes were deemed acceptable and appropriate, for example where units of measurement were changed to those units used by the corresponding country. Where suggestions for alternatives indicated that the translation might have been inadequate, the translation verifier suggested different wording.

Completed verification records were sent to NRCs and the International Study Centre at Boston College. NRCs were not required to accept all recommendations made by the verifiers, but rather they would document changes that did not seem warranted or appropriate, along with reasons for not changing the text.

The review of verification reports by NRCs meant that assessment instruments could once again be submitted to the International Study Centre for final review. Once all mistakes or deviations had been corrected, the Centre provided final approval for the printing and administration of assessment instruments and background questionnaires. South Africa met all the international requirements of the verification process in all 11 official languages.

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