THE DESIGN AND EFFECTS OF A CATCH-UP READING INTERVENTION FOR GRADE 5 TEACHERS AND LEARNERS IN NAMIBIA

by

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ABSTRACT

The aim of this study was to carry out a reading comprehension intervention to empower teachers with knowledge and strategies for teaching reading, with the ultimate goal of improving the low reading comprehension of Upper Primary learners in Grade 5. The intervention was carried out for about four months, in which teachers were provided with teaching and learning resources, guidance on how to utilise the resources, and coaching on instructional practices. The intervention involved two control and two intervention schools.

A modest interventionist approach was applied in which the six quality criteria for formative assessment as proposed by Nieveen (2007) were adopted to guide the study. The study was carried out in three phases. Phase 1 was concerned with the context and problem identification in which the relevance of the study, the first quality criterion, was addressed. A baseline study was conducted and the results showed that learners had low decoding and reading comprehension skills. The baseline study also revealed that teachers and principals had limited knowledge about reading and comprehension and how to teach them, and the schools were poorly resourced. Considering the low reading levels and academic performance of the learners, there was a need to improve the learners' reading comprehension levels through teacher empowerment to enhance their literacy practices and change their attitudes. The study was underpinned by two theories of change, namely Guskey's (1986, 2002) theory of teacher change and Fishbein's (2000) Integrative Model of Behaviour Prediction.

Phase 2 was concerned about the design, development and implementation of the intervention in which four quality criteria were addressed: the consistency, expected practicality, actual practicality, and the expected effectiveness of the intervention. Phase 3 addressed the actual effectiveness of the intervention, and the analysis of the pre- and post-intervention scores showed that the intervention schools improved significantly more than the control schools in decoding tests. The results also showed that the grade-appropriate age groups (10 and 11-year-olds) performed significantly higher than the older learners, and that girls had a slightly better performance than boys in all the assessments. The findings suggest that quality teaching and learning can happen if teachers receive ongoing support to enhance their instructional practices.

KEY TERMS:
Decoding, oral reading fluency, vocabulary, reading comprehension, reading intervention, comprehension strategies, literal comprehension, inferential comprehension, quality criterion, reading attitude, intention, reading ability, models of reading

ISISHWANKATHELO

Injongo yolu phando ibe ikukuqhuba umsebenzi wokungenelela kufundo ngokuqiqa kwanokuqonda intsingiselo equlethwe kumagama abhaliweyo, ukuze kuxhotyise ootitshala ngezakhono nangeendlela emabafundise ngazo abafundi, khon'ukuze bakwazi ukufunda nokuqonda okubhaliweyo. Eyona nto lujonge kuyo olu phando, kukukhuphula izinga lesakhono sokufundwa kwamagama abhaliweyo ngabafundi bebanga lesi-5, ukuze bafunde ngomoya wengqiqo nokuqonda intsingiselo yoko bakufundayo.

Olu phando lulungenelelo olwaaqhutywa isithuba esingangeenyanga ezine, apho ootitshala baanikwa izixhobo zokufundisa, kunye nemigaqo yokusetyenziswa kwazo, baza baqeqeshelwa ukumilisela imiyalelo yokwenza oko bakufundisiweyo. Olu phando lubandakanya amaqela amabini ezikolo. Elokuqala, lelezikolo ezimbini apho abafundi bebandakanywe kuphando njengokuba benjalo. Oko kuthetha ukuthi, aba bafundi abanalo ifuthe longenelelo esingalo esi sifundo. Elesibini, lelezikolo ezimbini ekwenziwe kuzo ungenelelo.

Xa kwakuqhutywa olu phando, kwaasetyenziswa uhlobo longenelelo oluzothileyo (i-modest intervention approach). Kulapho kwaaphakanyiswa khona ukuba kusetyenziswe imigaqo emithandathu ekumgangatho ophezulu, apho kuqhutywa uvavanyo olusekwe phezu kweentlobo-ntlobo zeemvavanyo, ngokwengcebiso kaNieveen (2007).

Olu phando lwaaqhutywa kwizigaba ezintathu. Kwisigaba soku-1, lwalujongene nokubona ingxaki kunye neemeko eyenzeka phantsi kwazo, Kulapho olu ngenelelo lufuneka khona, nalapho umgangatho ophezulu nowokuqala waathi waphicothwa ngokubanzi. Isiseko sophando saaqhutywa, zaza iziphumo zaso zabonisa okokuba izinga lesakhono sokufunda kwabafundi liphantsi ngokubhekiselele kufundo lwamagama abhaliweyo, kuba bengenaso isakhono sokuhlalutya ngokupheleleyo instingiselo yamagama abhaliweyo, nesakhono sokufunda amagama ngomoya wengqiqo. Isiseko sophando sikwadize okokuba iititshala neenqununu azinalwazi luphangaleleyo malunga nendlela ekufundwa nekuhlalutywa ngayo amagama izivakalisi kunye neentetho ezibhaliweyo. Kananjalo, isiseko sophando sikwadize okokuba iititshala neenqununu azinazo izakhono zokufundisa abafundi ukufunda nokuhlalutya okubhaliweyo ngengqiqo, kwaye izikolo ziswele izixhobo zokukhuphula izinga lokufunda okubhaliweyo ngabafundi.

Ngelokuthathela ingqalelo amazinga aphantsi ngokubhekiselele kwizakhono zabafundi ekufundeni amagama abhaliweyo, nakwimpumelelo yabafundi kwizifundo zabo ngokubanzi, kwaabakho imfuneko yokokuba kuphuculwe amazinga ekufundwa ngawo ngabafundi xa befunda okubhaliweyo. Ngokolu phando, konke oku kuyakwenzeka ngokuthi kuxhotyiswe ootitshala ngezakhono zokuphucula indlela abaqhuba ngayo xa befundisa abafundi ukubhala nokufunda okubhaliweyo, ukuze kananjalo batshintshe indlela ababona ngayo. Olu phando luxhaswe ngemibono emalunga notshintsho, nekuyimibono yeengcali ezimbini, u-Guskey's (1986, 2002) ngombono wakhe osihloko sawo sithi "Utshintsho kwititshala" 'Teacher change' kunye no-Fishbein's (2000) ngombono wakhe omalunga nokuphicotha ngokubanzi indlela

zokutshintsha okanye ekunokwakhiwa ngazo izimilo okanye indlela ezithile zokuziphatha (NgesiNgesi yi-"Integrative Model of Behaviour Prediction).

Isigaba sesi-2 sasijongene noku kulandelayo: izicwangciso zokungenelela kwingxuba kaxaka ethe yaphawulwa kolu phando, ukusebenzisa olu phando njengelinge lokungenelela ekukhuphuleni izinga lokufunda okubhaliweyo, nasekumiliseleni olu ngenelelo kwinkqubo zokufundisa okubhaliweyo. Kwesi sigaba kuyakuphicothwa ngokwemigqaliselo emine ekudidi oluphezulu ekuyile ilandelayo: Ungenelelo lwenziwa rhoqo okanye ngamaxesha athile; kulindeleke ukuba lwenzeke kangakanani olu ngenelelo? Kanti lona eneneni lwenzeke kangakanani? Utshintsho olulindelekileyo ngenxa yolu phando olungenelele kwingxaki ekhoyo yezinga eliphantsi lokufundwa kwamagama okanye okubhaliweyo ngokubanzi.

Kwisigaba sesi-3, kuphicothwe kwabekwa elubala eyona nto iye yenzeka okanye umahluko oye wabonakala ngenxa yolu ngenelelo xa abafundi befunda amagama abhaliweyo. Ukuze kubonakale oku, kuphicothwe amanqaku athathwe phambi kokuba kungenelelwe nasemva kokuba kungenelelwe. Laa manqaku aye abonakalisa okokuba kwizikolo ebekwenziwe kuzo uphando longenelelo, inqanaba lokufunda amagama abhaliweyo ngomoya wokutolika ngengqiqo, likhuphuke ngaphandle kwamathandabuzo, laba ke ngoko libhulele amasaka ezo zikolo bezingakhange zichatshazelwe lungenelelo. Iziphumo zolu phando zikwabonakalisa okokuba amaqela abafundi (abaminyaka ili-10 ne-11 leminyaka ubudala) ngokwamabanga abakuwo esikolweni ngokufanelekileyo, bababhulele amasaka abafundi abadala kunabo ngeminyaka xa kuthelekiswa amanqaku angokufunda ngengqiqo. Ngaphezu koko, amanqaku amantombazana abe bukhuphuka xa kuthelekiswa nawamakhwenkwe kuyo yonke imisebenzi yokuvavanywa kwabo. Iziphumo zophando zibonakalisa okokuba ukufundisa nokufunda okusemgangathweni kungenzeka xa iititshala zisoloko zifumana inkxaso engagungqiyo ukuze zikwazi ukukhuphula nokuphucula imisebenzi yabo yemihla ngemihla, yokufundisa abafundi.

ISIGAMA ESINGUNDOQO KOLU PHANDO:
Ukuhlalutya; ukufunda okubhaliweyo ngaphandle kwamagingxi-gingxi; isigama; ukufunda amagama ngengqiqo nokuqonda intsingiselo yokubhaliweyo; ungenelelo kufundo lwamagama, izivakalisi neentetho ezibhaliweyo, amaqhinga okuhlalutya nokuqonda okubhaliweyo; ukuqonda cacileyo okuthethwa ngamagama abhaliweyo; Ukuzenzela izigqibo ngeyona ntsingiselo equlethwe ngamagama abhalileyo; Amanyathelo achongiweyo, aza navavanywa, ukuqinisekisa ukuba iinjongo zphando zisemgangathweni. Ukulangazelela ukufunda okanye ukungabinamdla wakufunda okubhaliweyo; injongo; ukuba nesakhono sokufunda okubhaliweyo; iindlela emazilandelwe xa kufundwa okubhaliweyo.

OPSOMMING

Die doel van hierdie studie was om 'n leesbegripsintervensie uit te voer om onderwysers te bemagtig met kennis en strategieë vir leesonderrig, met die uiteindelike doel om die lae leesbegrip van Hoër Primêre leerders in graad 5 te verbeter. Die intervensie is vir ongeveer vier gedoen maande, waarin onderwysers onderrig- en leerhulpbronne, leiding oor hoe om die hulpbronne te benut, en afrigting oor onderrigpraktyke voorsien is. Die intervensie het twee beheer- en twee intervensieskole behels.

'N Beskeie intervensionistiese benadering is toegepas waarin die ses kwaliteitskriteria vir formatiewe assessering, soos voorgestel deur Nieveen (2007), gebruik word om die studie te lei. Die studie is in drie fases uitgevoer. Fase 1 het gehandel oor die konteks en probleemidentifisering waarin die relevansie van die studie, die eerste kwaliteitskriterium, aangespreek is. 'N Basisstudie is uitgevoer en die resultate het getoon dat leerders oor lae vaardighede beskik oor dekodering en leesbegrip. Die basisstudie het ook aan die lig gebring dat onderwysers en skoolhoofde beperkte kennis gehad het oor lees en begrip en hoe om dit te onderrig, en dat die skole nie genoeg hulpbronne gehad het nie. Met inagneming van die lae leesvlakke en akademiese prestasie van die leerders, was dit nodig om die leerders se leesbegripsvlakke te verbeter deur bemagtiging van onderwysers om hul geletterdheidspraktyke te verbeter en hul houding te verander. Die studie is ondersteun deur twee teorieë oor verandering, naamlik Guskey (1986, 2002) se teorie oor onderwyserverandering en Fishbein (2000) se integrerende model van gedragsvoorspelling.

Fase 2 was besorg oor die ontwerp, ontwikkeling en implementering van die intervensie waarin vier kwaliteitskriteria aangespreek is: die konsekwentheid, verwagte praktiese, werklike praktiese en die verwagte effektiwiteit van die intervensie. Fase 3 het die werklike effektiwiteit van die intervensie behandel, en die ontleding van die voor- en na-intervensie-tellings het getoon dat die intervensie-skole aansienlik meer verbeter het as die beheerskole in dekoderingstoetse. Die resultate het ook getoon dat die graadtoepaslike ouderdomsgroepe (10 en 11-jariges) beduidend hoër presteer as die ouer leerders, en dat meisies in al die assesserings effens beter presteer as seuns. Die bevindinge dui daarop dat gehalte-onderrig en -leer kan gebeur as onderwysers deurlopend ondersteuning kry om hul onderrigpraktyke te verbeter.

SLEUTEL TERME:
Dekodering, mondelinge leesvlotheid, woordeskat, leesbegrip, leesintervensie, begripstrategieë, letterlike begrip, afleidende begrip, kwaliteitskriterium, leeshouding, bedoeling, leesvermoë, modelle van lees

DECLARATION

Name: Belden L. Liswaniso

Student number: 42658527

Degree: Doctor of Languages, Linguistics and Literature

Exact wording of the title of the thesis as appearing on the electronic copy submitted for examination:

The design and effects of a catch-up reading intervention for Grade 5 teachers and learners in

Namibia

I declare that the above thesis is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

I further declare that I submitted the thesis to originality checking software and that it falls within the accepted requirements for originality.

I further declare that I have not previously submitted this work, or part of it, for examination at Unisa for another qualification or at any other higher education institution.

_____
SIGNATURE

April 2021
_____
DATE

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I dedicate this thesis to my mother (Kushanda Liswaniso) and my late father (Solomon Liswaniso).

LIST OF ABBREVIATIONS

LoLT	Language of Learning and Teaching
MOI	Medium of Instruction
L1	First Language
HL	Home Language
AL	Additional Language
ESL	English as a Second Language
ORF	Oral Reading Fluency
BWRT	Burt Word Reading Test
L2	Second Language
WCPM	Words Correct Per Minute

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CHAPTER 1
OVERVIEW OF THE STUDY

1.0 Introduction

The aim of this study is to investigate the literacy teaching and learning context in Namibian schools in order to develop, implement, and evaluate a context-based reading comprehension intervention. The purpose of this chapter is to provide the background to the study and its broader context. Further, the chapter presents the research context and describes the study aim and approach, and its significance. Lastly, Chapter 1 provides an outline of the thesis structure.

1.1 Background to the study

Comprehending a text is the main reason for reading; it makes sense, therefore, to teach learners how to comprehend what they read. By Grade 4, learners should be able to read fluently and comprehend reading materials at their grade level. However, many learners in Africa, particularly in Namibia, go through Primary Phase (Pre-Primary - Grade 7) with weak reading ability and they perform poorly academically (Tötemeyer, 2010; Shigwedha, Nakashole, Auala, Amakutuwa & Ailonga, 2017; The Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ) III, 2010; SACMEQ II, 2005; SACMEQ I, 1998). To date Namibia has participated in four SACMEQ assessments that test reading and mathematics skills at Grade 6 level, namely SACMEQ I (1995), SACMEQ II (2004), SACMEQ III (2007), and SACMEQ IV (2013). The first three SACMEQ assessments found that Namibian Grade 6 learners were poor readers and had reading comprehension levels below the SACMEQ reading average of 500 points. Even though the Namibian learners performed a bit above the average in SACMEQ IV in 2013 (Table 1.1), their performance was still not desirable. These SACMEQ results highlight a serious reading challenge in Namibian schools.

This study was conceived after I had noticed that the majority of Namibian learners are not performing well academically throughout all the school phases, despite some teachers showing commitment to teaching and learning and efforts by the government to improve learning outcomes. Some of the conversations with my acquaintances, who are teachers, revealed that some of the teachers find much of their teaching time disheartening because despite their efforts, their learners seem not to show any interest in learning, they read only a little (or they

do not even read) and struggle to understand what they read, and they do not make much progress. The teachers indicated that they feel discouraged because their efforts, coupled with limited resources, do not yield positive results. The SACMEQ results are consistent with reports from the teachers in terms of poor academic performance, particularly in literacy and numeracy. Table 1.1 shows the reading achievement of learners in 14 countries which participated in three SACMEQ assessments.

Table 1.1 SACMEQ assessment reading scores by country

Country	SACMEQ II 2005		SACMEQ III 2010		SACMEQ IV 2017	
		Rank		Rank		Rank
1. Botswana	521	6	535	7	567	5
2. Kenya	547	2	543	5	578	3
3. Lesotho	451	11	468	13	511	10
4. Malawi	429	14	434	14	458	12
5. Mauritius	536	4	574	3	588	2
6. Mozambique	517	7	476	12	519	8
7. Namibia	**449**	**12**	**497**	**9**	**538**	**6**
8. Seychelles	582	1	575	2	609	1
9. South Africa	492	8	495	10	538	6
10. Swaziland	530	5	549	4	570	4
11. Tanzania (Zanzibar)	478	10	540	6	526	7
Tanzania (mainland)	546	3	578	1	-	-
12. Uganda	482	9	479	11	512	9
13. Zambia	440	13	434	14	456	13
14. Zimbabwe	-	-	508	8	508	11

Source: SACMEQ Policy Issues Series, 2010; the SACMEQ IV Project in Namibia

Table 1.1 shows that the ranking of Namibian Grade 6 learners in the SACMEQ assessment scores improved from number 12 in SACMEQ II to number 6 in SACMEQ IV.

For my Master's degree study I examined the relationship between reading comprehension and vocabulary size for Grade 11 and 12 learners and the results showed that even high school learners in Grade 11 and 12 struggle to comprehend what they read (Liswaniso, 2015). Both Grade 11 and 12 learners had very low reading comprehension levels and limited vocabulary size. This was consistent with the poor academic results for Grade 10 and 12 learners that are reported each year (Ministry of Education, Arts and Culture, 2017a). Learners in Grade 10 and 12 in Namibia write national examination papers at the end of the academic year for them to qualify to Grade 11 and university respectively. All these issues made me consider a study in

which I could investigate the learning context more closely, and carry out a reading intervention in earlier grades when learners start 'reading to learn'.

Two broad stages are identified in the reading trajectory, the early 'learning to read' stage and the later 'reading to learn', when reading is used as a learning tool. Learning to read needs to be given special attention in preschool and Grades 1-3 because learning is cumulative in nature (cf. World Bank, 2018; Hernandez, 2011), which means that if the early stage of reading is not properly established, later reading becomes challenging. Pedagogic focus and opportunities for reading to learn, fluent reading, pleasure reading, and reading for meaning should be given priority by Grade 4 for success in schooling in the upper grades (cf. Pretorius, 2014) and for learners to contribute positively in society later in life. Learners who are illiterate can become relatively disadvantaged and if literacy is not achieved for all learners, the inequality gap widens, thus constraining economic growth (Castles, Rastle & Nation, 2018; Graham & Kelly, 2018).

1.2 Broader context of the study

Learners' attainment of literacy is influenced by various factors in the broader community as well as the schooling context. In this section I will describe the linguistic background of learners in Namibia, the school system, teacher development and change, and the schooling context in which this study was conducted.

1.2.1 School languages in Namibia

Namibia is a multilingual country with 13 languages that are used as Languages of Learning and Teaching (LoLT) and that have a standardised orthography (Tötemeyer, 2010), namely Afrikaans, English, German, Ju|'hoan, Khoekhoegowab, Oshikwanyama, Oshindongo, Otjiherero, Rukwangali, Rumanyo, Setswana, Silozi, and Thimbukushu (Ministry of Basic Education, Sport and Culture, 2003). These languages can be classified into three language families: 1. Germanic languages (Afrikaans, English, & German), 2. Khoisan languages (Ju|'hoan, Khoekhoegowab), and 3. Bantu languages (Oshikwanyama, Oshindongo, Otjiherero, Rukwangali, Rumanyo, Setswana, Silozi, & Thimbukushu). In addition to the 13 languages, Namibian Sign Language is included in *The National Curriculum for Basic Education* (Ministry of Basic Education, Arts and Culture, 2016). Namibian Sign Language is only used in schools with hearing impaired children.

English is the only official LoLT in schools from Grade 4 onwards. The other 12 languages are used as media of instruction (MOI) in Preschool and Grades 1-3 for learners whose first language (L1) is not English. The choice about which language(s) to offer as LoLT in Junior Primary (Pre-Primary - Grade 3) depends on whether a school has a sufficient number of learners from a particular language group to form a class (Ministry of Basic Education, Sport and Culture, 2003). This affects many minority learners who find themselves receiving learning instruction through a medium which is not their home language (HL) (cf. Kirchner, Alexander & Tötemeyer, 2014). The terms LoLT and MOI are similar, and in this thesis I will use LoLT. In Namibia, English is taken as a subject from Pre-Primary to Grade 3, and in Grade 4 a transition is made to English LoLT while learners' L1 is taken as a subject and continues as such to Grade 12. In other words, it is an additive bilingual education system in which learners learn to read and write in the HL for three years and switch to English in Grade 4. Thus, even though English is an additional language (AL) for the majority of Namibian learners, it is the LoLT in Namibian schools from Grade 4 to 12 (Kirchner et al., 2014; Tötemeyer, 2013). As such, learners need to develop sufficient language and literacy knowledge and skills in both their L1 and LoLT in order to succeed in schooling.

Note: White areas are sparsely populated or uninhabited

☐ Germanic ☐ Khoisan ☐ Bantu
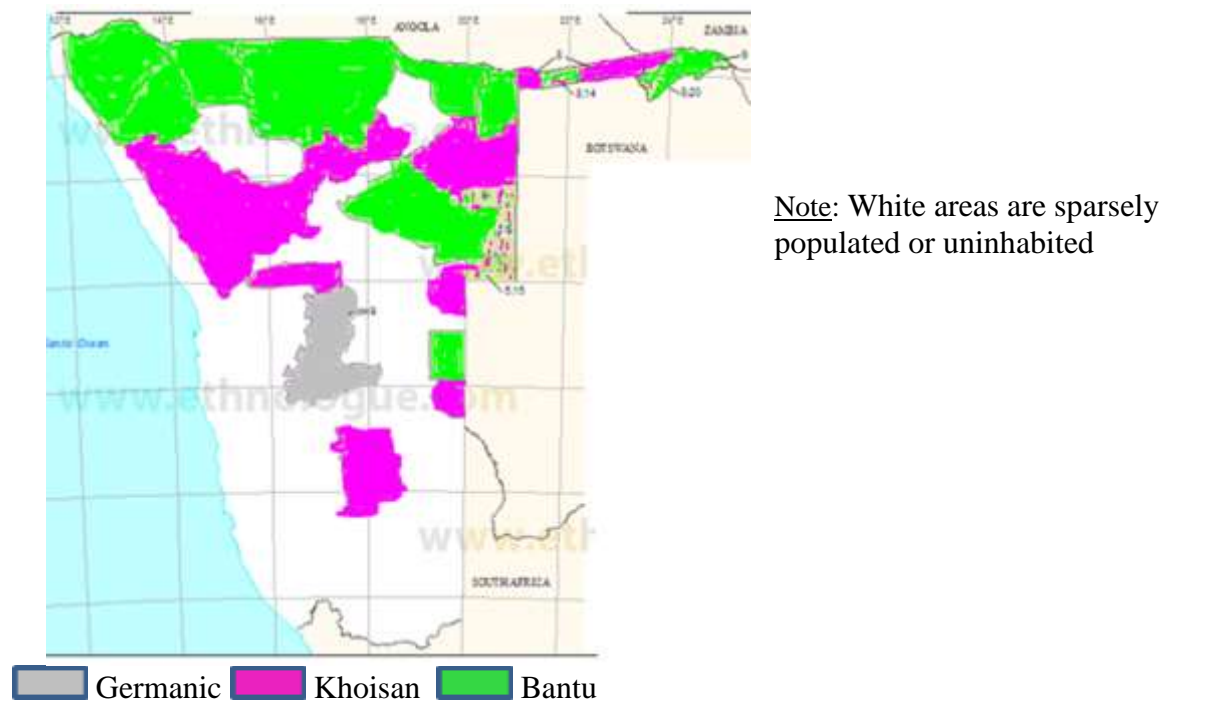
Figure 1.1 Language families' distribution in Namibia. Adapted from: Eberhard, Simons, and Fennig (Eds.) (2020, online)

The Namibian map (Figure 1.1) shows places in which speakers of each language family mostly reside. This does not necessarily mean that speakers of other language families not shown in certain places are not found there. Table 1.2 shows the percentages of HL speakers for the main languages spoken in Namibia.

Table 1.2 Namibian languages and percentage of speakers

Main language	HL speakers %
Oshiwambo (*Oshidnonga, Oshikwanyama, Oshingandjera, Oshikwambi, Oshikwaluudhi, Oshimbalanhu, Oshikolonkadhi*)	48.9
Khoekhoegowab (*Nama, Damara, Or Damara/Nama*)	11.3
Afrikaans	10.4
Otjiherero	8.6
RuKwangali	8.5
Zambezi languages (*Silozi, Shiyeyi, Sifwe, Subia, and Totela*)	4.8
English	3.4
German	0.9
San (*Ju|'hoan*)	0.8
Other	2.4

Source: Namibia 2011 population and housing census main report

Building literacy in the indigenous languages is quite challenging because of the small number of books published in the languages, such that teachers have limited teaching materials (Kirchner et al., 2014). Many of these children live in homes with limited or a lack of reading materials in the HL and LoLT. A lack of HL print material contributes to children not necessarily developing strong foundational reading skills in their HL before they switch to English. To compensate for this shortage of teaching and learning materials, there are some attempts at translating materials written in English into the local languages. For example, university lecturers and teachers in some schools collaborate to produce learning and teaching resources to improve learners' literacy and numeracy skills (UNESCO, 2013).

1.2.2 School system

The school phases in Namibia are categorised by *The National Curriculum for Basic Education* (Ministry of Education, Arts and Culture, 2015b) as follows:

- Junior Primary (Pre-Primary, Grades 1-3)

- Senior Primary (Grades 4-7)
- Junior Secondary (Grades 8-9)
- Senior Secondary (Grades 10-12).

Namibian learners write the National Standardised Achievement Tests on an alternative basis in Grade 5 and 7 (i.e. a two-year cycle) to measure their mastery of basic skills in order to improve the quality of teaching and learning. The national assessment is done in critical subjects such as English as a second language (ESL), Mathematics, and Natural Science. Table 1.3 provides the learners' national means in the three school subjects from 2011-2015.

Table 1.3 National mean (%) for Grade 5 and 7 on achievement tests

Subject	Grade 5				Grade 7		
	2011	2013	2014	2015	2012	2014	2015
English	46	44	44	54	45	49	41
Mathematics	43	44	47	63	45	48	48
Natural Science	-	-	-	-	54	58	59

Adapted from: Shaakumeni & Mupupa (2019)

Table 1.3 shows that in 2015 the performance of learners in ESL declined at Grade 7 level, suggesting that they went through their primary phase with low English proficiency. The low means in English scores suggests that the learners struggle to comprehend reading materials at their grade level. In 2016, the Ministry of Education, Arts and Culture suspended the achievement tests, citing the need to align the analysis and the reporting process of the scores to the revised curriculum ("Education ministry suspends Grade 5 and 7 standardised tests," 2016).

As from 2020, Namibian learners started writing external examinations in Grade 9 at the end of Junior Secondary Phase. Previously, the end of the Junior Secondary Phase used to be in Grade 10. The examination results for both Grade 10 and the school-leaving grade (Grade 12) have been consistently poor over the past years (§1.2.3). Apart from the National Standardised Achievement Tests and the end of school phase external examinations in Grade 10 and 12, there are no external assessments (or verification tests) after each phase of schooling to establish whether learners are on track.

The focus of this study will be at the Senior Primary Phase, specifically Grade 5. At Grade 5 level, the *English Second Language Syllabus (Grades 4 – 7) 2015* expects learners, inter alia, to apply reading strategies to comprehend texts, and to read various texts such as stories, informational texts, and documents with understanding.

In this study I will use the term Upper Primary to refer to the Senior Primary Phase. In Upper Primary, learners are required to read to learn from their grade level materials. This study will focus on Grade 5 level because at that grade level learners should have developed sufficient English proficiency to be taught reading comprehension strategies. Considering the English level of Namibian learners, teaching comprehension strategies to Grade 4 learners may be practically difficult as the learners may not have fully developed decoding skills and sufficient vocabulary to benefit from reading comprehension strategy lessons.

The Namibian government spends the largest share of its national budget on education for personnel expenditure, grants to schools, stationary, infrastructure, and other activities pertinent to teaching and learning. The Ministry of Education, Arts and Culture receives about 19% of the national budget annually (UNICEF, 2017). An enormous share of the ministry's budget (about 70%) usually goes for personnel expenditure (salaries), and the remaining amount is spent on improving the quality of teaching and learning. According to UNICEF (2017), the prioritisation of education in Namibia does not meet expectations in terms of improving the quality of education. Although teacher qualifications have generally improved significantly since Namibia's independence (1990), the Junior Primary grades still have many unqualified teachers (UNESCO, 2013). To improve the quality of education, the University of Namibia was mandated to host in-service teacher training activities for the Ministry of Education, Arts and Culture in terms of improving English language proficiency for all teachers and training unqualified Pre-Primary teachers (§1.2.4). The Junior Primary grades are critical in learners' education as it is the level at which they need to develop a strong literacy foundation to succeed in schooling. Considering that Namibian schools are poorly resourced (Kirchner et al., 2014), the learners are disadvantaged in terms of early literacy development.

1.2.3 Learners' academic performance

As indicated earlier (§1.2.2), the Grade 10 and Grade 12 school-leaving results in Namibia are not impressive. Only about 50% of Grade 10 learners gain admission to Grade 11 and less than 50% of Grade 12 learners qualify for university admission each year. In the 2016 school-

leaving examination results, only 28% of Ordinary Level[1] learners achieved a D symbol or higher in English (Ministry of Education, Arts and Culture, 2017a). This suggests that only that percentage qualified for university admission[2] because a D symbol in English with at least 22 points (for an undergraduate diploma) or 25 points (for an undergraduate degree) in five subjects is the minimum requirement to qualify to study in public universities in Namibia. Less than 40% of Grade 12 learners qualify for university admission each year. The *National Promotion Policy Guide for Junior and Secondary School Phases* states that there must be ongoing early identification of learners being at risk of academic failure through continuous assessments and these learners must be provided with additional learning opportunities (Ministry of Education, Arts and Culture, 2018). The promotion policy also mentions that the learning support team should monitor the academic progress of learners using formative assessments. However, considering the low success rate of learners, one wonders about the effectiveness of the learning support teams in schools and the additional learning support provided to the learners. On average the repetition rate in Namibian schools is 15% (Ministry of Education, Arts and Culture, 2017b), suggesting that many learners do not benefit much from the school system. The promotion policy recommends that learners who are not making enough progress to be promoted to the next grade should only be withheld once in Junior Secondary Phase and once in Grade 10 to avoid psychological effects (Ministry of Education, Arts and Culture, 2018).

This poor academic performance has been consistent since independence in 1990, with only a small improvement in recent years. When the Grade 12 school-results for 2019 were released in January 2020 only about 40% of the learners qualified for university admission and the low success rate was attributed to difficulties in English. Because of the small number of learners passing Grade 12, the Deputy Minister of Education, Arts and Culture announced in January 2020 that a national conference for English would be held at the beginning of 2020 to establish the cause of the persistent poor academic performance in schools. However, this conference did not take place because of restrictions imposed as a result of the coronavirus pandemic. The ultimate goal of this proposed conference was to improve academic performance in schools as English is seen as an impediment in learners' academic progress.

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[1] The Namibia Senior Secondary curriculum comprises Ordinary and Higher Level syllabus. The Higher Level syllabus is for a few students who performed exceptionally well in Grade 10 examination results. The majority of the learners register for Ordinary level examination.

[2] The Higher Level results do not show the percentage of learners qualifying for university admission because some learners registered for subjects at both Higher Level and Ordinary Level.

Although access to schooling in Namibia has improved significantly, quality learning has not yet been achieved. The net enrolment rate for primary school learners (Grade 1-7) in Namibia has shown a significant increase from 89% in 1992 to 98% in 2009 (UNICEF, 2011) and 98.1% in 2011 (UNICEF, 2015). The enrolment rate might have improved because of the introduction of Universal Primary Education in January 2013. Despite the high enrolment rate, the dropout rate (Table 1.4) of primary school learners in Namibia is high, with 5% of Grade 1 learners dropping out (Ministry of Education, Arts and Culture, 2017b), and only about 80% of registered primary school learners reaching the secondary phase (UNICEF, 2015). The general pattern of the dropout rate is that it increases with the school phases, with the highest dropout rate at Grade 10 level, suggesting challenges with reading to learn and academic progress. Table 1.4 shows the repetition and dropout rates of Namibian learners from Grade 1 to 11.

Table 1.4 Repetition and dropout rates by grade

		Grade										
	Mean %	1	2	3	4	5	6	7	8	9	10	11
Repetition %	15.2	19.9	14.2	13.1	11.1	19.4	12.6	8.3	30.0	23.6	10.7	4.1
Dropout %	7.8	5.4	4.9	3.9	1.5	7.1	3.8	2.1	9.7	9.2	32.6	5.1

Adapted from: Ministry of Education, Arts and Culture (2017b)

The discrepancies in academic success suggest limited educational equity in Namibian schools. Levitan (2015) describes educational equity as attending to individual learning needs and providing specific learning support for each learner to reach an educational goal such as attaining proficiency on standardised tests, reaching a certain benchmark score, and passing school-leaving examinations. Educational equity is different to equality in which teachers provide the same instruction to all learners regardless of their learning ability.

Many learners who enroll in Grade 1 do not even reach Grade 10 because of a range of factors such as poverty, lack of support from parents and lack of progress in school. Namibia is one of the countries with the highest socio-economic inequality in the world, with a Gini index[3] of 0.59, and 16.9% of the population being poor, living on less than US$1.90 a day (World Bank,

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[3] A Gini index (or Gini coefficient) measures income inequality or distribution of wealth within a country. A value of 0 on the Gini index represents perfect equality and a value of 1 (1.00) represents complete inequality (Aitchison, 2012).

2017). A study by UNICEF (2015) in Namibia found that in rural areas and in poorer communities, parental support is not strong and that each year about 16,000 children (about 43% of Grade 10 learners) drop out of school after failing Grade 10. The high dropout rate may also be attributed to the schooling system. The SACMEQ III (2010), and II (2005) assessments showed a poor performance for Namibian Grade 6 learners in reading and mathematics. In the SACMEQ IV (2017) report, there were some improvements, with performance a little bit above the SACMEQ average of 500 points. However, 65% of the learners were classified to be reading at basic skills levels; that is, reading to extract explicitly stated information (Shigwedha et al., 2017). The SACMEQ results suggest that Namibian primary school learners are poor comprehenders.

Despite improved teachers' qualifications and expenditure on education, change is slow and learners' performance in Namibia remains low. The results of the SACMEQ IV (2017) report influenced the Ministry of Education, Arts and Culture to make some changes to the basic education curriculum (Grades 0-12). In the foreword for the SACMEQ IV report for Namibia, the Minister of Basic Education, Arts and Culture states that the report will serve as an instrument for implementing the new curriculum and expresses the hope that the findings will be used to improve learners' performance in English and Mathematics (Shigwedha et al., 2017). In a press release statement posted on its website (https://www.moe.gov.na) on 16 August 2018, the Minister of Basic Education, Arts and Culture announced changes to the curriculum. Among these changes is the introduction of a pre-vocational skills course for learners to cater for those with various learning difficulties, and learners who are not strong academically can exit basic education in Grade 11 to continue with vocational training institutions, the employment sector, or with distance learning (Press Statement by Hon. Katrina Hanse-Himarwa, The implementation of the basic education reforms, 2018; Ministry of Basic Education, Arts and Culture, 2015). These changes mean that only strong candidates will proceed to Grade 12 to do their school subjects at Higher Level. It seems that the changes are not directed at assisting learners in earlier phases to improve their literacy. This is probably because the previous attempts in trying to improve literacy outcomes have not been very successful for many learners; therefore it is assumed that some learners cannot succeed academically. However, some experts in the technical and vocational education training field are skeptical about the success of the pre-vocational skills training because of teacher capacity, limited resources in schools, and inadequate teacher-preparedness (Tubaundule, 2019). As research carried out elsewhere suggests, literacy in schools can be improved if there are

systematic programmes that emphasise improving teachers and school leadership expertise (Hattie, 2015a).

A study by Liswaniso (2015) in Namibia established that participating learners in Grade 11 and 12 had low vocabulary sizes and performed poorly in reading comprehension, indicating the low literacy levels of the learners. Similarly, O'Sullivan (2002) observed that Namibian learners' English levels at the end of the Lower Primary Phase were too low for them to be able to learn effectively in ESL. These learners who enter school with very low literacy levels need systematic reading instructions. The findings on academic performance are concerning, therefore learners need to be helped to improve their literacy skills. The poor academic results could partly be attributed to learners not receiving good reading instructional practices, and studies need to be conducted to establish best practices in the Namibian context to improve learners' academic performance. Since literacy is the foundation for learning, learners cannot succeed in schooling and progress to university if they are illiterate (Graham & Kelly, 2018).

2.2.4 Reading comprehension and academic performance

This section explores the relationship between reading comprehension and academic performance. Learners need to understand what they read to accomplish reading activities at their grade level and to reduce school drop-out that may be caused by lack of success in schooling. Research indicates that there is a relationship between reading comprehension and academic performance at all school levels (Akbaşlı, Şahin & Yaykiran, 2016; Pretorius, 2012; Hernandez, 2011; Pretorius & Currin, 2010).

A study by Hernandez (2011) examined the long-term effects of reading skills among Grade 3 learners in the USA. The study used a national database comprising 3, 975 learners whose progress was tracked from Grade 3 to Grade 12, using the Peabody Individual Achievement Test (PIAT) Reading Recognition subtest to track their reading progress. The learners were divided into three reading groups; proficient, basic, and below basic readers. They were also grouped into three socioeconomic categories: never been poor, spent some time in poverty, and those who lived more than half of their years in poverty. The study found inter alia that 23% of learners who were reading at below basic level in Grade 3 failed to complete Grade 12 on time or dropped out of school. In contrast, only 9% of the learners at basic level and 4% of proficient readers were found to have completed Grade 12 late or had dropped out of school. The results suggest that children with high test scores in Grade 3 are more likely to progress

academically even in higher grades and those with weak scores in early grades are likely to remain poor readers. For less skilled readers (learners with poor test scores), reading to learn is not easily accomplished and limited comprehension of their school subjects slows their academic progress, particularly if they receive little or no assistance in learning to read.

Socioeconomic status also impacted overall academic performance. Hernandez (2011) found that, overall, 22% of learners from a low socioeconomic background did not pass Grade 12, while only 6% of learners who have never been poor failed to succeed in Grade 12 in the USA. For learners who lived more than half of their childhood in poverty, 32% failed to pass Grade 12. As Hernandez (2011:7) put it, learners from poor homes often lack resources, do not access early high quality education, live in low-performing school neighbourhoods, and consequently "develop weaker academic skills and achieve less academic success". Although this study was conducted in the American context, the results are relevant to the African context and Namibia in particular, where many learners are from low socioeconomic homes. Coupled with high poverty levels in the Namibian context, learners who struggle to read in primary school may have limited chances of succeeding academically if no effective reading support is provided in schools.

A small scale study by Pretorius and Currin (2010) shows the relationship between reading comprehension and academic performance. The authors carried out a longitudinal study for three years to examine the impact of a reading comprehension programme on Grade 7s with poor reading skills in a South African primary school. The intervention involved building teaching and learning resources at the school, empowering teachers to carry out reading instruction more effectively, and encouraging literacy among parents of the learners. The results showed an improvement in oral reading fluency (ORF) and reading comprehension in successive cohorts over the three years. They also found that good readers performed well academically whereas poor readers struggled academically. The authors did not report correlations between reading comprehension and academic performance. They used a histogram to show a pattern of performance in the learners' end-of-year final examination marks and their reading scores. The results showed that higher performance in reading was associated with increased academic performance.

Another study showing the relationship between reading comprehension and academic performance is one by Akbaşlı et al. (2016). They investigated the effects of reading

comprehension on Mathematics and Science achievement, using statistics from the Programme for International Student Assessment (PISA) and qualitative data obtained through observing reading activities of 15-year-old learners (the total number was not reported) in secondary schools in Turkey. Akbaşlı et al. (2016) found a strong relationship between reading comprehension performance and Mathematics/Science performance. They did not report statistical correlations, but used a histogram to show the relationship between the variables. The authors also found that learners who receive reading support at home or school succeed academically.

This relationship also holds at tertiary level. In an earlier study, Pretorius (2002) carried out two studies at the Medical University of South Africa (Medunsa) and the University of South Africa (Unisa) to investigate the relationship between reading ability and academic success. The results in the first study showed a strong relationship between the students' reading ability and their academic performance (Pretorius, 2002). The second study also showed a strong relationship between reading ability and scores in the Mathematics Access module, with an increase in reading scores associated with an increase in Mathematic performance, for example, students who scored 75% and above in reading scored 60% or more in Mathematics.

Even though reading comprehension is necessary for one to perform well academically, it is not a guarantee for a good academic performance. Skilled readers may perform poorly in their academic studies if inter alia, they lose interest in their studies, fail to persevere, miss classes, and develop poor relationship with their teachers (Pretorius & Murray, 2019). However, poor readers are likely to face major challenges to succeed academically even if they show commitment to their studies.

1.2.5 Quality of school teaching in Namibian

Quality of teaching is a major determining factor for learners' school success (World Bank, 2018). Research worldwide indicates that the quality of teachers entering the teaching profession affects learners' learning (Cho & Ho, 2009). There are many teacher training institutions in Namibia and these institutions are required to register with the Namibia Qualification Authority, which is mandated by the government to, among others, evaluate and recognise education programmes and qualifications for the institutions' qualifications. Considering the quality of learning in schools, it may be that many pre-service teachers join the teaching profession with limited competency in the subjects they are entrusted to teach.

The annual growth rate of qualified teachers in Namibian schools from 2006 to 2012 was 4%, increasing from 73% in 2006 to 83% in 2012 (UNESCO, 2013). Although Namibian teachers have generally improved their academic qualifications, their competence and learners' academic performance are still not desirable. It should be noted that looking at teachers' academic qualifications is not a sufficient measure of quality teachers – instead, a more encompassing measure focuses on what teachers know and can do in the classroom. Teachers' reading ability in Namibia is declining. In the SACMEQ assessments, Grade 6 teachers are normally given the same reading comprehension test as their learners. The results in the SACMEQ assessments show that 69.4% of the Namibian teachers in SACMEQ III (2010) reached Level 8, which is the top SACMEQ reading level, but in SACMEQ IV (2017) the number of teachers reaching the highest level dropped to 64.1% (Shigwedha et al., 2017). All literacy teachers were supposed to have reading skills at Level 8, considering that the test was designed for Grade 6 learners. The results from both SACMEQ III and IV are alarming as they show that over 30% of teachers do not achieve a Grade 6 reading level.

The low number of students qualifying for university admission poses a challenge in creating a generation of quality teachers, as many of the learners will choose programmes other than teaching, resulting in the government enrolling unqualified teachers or those who fail to secure jobs in other sectors, into in-service teacher training programmes. In-service teachers are already teaching and they are provided opportunities to improve their qualifications and receive training to enhance their pedagogical knowledge. Pre-service teachers are university students studying towards a teaching programme. School-based studies are a critical component of the teaching programme, where student-teachers practise teaching while being mentored by experienced teachers in schools. At the University of Namibia, for example, Bachelor of Education students spend a total of 22 weeks in schools for school-based studies. In their Year 2, they spend four weeks in schools in the first semester. In Year 3 they spend six weeks; four in the first semester and two in the second semester. In their final year (Year 4), the students spend 12 weeks in schools in the first semester. As a lecturer at the university, I have had many opportunities to interact with students who go for school-based studies, and some of them indicated that most of the time they are left on their own without guidance when they are in schools. Some teachers tend to transfer their teaching responsibility to these student-teachers rather than supporting and mentoring them.

In low-income countries, teacher training institutions tend to lower their entry requirements to ensure that more teacher trainees are enrolled. Moreover, many institutions shorten the duration of the training programme to two years or less in order to try to fill the need for teachers in schools, especially primary schools (World Bank, 2018). This suggests that the teachers will not develop enough content knowledge and pedagogical content knowledge (i.e. knowing what to teach and how to teach it). Similarly, in Namibia, candidates who did not reach the minimum requirements for admission into a university's teaching programme were given temporary teaching posts to teach Pre-Primary children. In 2015, the Ministry of Education, Arts and Culture requested one of the public universities to create a special teacher training programme for these unqualified teachers in order to meet the demand for teachers at Pre-Primary school level. I had the privilege to teach some of these In-service Education and Training (INSET) teachers in an English proficiency programme. Many of these teachers struggle to comprehend texts and construct meaningful sentences. Even though the INSET teachers struggled to understand their content subjects, they demanded a pass mark, suggesting that they were more interested in obtaining qualifications and securing their teaching posts than in improving self-competence and providing quality education.

All these issues discussed suggest that Namibia seriously needs quality teachers. If teachers responsible for reading are not competent and effective, the cycle of poor reading and academic achievement will continue for a long time.

1.3 Teacher change models

To realise the goal of academic success for all learners, teachers need to be empowered to increase the effectiveness of their instructional practices (Hattie, 2015a). When learners struggle to improve their literacy levels, change should begin in classrooms with teachers providing effective literacy practices. Once teachers are in their classrooms, it is difficult to change their classroom behaviour, and changes happen slowly (Guskey, 2002). Teacher change needs to happen in terms of content knowledge, pedagogical knowledge, and attitudes. The sequence of change depends on the change model or theory one applies. Even if the Ministry of Education tries to fix school infrastructure, reduce class size, and provide more teaching and learning resources, academic progress may still be minimal if teachers continue teaching in a less effective way (Hattie, 2015b). The current study is an intervention to improve reading outcomes. Within the study, attempts to change teachers' instructional practices were made. Therefore, I will touch on two theories of change, namely Guskey's (1986, 2002) theory of

teacher change (Figure 1.2) and the Integrative Model of Behaviour Prediction by Fishbein (2000) as they underpin the perspective of this study.

Guskey's (2002) model, which was originally published in 1986, predicts a specific sequence of change in teachers. It starts with teachers being introduced to new teaching practices (i.e. pedagogical knowledge) and ends with the teachers changing their beliefs and attitudes because of the positive learning outcomes observed in their learners. For teachers to change classroom practices, their professional development should include coaching them on how to teach effectively, working with each other, and using available resources to improve their teaching. In other words, according to Guskey (2002), changes in attitude and beliefs are the results of changes in classroom practice, not the cause of change. Although Guskey's theory underpins this study, it originated from a different context (i.e. a context where teachers had high literacy levels, were well trained, and had access to well-resourced classrooms). Therefore, it needs to be re-examined in terms of how it operates in the Namibian context through the change process of the current intervention.
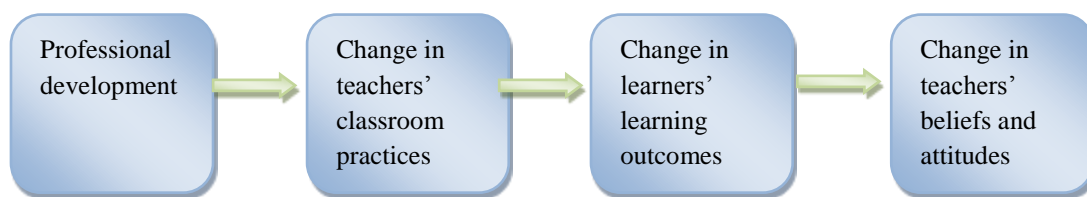
Figure 1.2 Model of teacher change. Adapted from Guskey (2002: 383)

The Integrative Model of Behaviour Prediction model was originally proposed by Fishbein (2000) to assist in programmes for HIV/AIDS prevention. The model is now applied in different educational contexts to predict behaviour change. This model describes determinants of behaviour change. According to the model, intention is considered as the primary determinant of behavioural change. The intention to do something (i.e. change one's way of doing things) is determined by three major factors, namely attitude, norms, and self-efficacy (Fishbein, Hennessy, Yzer, & Douglas, 2003). Pretorius and Knoetze (2013) describe the influence of the three factors (i.e. attitude, perceived norms, and self-efficacy) on the intention to change. Although a favourable attitude is not sufficient on its own to evoke behavioural change, it can impact a person's intention to behave in different way. Perceived norms refers to the "social frame of reference in which people operate, and which support them and the extent to which other people in the social network have the same set of normative beliefs"

(Pretorius and Knoetze, 2013:30). Self-efficacy is all about one's belief that one is able to do certain things. Increased content knowledge about reading and awareness of what successful reading looks like at different grade levels can change teachers' normative beliefs about reading. The Integrative Model of Behaviour Prediction recognises that people act on their intention if they have skills (or ability) or pedagogical knowledge in the schooling context and if there are no environmental constraints (Fishbein et al, 2003). If applied in the schooling context, teachers can become effective literacy instructors if their skills to teach reading are developed and their school environment acts as an enabler in supporting reading development. Also, giving teachers sufficient resources, such as lesson plans and texts, minimises environmental constraints. Figure 1.3 shows the simplified Integrative Model of Behaviour Prediction.
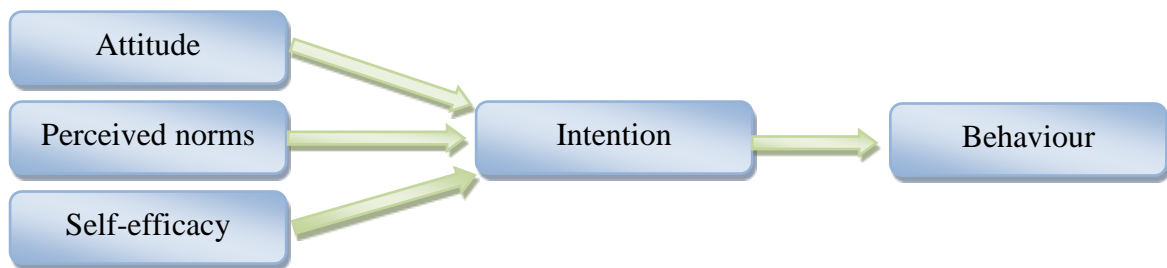
Figure 1.3 Integrative Model of Behaviour Prediction (Pretorius & Knoetze, 2013: 31)

Figure 1.3 shows that teachers can change their behaviour or instructional practices only when they have the intention to do so. The intention to change is influenced by a combination of factors such as the teachers' attitude towards an instructional practice, perceived literacy norms, and teachers' feeling of self-efficacy regarding their ability to provide effective reading instruction (cf. Pretorius & Knoetze, 2013).

Some mechanisms of change in the current intervention involve giving teachers a road map (i.e. *Teachers' Guide* with lesson plans) on how to teach reading, some minimal resources (texts), and ongoing support. To increase reading content knowledge and help shift normative beliefs about reading, the literacy results were shared with the teachers to help them know where their learners are in terms of reading comprehension, including the expected reading performance at grade level (i.e. where they should be), and guiding them on how to improve their learners' reading comprehension (i.e. how to make their learners skilled readers). All these

aspects help teachers to change attitudes and to shift normative behaviour while increasing their self-efficacy as reading teachers.

1.3.1 Interventions: Plomp's modus operandi

Educational interventions can be influenced by a bottom-up or top-down processes. The bottom-up model involves the contributions of the participants (e.g. teachers) in developing an intervention. In the top-down model an intervention is developed by a researcher or a research team and disseminated to teachers for implementation, without their contribution in the design. According to O'Sullivan (2004), top-down models are not considered as appropriate, especially not in developing countries, because they are rigid and they ignore the process of change and the complexities of implementing an intervention in different contexts.

Plomp (2007) suggests a different approach to interventions (in the field of Educational Design Research) that directly addresses the problem of practice (i.e. improving practice) and that can develop "usable knowledge". This will be dealt with in greater detail in Chapter 4 so for now a brief overview is given. Plomp (2007) outlines three phases of a context-based study that can respond to educational needs (§4.2). *Phase 1* involves preliminary research in which a researcher analyses learning needs within a specific context, and reviews relevant literature. *Phase 2* is the prototyping phase which is concerned with the development of a preliminary version of the intervention, based on Phase 1 analysis of data, before a final product is implemented. The prototypes are developed through formative evaluation in which the preliminary intervention design is tested and improved through a number of iterations. *Phase 3* (assessment phase) involves a summative evaluation to assess the effectiveness of the intervention and may include recommendations for improvement. Throughout the three phases, the researcher is expected to systematically reflect on the intervention process and document all relevant aspects to design principles (§6.1) (Plomp, 2007).

Due to practical reasons, it was difficult to implement Plomp's approach in its entirety and so, to improve learners' reading outcomes, a modest interventionist approach was applied as a framework for this study and serves as a pilot study for this kind of approach. This study was guided by six quality criteria for formative assessment as proposed by Nieveen (2007). The six quality criteria that were applied are: *relevance of the intervention*, *consistency of the intervention*, *expected practicality*, *actual practicality*, *expected effectiveness*, and *actual effectiveness*. These quality criteria by Nieveen (2007) are founded in Educational Design

Research, which makes them suitable for this study. The six quality criteria, which are more fully discussed in Chapter 4, were investigated in the three phases, namely context and problem identification; design, development and implementation; and evaluation (§4.2). A mixed methods design was applied in which both qualitative and quantitative data were collected. This type of design can lead to a better understanding of an experimental study results because it triangulates data and incorporates different perspectives (Creswell, 2014).

1.4 Research aim and approach

The aim of the intervention was to establish whether learners' reading comprehension performance could be improved through change in teacher practices. To achieve this aim, I needed to focus on two aspects: Firstly, I wanted to investigate the teaching and learning context in Namibian schools. The focus here was on establishing teachers' knowledge about reading, how they teach reading, availability of teaching and learning resources, and the reading levels of Grade 5 learners. Secondly, I wanted to develop, implement, and evaluate a context-based reading comprehension intervention for the Namibian educational context. The intervention focused on empowering teachers to teach reading, making a limited set of teaching and learning materials available to teachers and learners, with the ultimate goal of improving learners' reading outcomes.

The following are the six main research questions that guided this study and the phases in which they occurred:

Phase 1 (Relevance): **Research Question 1**: *What are the characteristics of the educational context and English reading levels of Grade 5 learners in Namibia?*
The purpose of this phase was to collect evidence to see if an intervention was needed. This involved analysing the learning context and reviewing the relevant literature.

Phase 2 (consistency, expected practicality, actual practicality, and expected effectiveness):
Research Question 2: *Is the intervention logically designed?*
In this context, a logically designed intervention is informed by evidence from literature and experts in the field.
Research Question 3*: Is the intervention expected to be usable at Grade 5 level?*
Here, the designed intervention is examined to predict whether it can be used effectively for the intended grade level.

Research Question 4: *Is the intervention usable at Grade 5 level?*

This question was addressed during the implementation of the designed intervention to establish the aptness of the level of content, practicality of lesson plan, level of learner engagement, availability of teaching and learning materials, and whether there was intervention fidelity.

Research Question 5: *Is the intervention expected to result in improved reading comprehension of Grade 5 learners?*

For this question, a moderate to massive improvement in reading comprehension was anticipated for the intervention group compared to the control group.

The purpose of this phase is to develop a preliminary intervention and refine it through three iterations (formative evaluation of the intervention).

Phase 3 (actual effectiveness): **Research Question 6**: *Did the reading comprehension intervention result in the desired outcomes?*

The purpose of this phase is to evaluate the success of the intervention through its effects on learners' reading performance, and on teachers' attitudes and instructional practices.

Figure 1.4 shows the design pattern comprising the three phases of this study, operational cycles within the phases, and the six research questions.

The study required the collection of both qualitative and quantitative data in the following way:

- An individually administered word recognition test administered to Grade 5 learners in the control and intervention schools, before and after the intervention, to assess decoding proficiency.
- An individually administered oral reading fluency test administered to Grade 5 learners in the control and intervention schools, before and after the intervention, to assess decoding proficiency.
- A group administered paper-and-pencil reading comprehension test administered to both the control and intervention schools, before and after the intervention.
- A group administered paper-and-pencil questionnaire administered to Grade 5 learners in both control and intervention schools to assess reading attitudes, background, habits, strategies, and access to reading material.

Phase 1 Context and problem identification	Phase 2 Design, development and implementation		Phase 3 Evaluation
Relevance	Consistency Expected practicality	Actual practicality Expected effectiveness	Actual effectiveness

Cycle 1

Problem identification

Literature review

Context analysis, including interviews with Grade 5 teachers

Cycle 2

Tentative design guidelines

Prototype

Expert appraisal

Cycle 3

Workshop and prototype evaluation with teachers in the intervention schools

Prototype refinement

Cycle 4

Micro-evaluation of the first six lessons for intervention teachers

Mini-workshops with intervention teachers

Classroom observations

Cycle 5

Final prototype: To be developed

Design principles

Intervention, pre- & post-tests, interviews

RQ1: What are the characteristics of the English reading levels and context of Grade 5 learners in Namibia?	**RQ2**: Is the intervention logically designed? **RQ3**: Is the intervention expected to be usable at Grade 5 level?	**RQ4**: Is the intervention usable at Grade 5 level? **RQ5**: Is the intervention expected to result in improved reading comprehension of Grade 5 learners?	**RQ6**: Does the RC intervention result in the desired outcomes?

General overarching **RQ**: What are the characteristics of an intervention that could lead to an improved reading comprehension of Grade 5 learners in Namibia?

Data collection timeline	Pilot study	Baseline study	Pre-tests	Posttests
	March - April 2018	September – October 2018	January – February 2019	October – November 2019

Figure 1.4 Reading comprehension intervention research design. Adapted from Dowse & Howie (2013)

- Individual interviews with Grade 5 teachers and school principals for the control and intervention schools before the intervention to assess content and pedagogic knowledge about reading and availability of learning and teaching material.

- Group interviews with learners in the intervention schools during the intervention to assess uptake from the intervention.

- Researcher's observation notes during the intervention to assess intervention fidelity.

- Individual interviews with teachers for the intervention classes after the intervention to assess the effect of the intervention. Further details will be elaborated in Chapters 4 and 6.

1.5 The research context

The main study was conducted in four schools in the Zambezi Region of north-eastern Namibia. The schools cater for learners from Pre-Primary to Grade 10, and most learners are from a low socio-economic background. The academic results for the schools, particularly Grade 10 results, have been poor for several years. The majority of the learners' mother tongues have no written form or standardised orthographic form. The learners follow a bilingual school programme where they study Silozi as their L1 and ESL. For the majority of the learners neither of these languages is their mother tongue or HL. The learners use Silozi as their L1 and LoLT in Grade 1-3, and in Grade 4 they make a transition to English as LoLT. Silozi originates from the Western Province of Zambia and is a lingua franca in the Zambezi region. The local languages in the Zambezi region are: Shiyeyi, Sifwe, Subia, and Totela. These languages, except Shiyeyi, are related linguistically to Silozi. Although the majority of the learners' home languages are not taught in school, there are some recent attempts to write these languages with the aim of teaching them in schools in future. The large number of learners placed in Silozi L1 and LoLT classes is disadvantaged in terms of not being able to learn in their home languages (UNICEF, 2011).

The Zambezi region is the poorest region in Namibia (National Planning Commssion, 2012) and the region has been ranked last out of 14 regions in terms of Grade 12 school-leaving results for four consecutive years (i.e. 2013-2016). In 2017, the regional rankings based on academic results was stopped because the Ministry of Education, Arts and Culture felt that it was not rational as it did not reflect the reality of the outcomes in terms of performance. Many of learners' homes are poor, have no or little reading materials, parents are illiterate or semi-

literate and in most cases, reading is not a priority (Kirchner et al., 2014). Therefore, there is a need for schools to play a compensatory role for the lack of or limited reading activities in children's homes.

1.6 Significance of the study

This study is important for a number of reasons. Firstly, the study will provide data of Grade 5 reading skills in ESL in Namibian context, since there are no studies yet of this nature in Namibia. Secondly, the study can also help to develop a better understanding of the factors that contribute to poor reading comprehension in Namibia. It is particularly helpful to the Ministry of Education, Arts and Culture in Namibia which tries to establish why the majority of Namibian learners fail English and why they make little academic progress despite various efforts taken to improve the learners' school success. Thirdly, the findings may also influence teacher training by examining some of the factors that can affect teacher change in classroom practice, specifically in relation to explicit comprehension instruction. Lastly, the study will produce context specific design principles that can inform the future development of teaching and learning materials for the Namibian educational context and similar educational contexts.

1.7 Organisation of the thesis

This thesis is organised into eight chapters, including this chapter. The reminder of the thesis is structured as follows. The literature review straddles two chapters (Chapter 2 & 3). This arrangement of the literature review chapters was done to distinguish between issues of theory and practice (cf. Klapwijk, 2011).

- Chapter 2 focuses on theoretical aspects related to reading. It examines different perspectives of reading and looks at various aspects influencing the comprehension of texts.
- Chapter 3 looks at research-based instructional practices for reading, focusing mainly on strategy instruction for fluency, vocabulary, and comprehension.
- Chapter 4 describes the approach followed in this study, including the research design, research instruments, and the pilot study outcomes.
- Chapter 5 presents the outcomes of Phase 1, the context analysis.
- Chapter 6 describes how Phase 2 (i.e. design, development and implementation) of the study was carried out. The chapter describes the process followed in designing the intervention for this study.

- Chapter 7 describes Phase 3 and presents the outcomes of the intervention and evaluate its effectiveness in terms of teacher empowerment and learners' reading performance.
- Chapter 8 provides an overview of the research questions and draws overall conclusions from this study by highlighting and integrating the findings of the previous chapters. The chapter also provides implications for teacher training and instructional practices, identifies the study's limitations and makes recommendations for future research.

In the next chapter, I move to research issues pertaining to reading where I will discuss what reading entails, how it develops, and various aspects affecting reading comprehension.

CHAPTER 2
UNDERSTANDING READING: A MULTI-PRONGED PROCESS

2.0 Introduction

The purpose of this study was to develop, implement, and evaluate a context-based reading intervention in a Namibian school setting to help teachers improve the reading levels of Grade 5 learners. A modest interventionist approach was used as a framework in which the educational quality criteria for formative assessment, as proposed by Nieveen (2007), were followed (§4.2 of Chapter 4). The purpose of this chapter is to situate the study within a literacy theoretical framework. To this end the chapter discusses reading, its broader context, its components, how it develops and some salient factors that can impact on reading comprehension.

I will start by briefly outlining the cognitive and social views of reading and then describe what reading comprehension entails and the various components involved in reading. Thereafter, I will look at how reading skills develop and describe four different models that deal with the relationship between decoding and reading comprehension: the simple view of reading model by Gough and Tunmer (1986), the lexical quality hypothesis (Perfetti and Hart, 2002), the self-teaching hypothesis (Share, 1995), and the decoding threshold hypothesis (Wang, Sabatini, O'Reilly, & Weeks, 2019). After that, I will describe different types of reading comprehension measurements that one can use to measure learners' reading ability. This chapter will also examine the relationship between reading ability and academic performance. Finally, the chapter will look at what it means to have reading ability.

Although some of the literature deals with reading research conducted in sociolinguistic and socioeconomic contexts different from those of developing countries, it is still valuable for the Namibian context, because little local reading evidence exists as counter reference points. The literature in this study can help to establish generic reading issues across alphabetic writing systems, and identify specific linguistic and contextual factors that may affect reading development differentially. In other words, one can learn from research conducted elsewhere and consider how it applies in a different context.

2.1 What is reading?

The purpose of reading is to make meaning of a text (Pikulski & Chard, 2005; Day & Bamford, 1998). A question to ponder is: How do readers understand texts, as in the following example:

> *Belden decided to be adventurous. He ordered a chai latte. He scalded his*
> *tongue after taking a sip.*

The above example raises further questions about understanding a text. What kind of meaning do readers make (literal or inferential)? What skills are needed to make meaning? Is there a specific developmental pathway to making meaning? The issues raised in these questions will be addressed throughout this chapter. Scholars have approached reading from different perspectives, such as a cognitive view (Day & Bamford, 1998) and a sociocultural view (RAND Reading Study Group (RRSG), 2002). I will define the term reading to show that it is a construct that encompasses both cognitive and sociocultural views. To fully understand what reading involves, the two views of reading should not be set up as oppositional, but as harmonising views/approaches because each one views comprehension with a different lens, as will be discussed later.

2.1.1 Cognitive approaches to reading

The term 'cognitive' refers to mental processes such as thinking, reasoning, and remembering (Pretorius & Murray, 2019). From a cognitive perspective, reading is defined as the ability to construct meaning "from written representations of language" (Wren, 2001: 13), or it is a complex process of identifying words in a text to construct meaning (Kocaarslan, 2016; Lee & Spratley, 2010; Day & Bamford, 1998). Cognitive reading can also be described as a process in which a reader constructs a "coherent mental representation of a text" (Kendeou, van den Broek, Helder, & Karlsson, 2014: 10). The reading process in the cognitive view involves much of what happens in the mind. Reading involves multiple processes and skills working together in a complex manner (see Figures 2.1 – 2.3).

Kendeou et al. (2014: 11) refer to two categories in which the cognitive processes of reading can be classified: Firstly, cognitive reading involves lower level processes (e.g. letter identification and decoding process) of translating "written code into meaningful language units". Secondly, it involves higher level processes (e.g. inferential process) of combining language "units into a meaningful and coherent mental representation". The meaning construction process starts with words (word reading may depend on sub-lexical features such

as phonemes and letters), and also occurs at sentence level as well at text level. The process involves the use of general knowledge of the world and knowledge of how texts work. The above example shows that reading is a complex process that goes beyond word level.

To understand the above text (§2.1), a reader must have resources to identify words and apply context knowledge (cf. Castles, Rastle and Nation, 2018). One has to have means to identify unfamiliar words such as *adventurous*, *chai latte,* and *scalded*, and be able to recognise that the pronoun *he* in the second sentence indicates that Belden is a proper noun for a male. The reader needs to be aware that ordering a chai latte is part of café/restaurant culture. Additionally, the reader should be able to tell that scalding his tongue implies that a chai latte is something hot, and taking a sip implies that this something hot is a liquid drunk from a cup/mug. One can also infer that being adventurous in this context is not about being physically adventurous but being adventurous in a culinary/food sense. All this shows that reading is a complex process involving a number of interrelated components and skills (Figures 2.1-2.3) and need to be taught systematically. I will elaborate further on the cognitive view of reading in section 2.4.

2.1.2 Sociocultural approaches to reading

The sociocultural approach to reading looks at literacy actions and patterns of reading as part of social behaviour. In other words, it is concerned with how reading is perceived and valued, how it is practised in a cultural setting, and what is considered as 'adequate' reading. Reading is viewed as a sociocultural activity because it is acquired through social interactions, represents how a specific cultural group (or discourse community, e.g. home) "interprets the world and transmits this information" (RAND Reading Study Group (RRSG), 2002:20). Sociocultural approaches can explain differences in reading performance among learners that are attributable to normative behaviour in different sociocultural groups. In sections 2.6 and 2.7 I provide more details about specific sociocultural factors that are prevalent in developing countries and how they affect reading ability.

2.2 Component skills in reading

Reading comprehension is regarded as "a complicated and multifaceted process affected by multiple factors, such as decoding, vocabulary, fluency, prior knowledge of the topic and working memory" (Klapwijk, 2013: 50). Reading development is not a simple process, but involves a "complex language and cognitive process, requiring development and coordination

of multiple skills through a developmental sequence" (Kim, Boyle, Zuilkowski & Nakamura, 2016: 8).

The theory of reading in this study assumes that reading has three basic components – decoding, comprehension and response/motivation (Figure 2.1). Therefore, the reading comprehension intervention for this study takes into consideration all these components of reading.
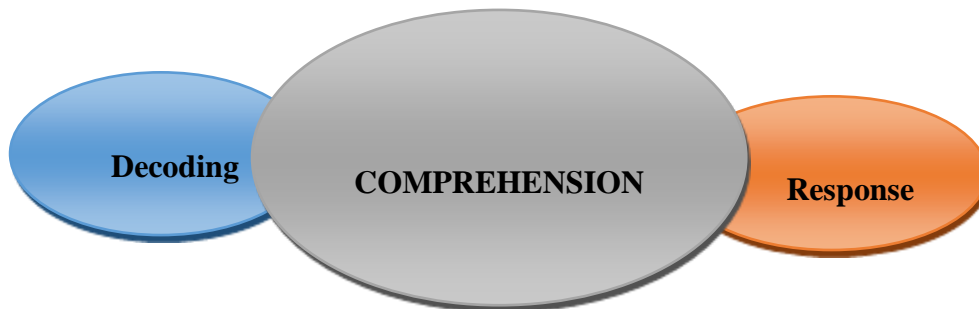
Figure 2.1 The interrelated components of reading. Adapted from Pretorius and Murray (2019: 27)

These three interrelated components of reading are discussed below in sections 2.3 to 2.6. Although reading comprehension is the main focus of this study, I will start explaining decoding because it is the foundation from which reading comprehension is built.

2.3 Decoding

Reading involves decoding and comprehension. Decoding is the ability to recognise written code by corresponding letters to their sounds systematically (Wren, 2001). For unskilled readers, decoding is a slow and laborious process, whereas for skilled readers it is a fast and effortless process. The fast and accurate decoding process is a prerequisite for comprehension, but decoding on its own is not sufficient to guarantee reading comprehension (Pretorius & Murray, 2019; Guldenoğlu, Kargin & Miller, 2012). Reading comprehension thus requires learners to develop other prerequisite reading skills and knowledge.

2.3.1 Decoding skills

This subsection describes different components of decoding, and describes how decoding skills develop. Decoding skills (i.e. recognising words based on letter-sound correspondence) are critical in learning to read and subsequently in accessing the meanings of individual words. The National Reading Panel (2000) has shown the value of teaching decoding skills to learners,

especially in early grades when learners learn to read. Figure 2.2 shows the subcomponents involved in developing decoding skills.
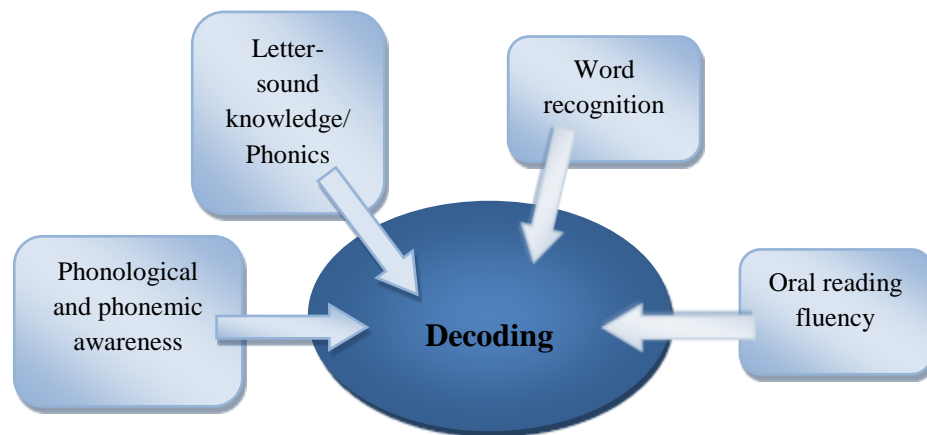
Figure 2.2 Subcomponents of decoding

Written language is based on the alphabetic principle, that is, letters which form words represent sounds. Languages with an alphabetic writing system may have a transparent orthography (i.e. writing systems in which letters match consistently with their sounds) or an opaque orthography such as English (i.e. it has letters that do not match consistently with their sounds). Words that cannot be decoded but must be learned by rote to recognise them as they do not follow phonics rules are called sight words (Johnston, McGeown & Watson, 2011; Reyhner, 2008). Sight words are common in English (e.g. *your*, *once*, *are*, *could*, *though*, and *laugh*) and in other opaque orthographies but not in transparent orthographies. In transparent orthographies, sight words may refer to shortish high frequency words that children learn to master quite early.

Learners in early grades need to learn letters and their sounds (phonics) and develop phonemic awareness for them to develop decoding skills (Castles et al., 2018; Lems, Miller & Soro, 2017; Hoover, 2002). Phonemic awareness is "the ability to focus and manipulate phonemes in spoken words" (National Reading Panel, 2000: 2-1). For example, learners can tell that the first sound in the word *food* is */f/* or that the individual sounds */b/a/t/* can be blended to form the word *bat*. This usually happens after a child has developed phonological awareness, which refers to the "awareness of sounds, syllables, rhymes and tone in a language" (Pretorius & Murray, 2019: 300). Phonemes are sounds or the smallest units constituting spoken language (e.g. */k/* as in **k***it* or */b/* as in **b***at*). The knowledge of the sound represented by individual letters of the alphabet helps children to put sounds together (or blend) into words (Pretorius & Murray,

2019). It should be noted that for children to develop decoding skills, they need to go beyond memorising letter names of the alphabet to reliably recognising the letters in their written form and the sounds they represent (cf. Wren, 2001). This way, learners develop knowledge of sound-letter relationships and how letters combine to form words in written language.

Learners should start developing phonological and then phonemic awareness in Preschool and Grade 1 as such skills support learning to read in alphabetic languages such as English (cf. Wren, 2001). Children first hear rhymes in words[4], hear words, hear and learn to identify syllables, and recognise and identify rhyming word units (e.g. *fat, cat, mat; sand, hand, band*). When children develop phonological (sound) awareness, they are able to recognise and play with sounds of spoken language (e.g. rhyming poems and songs) even before they learn the letters of the alphabet and their sounds. If a child does not develop phonological awareness, it becomes difficult for him/her to develop reading skills. Phonological awareness (an oral/aural skill) usually develops before phonemic awareness (aural skill) (cf. Lems et al., 2017). In other words, children ready themselves for reading before they can start recognising and understanding that letters represent sounds.

Research has shown that phonemic awareness is one of the predictors of learning how to read (Chard, Pikulski & Templeton, 2000; Stanovich, 1986). However, phonemic awareness is not a guarantee for learners to develop decoding skills; practice and exposure to reading materials are needed. Being taught, through explicit phonics instruction, letter-sound relations and how to blend also helps children develop decoding skills.

Phonemic awareness helps in understanding the alphabetic principle, and in learning letter-sound relationships (which involve reading and writing). With letter-sounds comes blending and segmentation, which is the ability to use letter-sound knowledge to decipher words. The slow process of identifying words letter by letter, or "syllable by syllable" happens earlier in the process of learning how to read (Grades 1 − 3) (cf. Lems, 2017; Pretorius, 2012). For learners to stand a better chance of succeeding in reading in early grades, teachers need to provide explicit instruction in phonological and phonemic awareness to the learners in Pre-school and Grade 1. Phonological and phonemic awareness can also develop through playful

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[4] Rhyming words are common in languages such as English and Afrikaans. In agglutinating languages (such as African languages) rhyme does not readily occur because of their complex morphological structure.

activities in which children, for example, clap syllables in words, blend letter sounds to form words, and identify words with similar sounds (cf. Wren, 2001).

Phonics refers to the systematic teaching of letters and their sounds, and it includes blending and segmenting letter sounds which form the basis for word attack skills (Pretorius & Murray, 2019; Wren, 2001). Word recognition through phonics and sight-word recognition in English are critical in reading. Lems et al. (2017: 82) describe word recognition as "accessing and recognising individual words", and decoding as "accessing and recognising words in connected text". It is in terms of this meaning that the word decoding is used in this study. Learners also need to recognise orthographic patterns to make reading an automatic process. Learning inflectional suffixes in English such as *-ing*, *-ed*, and *-ly* and other morphemes[5] such as prefixes *un-, anti-,* and *bene-* can enhance children's memory of words and their meanings (§3.6.2 of Chapter 3).

Once learners have developed phonics skills, it is much easier for them to crack the code of reading (Lems et al., 2017) and possibly recognise meanings of individual words. However, since English has an opaque orthography, some words cannot be decoded or identified by corresponding letters and sounds (Lems et al., 2017; Reyhner, 2008). For example, words such as *cough* and *bough* can be confusing to novice readers in terms of pronunciation because the letters *ough* have different pronunciations (Smith, 2004). In the word *cough*, the letters *ough* have an /ʌf/ sound whereas in *bough* they have an /ow/ sound. In some words such as *receipt*, *sign* and *subtle*, there are silent letters. For example, the letter *p* is silent in the word *receipt*, letter *g* is silent in the word *sign* and letter *b* is silent in the word *subtle*.

Learners also need to know concepts about print much earlier in the pre-school years to develop knowledge of letters and the alphabetic principle. Concepts about print involves knowledge that printed texts carry linguistic meaning, that there is a relationship between printed words and spoken words, and that English texts run from left-to-right and top-to-bottom on a printed page (Wren, 2001). This knowledge can help learners make sense of print and learn to recognise the printed words.

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[5] A morpheme is "the smallest meaningful unit of a speech" (Wren, 2001: 31). For example, the word *unhappy* has two morphemes: "un" and "happy".

An instructional method that explicitly teaches decoding is effective in both transparent and opaque orthographies. Even so, in opaque languages such as English, learners can face major challenges in learning how to read. Since English has many irregularly spelled words, learners need to be taught sight words in addition to phonics. For learners to recognise English words, they must have developed word-attack skills of decoding and sight word recognition (Lems et al., 2017). Despite its opaque orthography, explicit phonics instruction benefits English readers because the majority of words in English are decodable (Lems et al., 2017).

During the early years of learning to read, limited word-reading ability impedes reading comprehension (Castles et al., 2018). This is supported by cognitive models of reading such as Share's (1995) self-teaching hypothesis which posits that phonological decoding ability is essential to reading development as it provides children learning to read with orthographic information to decode words, even those they have never encountered before, in a fast and accurate manner (§2.7). Automatic word recognition (i.e. the fast and unconscious processing), which is enabled by a rich vocabulary knowledge[6], helps to free working memory (or attention resources) so that a reader can focus attention on meaning construction (Kuhn & Stahl, 2003; Day & Bamford, 1998; Stanovich, 1986). According to Savage, Lavers and Pillay (2007: 186), working memory is a "dynamic mechanism that involves the capacity to store information over short periods of time while engaging in other cognitively demanding activities". Readers with large working memory resources are able to retain a large amount of information, which allows them to make more connections (Castles et al., 2018). These readers are also able to get relevant information from a text or from their background knowledge, and can even allow irrelevant details to be suppressed (Castles et al., 2018). Kendeou et al. (2014) point out that suppression of irrelevant information is enabled by inhibition, which is helpful in determining the kind of information to keep active as one reads a text. For example, in the text given earlier about Belden being adventurous, the other meaning of *adventurous* (going on an expedition) is suppressed in favour of the meaning of trying something new in the restaurant context.

Evidence from neuroscience suggests that the brain supports skilled reading and reading development through two pathways: a dorsal pathway and ventral a pathway (Castles et al. 2018; Taylor, Rastle, & Davis, 2013). Phonological processing of heard (or spoken) speech

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[6] Vocabulary knowledge refers to "knowledge about words and their meanings; how many words we know; and how well we know their different meanings and connotations" (Pretorius & Murray, 2019: 34).

appears to rely on the dorsal pathway (Price, 2012), and morphological (or orthographic) processing of written words relies on the ventral pathway in the left hemisphere (Yablonski, Rastle, Taylor & Ben-Shachar, 2019)**.** Letter-sound knowledge is mediated through the dorsal pathway when learning to read, and the ventral pathway supports word reading and ready access to semantics (meaning) (Castles et al., 2018). Both neural pathways are important when learning to read in English. As children become more skilled in reading, they rely on the ventral route, but when they encounter an unfamiliar (or problem) word, they access the dorsal route to decode the word.

2.3.2 Reading fluency

Reading fluency is defined as "the ability to read rapidly with ease and accuracy, to read with appropriate expression and phrasing. It involves a long incremental process and text comprehension is the expected outcome" (Grabe, 2009: 291). Automaticity in word identification frees the working memory to concentrate on comprehension aspects of reading (Pretorius & Murray, 2019).

The main features of reading fluency are accuracy, speed (or rate), and intonation, with accuracy developing first to support oral reading speed. This kind of reading is similar to spoken language (cf. Pretorius & Spaull, 2016). Reading fluency is affected by a range of factors such as age or grade level/reading skill, reading purpose and text difficulty.

Reading fluency in measured in oral reading by words correct per minute (WCPM) (Hasbrouck & Tindal, 2006). Skilled readers in English first language (L1) read around 150 WCPM aloud and between 250 and 300 WCPM silently (Grabe, 2010; Nation, 2009). In skilled readers, silent reading is much faster than in poor readers. The shift from oral to silent reading happens around Grade 3. Fluent readers recognise words automatically and reading is less taxing to their working memory. A relationship between fluency and reading comprehension exist in both English L1 and in English as a second language (ESL) (Grabe, 2010). Research shows that there is a fairly strong relationship between fluency and reading comprehension in ESL, correlations ranging between .49 (Draper & Spaull, 2015) and .80 (Pretorius & Lephalala, 2011). For readers to be able to understand a text, they should read with fluency. Hasbrouck and Tindal (2006) have established norms for oral reading in English, based on a large data set involving different grades in English home language (HL). For example, a Grade 5 learner at the 50th percentile is expected to read 110 WCPM at the beginning of an academic year in

English HL; this reading speed increases to 127 WCPM by mid-year, and 139 WCPM by the end of the year. Thus, an average Grade 5 reader can increase fluency by 30 WCPM in a year. A Grade 5 learner who reads slower than 90 WCPM has a challenge with word recognition (Taylor, 2011). For L1 learners, reading 90 WCPM can be achieved by the end of Grade 3 (the average is 107 WCPM) and by Grade 5 the reading norm is 139 WCPM at the 50th percentile (Hasbrouck & Tindal, 2006).

As the recommended WCPM by Hasbrouck and Tindal (2006) was done in the context of HL readers, the reading speed may not be the same for ESL readers. For this reason, Pretorius and Spaull (2016) argue that Hasbrouck and Tindal's (2006) reading norms are not appropriate for second language (L2) readers in developing countries. In the L2 reading context, many readers develop reading fluency later than their L1 peers, after many years of reading ESL texts (Grabe, 2010). It should be noted that a reading norm benchmark has not yet been established in ESL in the African context. Oral reading fluency (ORF) can be taught using various strategies, as discussed in section 3.3.1 of Chapter 3. ESL readers generally read about 20 words per minute slower than their L1 grade peers (Pretorius & Spaull, 2016).

Reading fluency is considered as a 'bridge' between decoding and comprehension. Learners who are not fluent in reading tend to find reading comprehension quite challenging (National Reading Panel, 2000). A study by Pretorius and Lephalala (2011) found a strong relationship between English reading fluency and reading comprehension amongst Grade 6 L2 learners (r = .80), while a study by Başaran (2013) found reading fluency to be an indicator of reading comprehension among Grade 4s but the relationship was much weaker (r = .39). Although no indication is given whether Başaran's study (2013) involved English L1 or ESL learners, these are probably ESL readers since the study was carried out in Turkey. Pretorius and Spaull (2016) analysed data from a study involving 1,772 Grade 5 L2 learners in South Africa. The authors found 70 WCPM to be a threshold for reading comprehension for the South African learners, that is, learners who read slower than that struggle to comprehend texts at their grade level. Some studies have found a weak relationship between fluency and reading comprehension (see Kuhn & Stahl, 2003). The differences in the findings may have been caused by the language levels of the learners assessed. Generally, skilled readers tend to be fluent in reading and comprehend what they read. Although there are relatively fewer studies conducted on the relationship between reading fluency and reading comprehension in ESL, these studies generally show the importance of reading fluency for reading comprehension in the L2 context,

and the results seem to agree with English L1 research findings (Grabe, 2010). Reading fluency on its own does not guarantee comprehension, but it is a prerequisite for reading comprehension.

2.4 Reading comprehension

This section explains the term reading comprehension, describes components that support reading comprehension, and considers theoretical models of reading comprehension.

Reading comprehension involves the understanding process that occurs when meaning is constructed from a text (Pikulski & Chard, 2005; Pretorius, 2002; Day & Bamford, 1998). This understanding process is mediated through language knowledge, knowledge of a language's written code (§2.3) as well as higher-order reading skills, as will be discussed later. The RRSG (2002) provides a comprehensive definition of reading comprehension which encompasses both cognitive and sociocultural perspectives. Reading comprehension is defined as "the process of simultaneously extracting and constructing meaning through interaction and involvement with written language" (RRSG, 2002: 11). Reading comprehension is affected by many aspects (Figure 2.3), as discussed in subsections 2.3.2 and 2.4.1-2.4.5. I will start by explaining different components that constitute reading comprehension, and then explain theoretical models of reading comprehension.
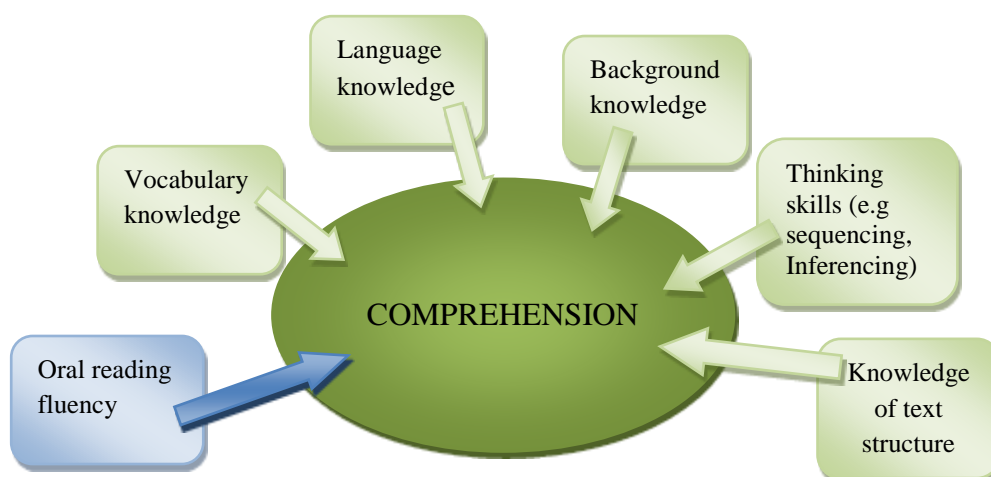
Figure 2.3: Cognitive-linguistic skills that influence reading comprehension. Adapted from Pretorius and Murray (2019: 34)

2.4.1 Language knowledge

Language knowledge (or skills) is knowledge about a language which one speaks and uses; it involves the language's sounds, its grammatical structures, and how it can be used appropriately in diverse contexts (Pretorius & Murray, 2019). In other words, it is "knowledge that underlies competence in a language" (Wren, 2001: 14). Linguistic knowledge is supported by three basic elements: phonology, syntax, and semantics (Wren, 2001). Research on reading development among children in primary school suggests that there is a relationship between oral language skills (such as vocabulary, grammar (i.e. morphology and syntax), and listening comprehension) and reading comprehension (Chiang et al. 2017; Kendeou, van den Broek, White & Lynch, 2009).

Spencer and Wagner (2017) conducted a meta-analysis comprising 16 studies to examine comprehension problems for ESL learners who had reading comprehension difficulties despite having good decoding skills. They found that L2 learners with specific reading comprehension deficits (SCD) had substantially weaker oral language compared to learners without SCD. Using Cohen's d, the effect size measured was: $d = -0.80$. The result suggests that reading comprehension occurs through interaction with various skills and knowledge such as decoding and language skills. This finding links to the simple view of reading, which hypothesises that reading is the product of decoding and oral language comprehension (further discussed in §2.8.1). English L1 readers tend to have an advantage over their L2 peers in decoding unknown words because of their rich vocabulary (Lems et al., 2017). English L1 readers can apply what Lems et al. (2017: 84) call probabilistic reasoning whereby a reader predicts unknown words "through familiarity with frames that surround the unknown elements". For example, when a reader sees the words *horse*, he/she can easily compare it to the word *house* which they already know. Readers can also use probabilistic reasoning to predict meanings of unknown words. It should be noted that even L2 readers use probabilistic reasoning in reading, but L1 readers have a greater advantage because of the rich L1 knowledge they already have when they learn how to read (Pretorius & Spaull, 2016).

Probabilistic reasoning can be linked to Metsala and Walley's (1998) Lexical Restructuring Hypothesis. The Lexical restructuring hypothesis proposes that children learn new words by making implicit comparisons with similar-sounding words (Walley, Metsala, & Garlock, 2003; Goswami, 2001). The word *bat*, for example, is restructured from the already known similar-sounding word *cat or pat* (cf. Wilsenach, 2015). When children are able to distinguish similar-

sounding sequences of words quickly and accurately, they are in a better position to recognise sequences representing new words (Wilsenach, 2015). According to Goswami (2001), lexical restructuring in English depends on three aspects. Firstly, children with a large vocabulary and who are acquiring a large number of new words are more likely to have "lexicons that are experiencing a greater pressure for restructuring, and consequently to have represented the syllables, onsets and rimes in many of the words in their vocabularies" (Goswami, 2001: 8). Secondly, it depends on the frequency of words (or familiarity). High frequency words are more likely to have been restructured for the child to access the words rapidly and accurately. Finally, it also depends on the number of similar-sounding words in the 'neighbourhood density' (lexicon). Words with dense neighbourhood have many extremely similar-sounding words or neighbours whereas those with 'sparse' neighbourhood have a small number of extremely similar-sounding words. Words in a sparse neighbourhood are easier to restructure compared to those in a dense neighbourhood because they have few competitors. It should be noted that the Lexical Restructuring Hypothesis has been developed for English, and does not necessarily apply in the same way to agglutinating languages. In section 2.8.2, I revisit the Lexical Quality Hypothesis (LQH).

Syntax involves language rules (or grammatical structures) that specify how classes of words (such as nouns, verbs, and adjectives) are combined to form meaningful sentences (Isakson & Spyridakis, 2003; Wren, 2001). A common word order to make sentences in English is subject-verb-object (S-V-O), for example, *Belden sipped a chai latte*. A child with English syntactic structure knowledge is able to tell that *Belden* is a proper noun (who or what), *sipped* is a verb (doing what), and *a chai latte* is a noun (what), that is, a liquid which a person can drink. The structural relationship helps a child figure out meanings to words or the whole sentence. Limited understanding of syntax rules can severely limit a child's language comprehension (Wren, 2001). A child learning ESL is likely to be confused by English sentences when his/her L1 syntax rules differ from English.

Some studies did not find strong evidence of a relationship between syntactic awareness and reading comprehension (Layton, Robinson, & Lawson, 2002), while others found that the relationship is indirect and mediated by vocabulary, grammatical knowledge and working memory (Cain, 2007). A study by Mokhtari and Niederhauser (2013) examined the contribution of vocabulary and syntactic knowledge to reading comprehension of 32 English L1 Grade 5 learners in the USA. The researchers found that both vocabulary and syntactic

knowledge contributed significantly, in unique ways, to reading comprehension (predicting 28% and 33% respectively of variance in reading comprehension). They also established that syntactic knowledge explained additional variance in reading comprehension, challenging wide literature findings that vocabulary is the main contributor to reading comprehension.

Semantics involves the study of information or meaning contained within language (Isakson & Spyridakis, 2003; Wren, 2001). Semantics is regarded as a global term that describes meaning at three levels different levels of language, namely morphology (meaning of word parts), vocabulary (words, phrases, idioms), and discourse or sentence level (Wren, 2001). When children analyse words at morpheme (smallest meaningful unit of language) level, they become aware that English words with common bases share common meanings and that affixes influence the meanings of words (Wren, 2001). More details about morphological analysis are provided in section 3.6.2 of Chapter 3.

Knowledge of words is vital for comprehending a text. English L2 learners need to know 98% of the words in a text to comprehend it (Schmitt, Jiang & Grabe, 2011; Nation, 2006). Knowing a large number of words helps a reader to infer meanings of a few unfamiliar words in a text (§3.4 of Chapter 3). In addition to word level comprehension, readers can also examine meanings at phrase, sentence, and text level. A reader can experience a break-down in meaning when he/she misreads part of a text (or the whole text), or when certain sentences do not fit well in the discourse (cf. Wren, 2001).

2.4.2 Vocabulary

Another aspect influencing reading comprehension is vocabulary (Figure 2.3). The term vocabulary refers to words and their meanings in a language. Vocabulary includes single words (*school, eat*), phrases (*escaping into a book, run out of food*), complex terminology (*advantageous, ameliorate*), and idioms (*call it a night, you can say that again*) (Pretorius & Murray, 2019). Vocabulary plays a critical role in both oral and written language. If a person does not know words for things, it is difficult to talk about them, which suggests limited knowledge and experience in a particular field (Pretorius & Murray, 2019). The difficulty of a text is affected by a range of factors such as the type of vocabulary used (Nation, 2009). For example, Grade 5 learners can read a text comprising high frequency words (or common words) with ease, but a text with low frequency and academic words can be quite challenging for them to read (see §3.4.1 of Chapter 3).

Research from different learning contexts in English as a foreign language (EFL) and L1 has shown that there is a correlation between reading comprehension and vocabulary size (or number of known words) (Stæhr, 2008; National Reading Panel, 2000). This suggests that many learners who are poor readers also have poor vocabulary knowledge, as observed by Pretorius & Stoffelsma (2017) in high poverty L2 contexts in South Africa. Learners who have a rich vocabulary knowledge can often read fluently as they can recognise words automatically. Vocabulary knowledge interacts with other cognitive-linguistic skills such as background knowledge and familiarity with text structure (Schmitt et al., 2011). It should be noted that this relationship does not necessarily imply causation – good vocabulary and reading skills might develop because of rich exposure to texts, quality teaching, and wide learning opportunities.

Learners' vocabulary knowledge can be assessed in terms of breadth/size (how many words, more or less, a learner knows at a particular level of competence) and depth (how well a learner knows a word) (Kieffer & Lesaux, 2007; Qian, 2002). In L2, a common way of measuring vocabulary size is to use the Vocabulary Levels Test (VLT) originally developed by Nation 1983 (Schmitt, Schmitt, & Clapham, 2001; Laufer and Nation, 1999; Laufer, 1998), which uses the frequency of occurrence of words as an organising device (Web, Sasao, & Balance, 2017; Schmitt, et al., 2001). Different frequency levels of words are described in subsection 3.4.1. Vocabulary depth can be measured by using an assessment such as the Word Associates Test (WAT) (Web, 2013).

Learners' vocabulary can be developed in two ways; through incidental learning (exposure to rich spoken language and print) and through direct instruction. Spoken language exposes learners to everyday conversational words. They can also incidentally acquire academic words when learners listen to academic presentations, for example a Geography lesson. Print exposure provides children with an opportunity to accumulate orthographic knowledge and learn multiple words (Castles et al., 2018**).** In addition to reading, learners (especially those with literacy difficulty) can be taught morphological awareness to build their vocabulary. Morphological awareness involves sensitivity to the morpheme structure of words such as affixes and base forms, and the ability to reflect on the morpheme structure of words (Wolter & Green, 2013). Morphological awareness does not only enrich children's vocabulary, but it is also useful for comprehending new words. For example, children learn that words with common bases have related meanings and form word families (e.g. *use*, *using*, *misuse, unused,*

useful, *useless*, *uselessly*, *usable*, and *unusable*), and that affixes influence the meaning of words (Wren, 2001). More details about vocabulary are provided in Chapter 3 (§3.6.2), which include the importance of vocabulary and vocabulary instruction.

2.4.3 Background knowledge

Background knowledge (or knowledge of the world) refers to information or experience learners already have that they can use to make meaning and connections when reading. Wren (2001) states that for children to understand a text, they must have knowledge about the world in which they live, and some relevant prior knowledge about the text they are trying to comprehend. A reader's background knowledge has been found to contribute to reading comprehension (Schmitt et al., 2011). Schmitt et al. (2011) established that even if a learner has knowledge of all the words in a reading text, comprehension is likely to be impeded if the learner does not have background knowledge on the topic being read about. However, skilled readers can read to learn on new topics; they may read slowly for the first time to develop some basic understanding of the topic in the text.

To show the role of background knowledge in comprehending a text, let us look at the example given earlier (i.e. *Belden decided to be adventurous. He ordered a chai latte. He scalded his tongue after taking a sip*). Apart from identifying words and making connections between sentences (how different parts link to each other), a reader here is required to fill in the gaps of meaning (what does a reader know about chai latte, and where can it be ordered?) to fully understand the text. A reader with background knowledge on this topic can make a number of inferences from the text. A reader can conclude that being adventurous in this context may mean that Belden tried to order something he had never tasted before, rather than referring to taking a risk as in visiting dangerous places. A reader with cultural knowledge related to beverages such as tea can better understand how the second and the third sentence of the text link with each other. For example, the reader will understand the link between Belden sipping hot tea and getting burnt. A reader without background knowledge about chai latte may not readily make all these inferences from the text, but may figure out some of the meanings (cf. Kendeou et al., 2014).

Limited background knowledge makes a reader fix attention on individual words to construct meaning, thus taxing working memory. Background knowledge stored in a reader's long-term memory "allows relevant knowledge to be activated" during reading" (Castles et al., 2018: 30).

Despite the critical role played by background knowledge in comprehending a text, a learner with good reading skills is able to build up new knowledge about previously unknown topics in a text.

Background knowledge can be activated through modelling and practice. The teacher can ask learners questions *before*, *during*, and *after* reading any text or engage in a discussion. The teacher can ask questions such as "What does this title remind you of?" "How did your thinking about the topic help you understand the text better?" When learners connect what they already know with new information, they develop a better understanding. More details about activating background knowledge are provided in Chapter 3 (§3.6.1).

2.4.4 Thinking skills

Thinking skills involves "manipulating idea units – sequencing and categorising them; and connecting them in different ways" (Pretorius & Murray, 2019:34). Additionally, thinking skills include metacognition – the ability to reflect on what and how one thinks. This includes the ability of a reader to monitor him/herself while reading a text and to apply strategies to make sense of the text being read. An essential part of thinking skills is the ability to make inferences from a text (i.e. see connections between chunks of information that are not explicitly stated – Belden took *a sip* so he was drinking something and not eating it). The awareness of how events in a text are ordered helps a reader make inferences or accurately predict what is likely to follow in the text. Poor inferencing leads to poor reading comprehension (Kispal, 2008). A reader with good inferencing skills will be able to infer that the pronoun *his* in the following sentence refers to the learner (cohesive inference) and that the learner's mother, in the same sentence, was admitted to the hospital because she was not well (elaborative inference).

>   *A learner asked his teacher for permission to visit his mother in hospital.*

Teaching thinking skills can help learners improve their reading comprehension (Acosta & Ferri, 2010). When learners are taught to identify components of a text, make connections or to sequence events or steps in a narrative or informational text, it becomes easier for them to understand how important ideas are inter-related, thus they increase their comprehension levels (Meyer & Ray, 2011). Learners can be taught that a story has a beginning, middle and an end and that events or ideas can be sequenced (or organised) using connectives such as *first*, *second*, *third*, *after*, *next*, *then*, *later*, *until*, and *finally*.

2.4.5 Knowledge of text structure and genre

Knowledge of text structure and genre refers to the awareness of how information is organised in different texts and genres. Learners who are starting to 'read to learn', especially from Grade 4 onwards, must have knowledge of different ways in which information can be structured in a text (text structure) such as sequence, compare-contrast, problem-solution, description, and cause-effect. Knowledge of text structure and genre helps readers to navigate a text to predict outcomes, determine important information (or make sense of the text) and recall important details in the text (Duke & Pearson, 2002). Learners can be taught that stories have a beginning, rising action, climax, falling action, and resolution whereas an informational text may have one or a combination of the structures such as sequence, compare-contrast, problem-solution, description, and cause-effect. More details regarding the teaching of text structures are provided in Chapter 3 (§3.6.6).

The cognitive-linguistic skills discussed in this subsection are important in developing reading comprehension, especially when they interact with each other. If learners do not develop the requisite cognitive-linguistic skills that influence reading comprehension by the time they are required to read to learn in Grade 4, they may experience what is called 'reading failure' and therefore fail to learn.

As the discussion in this section has shown, once learners have cracked the code for reading (learning to read) the focus can change to reading to learn and new skills come into play that help them construct meaning from texts. They can then read independently, for pleasure and/or for information. At this stage, reading becomes a tool for learning new things, exploring new worlds that take one beyond the confines of one's own world. Learners in the Namibian context are expected to learn to read from Pre-school up to Grade 3. From Grade 4, having become independent readers (in theory, if not in practice), they should read to learn from the textbooks.

It is important for teachers to read to their learners regularly and discuss texts with them and for the learners to cultivate a reading culture because through reading learners develop general knowledge, become skilled readers, and succeed in their schooling (§2.7).

2.5 Models and levels of reading comprehension

This section describes a cognitive approach to reading comprehension and discusses different levels of reading comprehension.

2.5.1 A construction-integration model of reading comprehension

As described in the previous sections, comprehension involves language, code, text-based factors and a reader's experiences and knowledge. A dominant cognitive approach to reading comprehension involves both construction and integration processes, and posits that the reader constructs a text model and a situation model while reading (Kintsch, 1998). A text-based model (or the text base) involves the construction of meaning through utilizing information from a text such as word identification. A situation model refers to the bigger picture of what the text is about and can be described in terms of schema. Schema refers to structures that represent one's understanding of events or situations (Wren, 2001). A reader who has a situation model (or schema) about a restaurant, for example, is more likely to understand a text based on a restaurant because he/she has knowledge about the place and the activities associated with it (§2.4.3). Therefore, text information alone is not enough to comprehend a text. A situation model integrates the text base and relevant background knowledge (Kintsch, 1998); a situation model cannot exist without the text base.

2.5.2 Types of reading comprehension

So far the components of reading comprehension have been identified; I turn now to the different ways of describing and assessing reading comprehension. There have been several frameworks/taxonomies for reading comprehension, some quite complex and detailed. In this section, I briefly describe Bloom's taxonomy of learning (Bloom, Engelhart, Furst, Hill, & Krathwohl, 1956), discuss some reading comprehension taxonomies, namely Barrett (Barrett, 1972; Clymer, 1968) and Snow's (2010) taxonomy, and describe different types of questions used in the Progress in International Reading Literacy Study (PIRLS) cycles and SACMEQ assessments. The description of the taxonomies and types of questions helps to frame the reading comprehension intervention and the performance of the learners in this study.

Table 2.1 shows three taxonomies, each with levels which are ordered from more basic level to more complex or deeper levels of comprehension, as indicated by the direction of the arrow. Bloom's taxonomy comprises six cognitive levels of learning, namely knowledge, comprehension, application, analysis, and evaluation. The most basic category is the

knowledge level which involves a learner's ability to recall facts or information (without necessarily understanding them). The second category is comprehension which involves the ability to understand and interpret the meaning of presented details. The next category is application where a child demonstrates the ability to use learned knowledge in a new situation. In the analysis category, a learner is able to break down information into its various component parts, such as the ability to identify facts and opinions. The synthesis category includes the ability to integrate different parts or concepts to arrive to a new meaning. The last category of Bloom's taxonomy is the evaluation category, which is concerned with the ability to come up with a judgement about the value of certain aspects.

Table 2.1 Different comprehension taxonomies

Bloom's Taxonomy of learning objectives	Barrett's Taxonomy of reading comprehension	Snow's Taxonomy of reading comprehension
Knowledge	Literal comprehension	Basic reading
Comprehension	Reorganisation	Basic comprehension
Application	Inferential comprehension	Somewhat elaborated comprehension
Analysis	Evaluation	Highly elaborated comprehension
Synthesis	Appreciation	
Evaluation		

Since Bloom's taxonomy is a taxonomy of learning objectives, it is generally useful for setting assessment questions for any subject to gauge learners' cognitive levels; therefore it is not specific to reading/text comprehension. Bloom's taxonomy emphasises learning attainment levels rather than process skills (Hoque, 2016).

Based on Bloom's Taxonomy, a number of taxonomies relevant to reading comprehension were devised. One of them is Barrett's Taxonomy (Barrett, 1972) which helps teachers to develop comprehension questions based on cognitive and affective domains, and it comprises five different reading comprehension levels (Table 2.1). This taxonomy relates closely to the PIRLS framework described later in this section. The five levels of Barrett's taxonomy are: Literal comprehension, reorganisation, inferential comprehension, evaluation, and appreciation. I will briefly only describe the terms reorganization and appreciation because they are not explained in the PIRLS framework of questions which will be described later. Reorganisation refers to a learner's ability to analyse, synthesise, and organise ideas that are explicitly stated in a text. For example, the learner can be asked to place aspects into categories,

to summarise using direct statements, or arrange facts into headings and subheadings. Appreciation involves the ability for a learner to value or express his or her feelings regarding various aspects of a text such as characters, storyline, and language used.

A taxonomy which somewhat reflects the development of reading comprehension skills is Snow's Taxonomy of reading. Snow (2010) also categorises reading levels starting from basic reading (or text recitation) to higher-order comprehension. The author uses a set of concentric circle to explain different reading comprehension levels. The centre circle has basic reading, which involves processes that are required for a reader to access a text and form a text-based mental representation of literal meaning. These basic reading processes include accuracy in word recognition, "fluent access to word meaning, recognition of syntactic cues to sentence meaning, and short-term phonological memory" (Snow, 2010: 415). Differences at this level of reading among learners may determine their future reading success. Readers who perform well at this reading level in Grade 1-3 stand a good chance to succeed in reading. The second comprehension level (or circle) involves basic comprehension, which is considered as the core of comprehension processes. This comprehension level requires text memory, making inferences based on the text (such as determining referents of pronouns, keeping track of the order of events, and determining an implicit causal relationship) and using background knowledge. At this level, comprehension does not involve complex processes. The third comprehension level is elaborated comprehension, which is similar to Kintsch's situation model (§2.4.7). At this level of comprehension, a reader moves beyond simple text representation to a deeper understanding. The reader might try to figure out how claims in one text relate to another text; identify the view point presented in the text, and critique arguments in texts. The last comprehension level is highly elaborated comprehension processes (or evaluative reading), which is for readers who have developed a deep knowledge or received disciplinary training in the domain of the text being read. Readers are able to evaluate a text where they have developed much knowledge or have enough background knowledge.

Although the three taxonomies in Table 2.1 use different terms, a closer look at the terms show that some of the descriptions in the taxonomies overlap.

The PIRLS framework is described next, with four types of comprehension processes that assess reading comprehension, namely literal comprehension, making straightforward inference, integrating information and ideas, and critical or evaluation comprehension.

Literal comprehension is the lower level of reading comprehension and it requires the extraction of explicitly stated information in a text (Liu, 2010; Howie, Venter, van Staden, Zimmerman, Long, du Toit, Scherman & Archer, 2008). This is the easiest level of comprehension which deals with facts presented explicitly in a text and it includes the *Who*, *What*, *Where*, *When,* and *How* form of questions whose answers are explicitly stated in the text (Pretorius & Murray, 2019). A reader reading at a literal level does not only understand explicitly stated information, but also tries to relate that information to the information being sought in the question (Mullis et al., 2009). Literal comprehension requires little or no interpretation of information in a text, and readers are not required to fill gaps in meaning. Although this type of comprehension requires little interpretation, it is important for forming a text base representation. However, learners need to be taught to process information in a text beyond the literal level for meaningful reading.

Inferential reading comprehension requires readers to go beyond explicitly stated information to fill in gaps in meaning (Mullis et al., 2009). According to Liu (2010), inferential reading requires readers to draw conclusions, make generalisations, and predict outcomes. Some inferences are easier to make whereas others are more complex. Readers can make inferences between adjacent sentences (local meaning, e.g. determining the referent of a pronoun) and inferences across several sentences or paragraphs (global meaning, e.g. identifying generalisations in a text). The local meaning of text focuses at phrase or sentence level and global meaning represent the whole text (Mullis et al., 2009). In PIRLS, the second level of comprehension is that of making straightforward inferences, where meanings are relatively clear; readers may make connections between pieces of information based on the character's actions or personality or between adjacent sentences (local inferences). Readers may be required to infer causal relationship and describe relationship between characters (Mullis et al., 2009). This type of comprehension demonstrates reading ability and distinguishes skilled readers from less skilled readers (Pretorius, 2002).

In interpreting and integrating information and ideas, a reader makes inferences or processes the text beyond the sentence level (makes global inferences). The reader integrates text information or meaning with his/her background knowledge and experiences to construct a deeper understanding of the text (Mullis et al., 2009). This shows the importance of prior knowledge and experience in comprehending a text. Examples of this reading level include

getting the theme of a text (or overall message), inferring the motive of a character, and determining an alternative to actions of a character.

The last reading comprehension level is critical or evaluation comprehension. When a reader evaluates a text, he/she examines an issue in a text, or the text itself and form an opinion about it (Pretorius & Murray, 2019). Critical or evaluation comprehension gauges a readers' ability to form some kind of judgement about a text. The reader draws ideas from past experiences or from reading other texts, and the text itself to evaluate it. Reading tasks for this level of comprehension include judging the completeness of a story (or information), determining the perspective of the author, evaluating the likelihood of the events described to really happen (Mullis et al., 2009). Not all learners reach this stage because of the complexity of questions and the learners' level of literacy. The PIRLS 2016 assessment shows that, internationally, only 10% of Grade 4 learners reached this stage (Mullis et al., 2017). It is unrealistic to expect all learners to reach the Advanced International Benchmark (625) in reading achievement because at this competence level learners do not rely only on reading skills, but also additional competence (or knowledge) to be able to integrate background knowledge and contextual information to comprehend a text (cf. Reardon, Valentino & Shores, 2012). Only a very small percentage (less than 1%) of the South African learners participating in PIRLS reached the Advanced Benchmark probably because of their low socioeconomic status and literacy level. Learners from low socioeconomic background cannot be expected to perform at the highest level because they enter school with literacy levels well below their economically better off peers and their economic situation cannot allow them to catch up with their peers in literacy (Reardon et al., 2012). These learners with low literacy skills tend to have poor decoding skills; therefore it is difficult for them to construct meaning from texts. However, a good reading school in a low socioeconomic environment may get its learners reach the Advanced International Benchmark.

All Grade 5 learners should at least be able to answer reading comprehension questions at the first two levels (these are literal comprehension and straightforward inferential comprehension). In the PIRLS, this is the Low International Benchmark (400). Internationally, 96% of readers can reach this level (4% cannot) (Mullis et al, 2017). In South Africa, only 22% reached this level. Namibian learners did not participate in the PIRLS assessments; they participated in the Southern and Eastern Africa Consortium for Monitoring Educational

Quality (SACMEQ) assessments which assesses the reading and mathematics performance for Grade 6 learners.

The SACMEQ measures eight levels of reading comprehension. Table 2.2 shows the eight reading levels, and the percentages of Grade 6 learners in Namibia and SACMEQ for each level in the SACMEQ III (2010) and IV (2017) assessments (SACMEQ mean given in brackets).

The first five reading levels (Levels 1-5) are classified as basic reading skills levels, and Level 6-8 as advanced reading skills levels (Shigwedha et al., 2017). Although the classification of reading levels in Table 2.2 looks quite different from the PIRLS's classification, the basic reading levels could be regarded as equivalent to the literal comprehension (Low benchmark – literal and straightforward inferences), and the advanced reading level can be equated to the inferential reading comprehension (levels 3 and 4 of PIRLS).

Table 2.2 shows that the overall percentage of the Grade 6 learners who could only read at the basic level was 80.1 in SACMEQ III, and in SACMEQ IV it dropped to 65. The number of learners reaching the advanced level increased to 34.9 in SACMEQ IV. Even though there are some noticeable improvements in reading, ideally the majority of these learners need to read at an advanced level to understand their reading materials. Despite the encouraging progress shown in reading in Namibia from 2010 to 2017, the results show that the majority of the Grade 6 learners in Namibia are poor readers.

Table 2.2 Competence levels in reading: SACMEQ III and IV assessments

Level		Reading levels	Number of learners %: Namibia (SACMEQ)	
			SACMEQ III 2010	SACMEQ IV 2017
1	Basic reading levels	**Pre-reading:** Matches words and pictures involving concrete concepts and everyday objects, and follows short simple written instructions.	2.8 (5.3)	1.0 (4.2)
2		**Emergent Reading:** Matches words and pictures involving prepositions and abstract concepts; uses cuing systems (by sounding out, using simple sentence structure, and familiar words) to interpret phrases.	10.8 (12.0)	2.7 (11.1)
3		**Basic Reading:** Interprets meaning (by matching words and phrases completing a sentence, matching adjacent words) in a short and simple text by reading forwards and backwards.	25.1 (18.6)	12.7 (16.5)
4		**Reading for meaning:** Reads forwards and backwards in order to link and interpret information located in various parts of the text.	25.5 (18.7)	22.3 (20.4)
5		**Interpretive reading:** Reads forwards and backwards in order to combine and interpret information from various parts of the text in association with external information (based on recalled factual knowledge) that 'completes' and contextualises meaning.	15.9 (15.9)	26.3 (19.6)
Total learners reading at basic levels			**80.1 (70.5)**	**65.0 (71.8)**
6	Advanced reading levels	**Inferential reading:** Reads forwards and backwards through longer (narrative, document or expository) texts in order to combine information from various parts of the text so as to infer the writer's purpose.	10.5 (13.8)	18.6 (13.4)
7		**Analytical reading:** Locates information in longer (narrative, document or expository) texts by reading forwards and backwards in order to combine information from various parts of the text so as to infer the writer's personal beliefs (value systems, prejudices, and/or biases).	6.8 (11.2)	12.4 (11.0)
8		**Critical Reading:** Locates information in longer (narrative document or expository) text by reading forwards and backwards in order to combine information from various parts of the text so as to interfer and evaluate what the writer has assumed about both topic and characteristics of the reader –such as age, knowledge and personal beliefs (value systems, prejudices, and/or biases).	2.5 (4.7)	3.9 (3.9)
Total learners reading at advanced levels			**19.8 (29.7)**	**34.9 (28.3)**

Adapted from Shigwedha, Nakashole, Auala, Amakutuwa & Ailonga (2017:84)

In the current study, the learners' performance was categorised only into two broad comprehension levels: literal comprehension and inferential comprehension (which included

simple and complex inferencing). Learners cope better with simple inferences than with the more complex ones. The PIRLS Low International Benchmark below was used in this study as a framework for data analysis for the effectiveness of data interpretation.

	Low International Benchmark
400	When reading predominantly simpler **literary texts**, learners can: • Locate and retrieve explicitly stated information, actions, or ideas • Make straightforward inferences about events and reasons for action • Begin to interpret story events and central ideas
	When reading predominantly simpler information texts, learners can: • Locate and reproduce explicitly stated information from text and other formats (e.g., charts, diagrams) • Begin to make straightforward inferences about explanations, actions, and descriptions

2.6 Reader response

The third and last component of reading comprehension is reader response. Reading comprehension does not entirely rely on cognitive-linguistic skills, but it also involves emotions and motivational aspects, that is, affective aspects (Anders, 2002; Guthrie & Knowles, 2001). Reader response is concerned with a reader's experiences with a text or how a reader responds to a text, which may be positive or negative. This overlaps in part with the sociocultural approach to reading.

Good readers find reading rewarding and tend to have positive attitudes, which makes them read more (Stanovich, 1986). On the other hand, poor readers benefit little from reading, may see no purpose of reading, and develop a negative attitude towards reading; therefore they tend to avoid reading activities (cf. Stanovich, 1986). Reading attitude is defined as a learner's favourable or unfavourable feeling to engage in reading (Sani & Zain, 2011). Guthrie and Knowles (2001: 161) define attitudes as "affective responses that accompany a behaviour of reading initiated by a motivational state". Unlike in reading motivation, beliefs typical of reading attitudes do not necessarily prompt reading behaviour (Guthrie and Knowles, 2001). Similarly, McKenna (2001: 136) argues that "reading attitudes are affective in nature (but they have cognitive components as well), that they are precursors of behaviour (although they may not always be translated into behaviour), and that they are acquired on the basis of experience". These descriptions of reading attitudes suggest that a positive reading attitude is necessary, but

it is not a guarantee for one to engage in reading activities. As McKenna, Kear and Ellsworth (1995) state, even if learners have positive reading attitudes, they may lack the intention to read. These learners need to be assisted to develop reading comprehension skills to make reading more meaningful, they need to be encouraged and motivated to read, and they need to be provided with interesting reading materials (cf. Applegate & Applegate, 2004; McKenna et al., 1995).

Pretorius and Murray (2019) outline three factors that can help learners perceive reading as positive and enjoyable, namely motivation, role models, and self-efficacy. Learners who have positive attitudes to reading are more likely to be motivated to read, regard reading as a meaningful activity, and engage with texts more readily. A study by Guthrie, Wigfield, Humenick, Perencevich, Taboada, and Barbosa (2006) found that motivation predicts learners' level of reading comprehension. For learners to be motivated to read, teachers need to read interesting stories to them regularly in an exciting manner and also provide interesting grade appropriate reading materials for them. Additionally, learners need to see the point (or purpose) of reading for them to persist reading. The purpose of reading can be externally imposed (e.g. completing an assignment) or generated internally (e.g. reading a pamphlet on how to operate a cell phone) (RRSG, 2002). Even if learners can actually read, they may choose not to read or not apply themselves if they do not see the value of reading and have no interest in reading.

Positive reading role models inspire learners to learn to value reading, experiment with it and continue reading (§2.7.3). In the Progress in International Reading Literacy Study (PIRLS) cycle for 2006, 2011 and 2016, learners' reading attitude has been consistently found to be related to their reading achievement (Mullis et al., 2017; Mullis et al., 2012; Mullis et al., 2007). Positive reading attitudes develop when learners are exposed to print (Clark & Poulton, 2011) or when they are motivated to read by their teachers (Applegate & Applegate, 2004). In the Namibian context where learners' results in the final examinations are consistently low (Chapter 1), there is a need to motivate learners to read independently to improve their academic performance. Learners with weak academic results might be struggling, reluctant, and unmotivated to read; as a result the reading skills and knowledge acquired through print do not develop much to enable them succeed in school.

The last factor that influences the manner in which a learner responds to a text is self-efficacy. In the reading context, self-efficacy is defined as a learner's belief or perception about his or

her ability to succeed in a reading activity (Schunk, 1991). In self-efficacy, learners feel that they have the ability to successfully accomplish a certain task if they work on it. Teachers can reassure learners that they can do it but that they need to persevere and practise. Learners who perceive reading as a difficult activity may not trust their own ability to develop skill in reading and can end up giving up trying to be better readers (Pretorius & Murray, 2019). As Castles et al. (2018) put it; a learner's desire to read is linked to his or her reading ability. A reader's self-efficacy gets stronger as decoding and comprehension skills develop, which supports reading engagement, and "further builds comprehension skills and background knowledge" (Snow, 2010: 416).

Before I move to the next subsection, it is important to distinguish the terms *reading skills* and *reading strategies* as the two terms will be used frequently in this and the next chapter. Reading skills refer to "automatic actions that result in decoding and comprehension with speed, efficiency, and fluency and usually occur without awareness of the components or control involved" (Afflerbach, Pearson & Paris, 2008: 368). For example, word recognition and reading speed. Reading strategies are "actions that are selected deliberately by an individual to attain a goal," such as rereading a section of text to make sure it is understood (Almasi, 2003: 1). In other words, strategies are *conscious* applications. A skilled reader may engage a strategy, in addition to using skills, to achieve a better or deeper comprehension of a text. For example, the reader can re-read certain parts of a text that were not clear, and at the same time he/she may consciously decide to ask someone to clarify the meaning of an unknown word.

From the aforementioned description, one can conclude that reading skills are used subconsciously and effortlessly, whereas reading strategies are used with awareness and require some level of cognitive effort. However, reading strategies in skilled readers create a paradox as they tend to operate like reading skills. Cho and Afflerbach (2017: 110) argue that in skilled readers reading strategies are carried out effortlessly and operate at the "edge of consciousness". In other words, they become a 'habit of mind'. Reading strategies can be applied quickly and with less effort when readers have highly practiced the strategies, and are familiar with the reading text topic and its genre. Once these strategies have been taught and practised, teachers do not have to continue teaching them. The effort used by a reader and the level of consciousness in reading strategies depend on the familiarity and difficulty of a text. A reader may use different cognitive efforts on different parts of a single text because of differences in level of difficulty.

2.7 Factors that give rise to variability in reading performance

This section discusses factors modulating the performance of learners in reading comprehension, namely internal factors, external factors (or contextual factors), and textual factors.

2.7.1 Reader-based factors in reading

Variability in reading ability among learners can result from internal and biological factors such as gender, maturation/age, inherent cognitive or socioaffective factors, as well as reading competence in the L1. Each of these will be briefly discussed below.

2.7.1.1 Gender differences in reading ability

Generally, research around the world seems to suggest that girls are better readers than boys (Reilly, Neumann, & Andews, 2019; Mullis, Martin, Foy & Hooper, 2017; Shigwedha, Nakashole, Auala, Amakutuwa & Ailonga, 2017). It seems that the better performance of female learners in reading is common across countries in the lower grades but can even continue in high school as shown by international studies.

A small scale study by Anjum (2015) among Upper Primary learners in India found a significant better performance for female learners in reading comprehension and mathematics scores. In the large scale PIRLS cycles (PIRLS 2016, 2011, & 2006) involving Grade 4 learners across 40 different countries, girls outperformed boys in reading achievement (Mullis et al., 2017; Mullis, Martin, Foy & Drucker, 2012; Mullis, Martin, Kennedy, & Foy, 2007). Similarly, the Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ) III and IV assessments involving Grade 6 learners from 14 African countries found girls to be better readers (Saito, 2011). In the Namibian context, a similar trend emerged whereby Grade 6 girls performed better than their male peers in reading comprehension (Shigwedha et al., 2017; SACMEQ, 2010). The analysis of the large scale Program for International Student Assessment (PISA) 2000, 2003 and 2006 studies involving 57 countries with 15-year olds also showed that girls still have a reading advantage (Lynn & Mikk, 2009) in early high school. The results suggest that female learners tend to be better readers than male learners throughout schooling. A study by Reilly et al. (2019) in the USA examined the National Assessment of Education Progress (NAEP) for the period of 1988-2015 involving a

combined total of 3,035 million learners in Grades 4, 8, and 12. The NAEP followed learners' performance in the 4th, 8th, and 12th grade. The study found that girls outperformed boys significantly in reading achievement across the three grades.

Although gender differences can increase throughout schooling (cf. Reilly et al., 2019), in some studies these differences were found to decline or even disappear with age in high school (Völkel, Seabi, Cockcroft & Goldschagg, 2016) and beyond (Solheim and Lundetræ (2018).

A study by Völkel et al. (2016) among primary school learners (834 learners) between the ages of 8 and 14 years in South Africa found no significant gender differences in reading comprehension scores. However, their findings are contrary to most reading results in South Africa, where girls consistently outperform boys (Van Broekhuizen & Spaull, 2017).

A study by Martínez (2014) among undergraduate English foreign language students at the University of Oviedo in Spain found male students outperforming females in reading comprehension. The difference in reading comprehension between female and male learners is believed to be common among young learners in primary school, and tends to disappear in older learners (Solheim & Lundetræ, 2018). One of the possible reasons for the reduction or disappearance of gender differences in reading comprehension with age could be because of changes in reading motivation whereby girls may lose interest in reading as they get older. The decline in reading differences could also be caused by boys catching up with reading. The decline in reading motivation may also be caused by the increased complexity and nature of texts that they are expected to read (cf. Pretorius & Murray, 2019).

Gender differences in reading can be caused by social, cognitive, and maturational aspects. Solheim and Lundetræ (2018: 108) refer to several explanations given on the causes of gender differences in reading comprehension, including cognitive differences between female and male learners, teaching methods and "the feminisation of school". The authors argue that studies that place male learners as inferior in reading do not have a strong empirical basis and did not consider variables such as socioeconomic status and exposure to print. In the USA, White (2007) is critical of the argument that female learners are better readers than their male counterparts. The author analysed data of 113,050 Grade 10 learners in the USA who indicated that they were not participating in an additional programme to receive support in reading. The study found that gender differences in reading achievement for the participants were small and

close to zero (White, 2007). The results suggest that learners with similar learning opportunities and socioeconomic background are likely to have a uniform reading comprehension level. It should be noted that this critique has not been used in developing contexts where girls clearly outperform boys in primary schools, even when the socioeconomic factor is controlled for.

The large scale international assessments such as the PIRLS and PISA include parent, teacher and school questionnaires and analyse the gender factor in reading performance in relation to, inter alia, socioeconomic status, print exposure, and school resources. Gender differences are clearly evident and derive from a strong empirical basis. For example, van Hek, Kraaykamp, and Pelzer (2018) analysed the PISA results for 2009 to examine the extent to which the socioeconomic status of a school affects the reading performance of girls and boys. The study found that irrespective of the socioeconomic status of the schools, girls outperformed boys in reading.

Cultural values or social aspects may dictate treatment inside the classroom and school activities given to female and male learners. Pretorius and Murray (2019) explain some of the reasons that may cause gender differences in reading. One of the reasons is that boys may regard reading as a feminine activity because in most cases it is taught by female teachers in primary schools; therefore they are less motivated to read. These teachers may select mainly narrative texts for reading in the classroom thereby disadvantaging boys who may prefer information texts.

A study McGeown (2015) investigated, inter alia, the extent to which gender explained differences in reading motivation and reading choices among Grade 4-6 learners in England. The study found that feminine traits were significantly associated with a higher motivation to read, and were closely associated with reading female-oriented and neutral books, whereas the masculine traits showed lower reading motivation and were strongly associated with the likelihood of reading male-oriented books only. The findings suggest that when reading comprehension of these learners is tested using gender neutral books, the feminine gender has a higher likelihood of performing better than the masculine one. In the Namibian context where girls are expected to and tend to portray feminine traits, whereas boys are brought up to be associated with masculine traits (cf. LaFont & Hubbard, 2007), reading preferences and reading ability is likely to vary based on gender.

In many African cultures, female and male learners engage in separate domestic activities and are likely to have different preferences in terms of reading topics, particularly among learners in rural areas. A study by the Human Development Department (2006) in Namibia found that in most rural communities, girls and boys are assigned different responsibilities in the home environment, with girls expected to fetch water, collect firewood, and care for children whereas boys herd small animals and spend more time on leisure activities such as sport. Gender bias may lead to different preferences in reading, where girls may prefer narrative texts whereas boys prefer information texts. However, there is no available evidence to support gender reading preference resulting from bias. The interest and frequency of reading can be associated with gender differences in reading comprehension to the extent that the gender with a higher reading motivation may have better reading ability (Guthrie & Wigfield, 2000). For example, some studies show that girls tend to have a more positive attitude to reading, are more motivated to read, read more frequently, and generally have better reading ability than boys (McGeown, Goodwin, Henderson, & Wright, 2012). Additionally, gender bias may account for differences in the way in which information in a text is processed and understood.

2.7.1.2 Maturational effect

The maturational effect assumes that the older the learner the more knowledge they acquire and hence the better they perform on assessment. As Kendeou et al. (2014: 12) put it, "with age and experience, children identify a greater number and wider variety of semantic connections during reading". This is not unexpected. Since background knowledge plays a significant role in reading comprehension, it is to be expected that older learners have been exposed to richer world knowledge than the younger ones. Older learners can perform better on inferential questions than the younger learners because of their bigger vocabulary size and a better mental representation of situations described in texts. However, maturational effect is moderated by other factors such as inherent learning difficulties, which is reflected in grade repetition. For example, a study by Pretorius and Stoffelsma (2017) which examined the vocabulary of Grade 3 learners in South Africa found that Grade 3s who were 10 years old (they were older probably because of repeating a grade) knew fewer words than Grade 3s who were eight and nine years old (grade appropriate ages). The poor performance of the older learners in the vocabulary tests may have been caused by the older learners' weaker language background (Pretorius & Stoffelsma, 2017). Learners who fail to learn to read earlier may continue with their poor reading skills and make little progress in school (Hernandez, 2011).

2.7.1.3 Inherent ability

Another factor that can account for learners' differences in reading is inherent ability. Differences in language or cognitive abilities (e.g. working memory, inferencing, and critical analytic ability) can account for differences in reading performance. For example, a study by Seigneuric, Ehrlich, and Oakhill, Yuill (2000) found that reading comprehension of Grade 4 learners appeared to rely on working memory resources. In other words, differences in working memory were associated with differences in reading comprehension. Cain, Oakhill and Bryant (2004) report findings from a longitudinal study that examined the relationship between working memory and reading comprehension skills for children who were aged 8, 9, and 11 years. Cain et al. (2004) found that working memory and comprehension component skills (i.e. inferencing, text structure knowledge, and comprehension monitoring) predicted variance in reading comprehension. The authors conclude that working memory needs to be regarded as one of the factors that can influence reading development and reading comprehension ability. These results suggest that children with weaker working memory resources and poor inferencing skills may not be able to perform well in reading comprehension tasks.

2.7.1.4 First language competence

Competence in the learners' L1 can also affect reading development in both their HL and L2. The relationship between L1 and L2 reading ability has been explained in terms of two hypotheses: the linguistic interdependence hypothesis and the threshold theory (Liu, 2010; Cummins, 2001; Cummins, 1979). According to the linguistic interdependence hypothesis, a learner's competence level (in reading) in ESL is partially influenced by his/her competence level in L1 as language (or reading) skills are transferred. On the other hand, the linguistic threshold hypothesis proposes that "a threshold level of L2 language ability is necessary" for the transfer of L1 reading skills to L2 (Liu, 2010: 156). When learners have developed reading competency in their L1, it implies that they can transfer the higher order reading skills (such as predicting, analysing, synthesizing, and inferencing) to ESL once they have developed some level of competence in ESL. Some decoding skills can also transfer, especially if both L1 and L2 are alphabetic orthographies. The transfer of skills shows that the readers have developed metacognitive strategies, which refer to a reader's ability to think about their learning and control how they learn.

Pretorius and Currin (2010) found a strong correlation between reading in the L1 and L2 amongst primary school children in South Africa over a period of 3 years (.79, .84, & .77).

Generally, a lack of print materials in learners' L1 implies that reading ability in both L1 and L2 is unlikely to be fully developed, especially when accompanied by poor quality teaching. The L1 (i.e. Silozi) of most learners in this study is not their HL and there were very few reading materials, most of which were only available in schools, and not in learners' homes. Over 80% of learners in the Zambezi Region in Namibia have home languages with no written form or unstandardized orthography. If schools in the Zambezi Region would provide quality teaching, this could compensate the lack of resources in the learners' L1 to some extent.

2.7.2 External: home, community and cultural factors

External factors can also affect the development of reading skills among learners. I will look at three such factors, namely the socioeconomic situation, availability of reading materials, and cultural aspects.

2.7.2.1 Poverty and socioeconomic status

Research worldwide shows that socioeconomic status has an influence on learners' achievement in reading (Hernandez; 2011; Mullis et al., 2011; UNICEF, 2011). Because of several factors, such as a lack of reading resources, limited housing and food, poor early education and limited health care, learners from poor families tend to achieve academically more poorly than their peers from middle income homes (Hernandez, 2011). A combination of all these factors makes it more challenging for a child from a low socioeconomic background to learn how to read in primary school. Poverty itself is not a learning deficiency and there is nothing 'wrong' with learners from low socioeconomic background. The socioeconomic differences in performance are due to differences in learning opportunities. Learners from low socioeconomic status tend to attend poor schools because they cannot afford the better ones. These learners are disadvantaged because the schools they attend are often poorly resourced, it is hard for them to access learning materials elsewhere, and their home environment may provide limited learning opportunities.

In the African context, the SACMEQ assessments have shown that there is a relationship between socioeconomic status and reading achievement (Shigwedha et al., 2017; SACMEQ III, 2010; SACMEQ II, 2005; SACMEQ I, 1998). In the Namibian context, learners who achieved better scores in reading and mathematics in the SACMEQ III and IV assessments came from homes with less poverty and had parents with a higher average annual per capita income (Shigwedha et al., 2017; SACMEQ III, 2010). In the SACMEQ II, III, and IV

assessments, Grade 6 learners from low socioeconomic backgrounds performed lower in reading and mathematics compared to their higher socioeconomic peers. Most of the learners from low socioeconomic backgrounds in Namibia tend to be from rural areas where they attend poorly resourced schools. As Hernandez (2011:3) puts it, "the combined effect of reading poorly and living in poverty puts these children in double jeopardy". This situation of poor reading and poverty is likely to be experienced by many learners in the Namibian contexts because of the high poverty levels in the country (§1.2 of Chapter 1). This makes it even more important that schools become places where literacy learning happens. Learners need instruction and support to help them break the cycle of poor reading and poverty and help them become proficient readers in order to close the reading gap.

2.7.2.2 Reading materials and exposure

The availability of and exposure to reading materials such as storybooks, magazines, newspapers, and the internet promote literacy and motivate learners to experiment with reading. Easy access to reading materials encourages reading among learners and it enables them to have regular practice in reading. When children have access to books at home and in school they are more likely to become avid readers and read every day, thereby becoming engaged readers. Children who are engaged in reading spend more time reading than their disengaged peers, which increases their exposure to print and tend to achieve higher scores in reading activities (Pretorius & Murray, 2019; Cunningham & Stanovich, 2001). PIRLS uses teacher, learner, parent and principal questionnaires to capture useful information about the home, school and classroom backgrounds of the children that they assess. The PIRLS cycles (PIRLS 2016, 2011, & 2006) provide large-scale evidence of the role of access to books in reading comprehension and general academic performance. For example, children who are engaged in literacy activities and have more reading materials in their homes perform better in reading comprehension than their peers with less reading materials at home (Mullis et al., 2017; Mullis et al., 2012; Mullis et al., 2007).

Limited reading materials and a lack of exposure to books makes it difficult for learners to develop decoding and comprehension skills early (Pretorius, 2002). Regular exposure to reading materials and practice promotes automaticity in word identification, which in turn frees the working memory to concentrate on comprehension aspects of reading (Kendeou et al., 2014; Perfetti & Hart, 2002). As learners read and are exposed to interesting reading materials,

they acquire invaluable knowledge and skills required for independent reading and reading comprehension.

In the Namibia context, many schools have limited access to reading materials and the available libraries are poorly stocked (Kirchner, Alexander, & Tötemeyer, 2014). The SACMEQ III and IV results show that the number of school libraries in Namibia is on the decline from 93% in 2007 to 81% in 2013 (Shigwedha et al., 2017). Even though the number of libraries is high for a developing country, these libraries are understocked and underutilized, and children are not benefiting from them. These results suggest that learners are less likely to be engaged in reading if enough reading support is not provided.

2.7.2.3 Cultural values, reading cultures and reading attitudes

Culture is defined as the "values, traditions and customs of a community or society" (Pretorius & Murray, 2019: 296). For learners to love reading and engage in reading activities, they need to be culturally connected to the books available. When texts are not culturally reflective of the learners' experiences, they are less likely to read the texts; as a result they may not be motivated to read (Pretorius & Murray, 2019). Furthermore, if learners' culture values books, they are more likely to be motivated to read and engage in reading. This relates to what Bourdieu (1986) refers to as cultural capital, which is the accumulation of knowledge (or skills) and materials to enable the beholder to show his/her cultural competence and/or social status. Cultural capital exists in three forms: embodied state, objectified state, and institutionalised state (Bourdieu, 1986).

The embodied state refers to the knowledge that a person acquires over time (through various ways such as socialisation and education) that has become an integral part of the person. The acquisition of this knowledge is for self-improvement and it requires effort and investment of time. The more a person acquires the embodied cultural capital, the more he/she tries to acquire more of it; it is a "socially constituted form of libido" (Bourdieu (1986: 18). If applied to literacy, this relates to positive reading practices that serve purposes such as reading for knowledge, for specific information, for entertainment and which become habits. The embodied cultural capital is not limited to the length of schooling, for it can develop early at home, giving it a positive value and a person continues acquiring this form of cultural capital throughout his/her life.

The objectified state refers to materials (or cultural goods such as books, dictionaries, and pictures) that people own that indicate their social status or aspirations (Bourdieu, 1986). Those who own books, who buy newspaper or magazines or access the internet value reading or have a print culture and are able to invest more in academic literacy to sustain their print culture. In other words, they invest in reading materials, make books easily accessible in their homes, and are motivated to read.

An institutionalised state refers to the "objectification of cultural capital in the form of academic qualifications" (Bourdieu, 1986: 20), and these assume a reading culture and reading materials. An academic qualification or degree, for example, is conferred to a person to certify his/her cultural competence. In other words, it is the way in which cultural capital is certified or measured.

Pretorius and Murray (2019) define the term 'reading culture' as a culture in which reading is valued and it is made an integral part of people's daily activities. A reading culture is manifest in homes or schools where reading ability and reading practices are given priority (Griswold, 2001). Learners from homes or schools with a reading culture tend to make reading integral to their daily activities and habits. Activities taking place in learners' homes and schools play a critical role in their reading comprehension performance, and even in school success. Learners from a print rich culture tend to value reading and they are motivated to experiment with reading activities. Reading is generally valued in societies where a print culture exists because of the benefits associated with reading, such as development of general knowledge and school success. Children who experience reading at home and receive reading support at home are more likely to value reading and develop a positive attitude to reading (White, 2007; Baker, 2003).

A study by Abu-Rabia and Yaari (2012) in Israel revealed that parents' reading attitudes and reading activities at home influence the reading achievements of their children. Parents with positive reading attitudes, who read with their children and encourage their children to read, tend to have children with positive reading attitudes and these children achieve highly in reading comprehension at school (Baker, 2003; Partin & Hendricks, 2002). In home environments that are not reading friendly, learners are more likely to have limited chances of performing well in reading and to have positive reading attitudes, therefore schools need to play an active role in promoting reading.

Parents and teachers are normally considered to be role models for learners. Parents who read at home make their children familiar with literacy activities (Krolak, 2005). When children see reading as normative behaviour, they are more likely to engage in it themselves. Parents who read are also more likely to read to their children and buy children's books. Similarly, teachers who love reading and read in the presence of learners tend to transfer their love for reading to their learners (Applegate & Applegate, 2004).

2.7.2.4 School-based factors

There are several school-based factors affecting the acquisition of reading ability such as safety and security, instructional practices, time on task, classroom practices, availability of resources, and a culture of reading or not at school.

Learners need to feel safe at school to be receptive to reading instruction and spend time reading. The PIRLS 2016 found that learners who attend safe schools had higher reading achievement than their peers in disorderly school environments (Mullis et al., 2017). Teachers need to create a safe learning space in their classrooms; they should not be sarcastic, unkind or harsh to learners, and they should ensure that bullying does not happen in their classes and school. Bullying happens in many countries, and Namibia is no exception. The SACMEQ III and IV assessments found numerous learner behavioural problems in Namibian schools such as drug abuse, theft, fighting, sexual harassment of learners and teachers, classroom disturbances, intimidation of learners, and use of abusive language. These problems occurred amongst 11 - 24% of the Grade 6 learners (Shigwedha et al., 2017; SACMEQ III, 2010). The SACMEQ assessments also uncovered teacher behavioural problems such as drug abuse, intimidation (or bullying) of learners, sexual harassment of teachers and learners, and use of abusive language.

An effective school reading programme is necessary to develop learners' reading ability. The PIRLS assessments have shown that time spent on reading activities in school improves learners' reading achievements. When schools value reading, more time is allocated to reading and the time is used effectively for reading purposes (Pretorius, 2002). The time for reading needs to be used to promote decoding skills (in the early grades), teach learners reading comprehension strategies, and also introduce them to different genres, discuss texts with them, ask a range of questions, show them how texts work and how good readers construct meaning

while reading. However, time spent on teaching reading does not automatically imply effective reading instruction (Pretorius & Spaull, 2016). For example, teachers may use the lesson to read a sentence at a time and get learners to repeat the sentence after them. This kind of chorused mechanical activity can form a large proportion of 'reading time' but it does not show learners how to engage with a text or make them better comprehenders. Teachers need to be well trained to render effective reading instructions. Effective reading instruction requires helping learners to become self-regulated, keen readers who can apply various strategies to comprehend a text (RRSG, 2002). I will discuss reading strategies in Chapter 3.

Many teachers claim to teach reading but they tend to confuse assessing reading with teaching reading. They tend to give learners many reading comprehension passages with accompanying questions and regard such activities as the teaching of reading comprehension, rather than focusing on explicit reading instruction (Pretorius & Murray, 2019). This suggests that teachers have limited knowledge of teaching reading; as a result, learners acquire little reading skills as they are 'doing' comprehension rather than being taught reading comprehension explicitly. In the Namibian context, reading periods have recently been introduced in schools for all school subject teachers, but there is no evidence yet whether they are being used effectively (§5.6 of Chapter 5).

In the 1990s and 2000s, a lot of money and effort in developing countries went into providing access to schooling (UNESCO, 2015). Access to education has improved worldwide, but "schooling is not necessarily learning", so now the focus is on quality schooling. In the Namibian context, access to education has improved significantly from 89% in 1992 to 98% in 2009, but quality learning has not yet been attained (UNICEF, 2011). Enhancing quality learning implies improving the quality of teaching and also providing the necessary learning conditions and available resources. One of the critical aspects of developing learners' reading ability in school is the professional capacity of the teachers. Teachers need to be equipped with knowledge that can help them improve the quality learning in schools. Shulman (1987: 8) categorised teachers' knowledge required for teaching into seven types:

- Content knowledge (subject matter knowledge and its organisation structure)
- Pedagogical content knowledge (knowledge of a specific subject content and the pedagogical knowledge for teaching the subject)

- General pedagogical knowledge (principles and strategies of classroom management and organisations that are cross-curricular)

- Curriculum knowledge (knowledge of materials and programmes for a specific grade subject and grade)

- Knowledge of learners and their characteristics

- Knowledge of the educational context (knowledge of classrooms, governance and financing of school districts, and characters of community and cultures)

- Knowledge of educational ends, purposes, and values, and their philosophical and historical grounds

Even if all teachers undergo professional teaching training, it is unlikely that they will acquire all these knowledge bases proposed by Shulman (1987). Which of these knowledge types matters most? The first three types of knowledge (content knowledge, pedagogical content knowledge, and general pedagogical knowledge) seem to have a direct effect on teaching and learning in the classroom. There have been debates about the best kind of knowledge required by teachers to enhance subject achievement. Some researchers propose pedagogical content knowledge (which is how-to knowledge extending beyond subject knowledge) (Callahan, Benson-Griffo, & Pearson, 2009) and others support general pedagogical knowledge (Guerriero, 2017). Even though Guerriero's (2017) study focused on general pedagogical knowledge, the author acknowledges the role of pedagogical content knowledge in developing quality teachers. Pedagogical content knowledge, which includes subject matter knowledge and knowledge of pedagogy, mediated by interaction, and general pedagogical knowledge, which includes classroom management, teaching methods, and classroom communication, are viewed as fundamental types of knowledge for quality teaching and learning (Sothayapetch, Lavonen, & Juuti, 2013). Although content knowledge is not sufficient on its own to achieve quality teaching and learning, content knowledge is also important and can help to inform pedagogical content knowledge and make it meaningful. For example, a teacher may give young learners tasks that develop their phonemic awareness (pedagogical content knowledge), but unless the teacher also has a good understanding of what phonemic awareness is and why it is important in reading (content knowledge), her classroom practice relating to phonemic awareness may remain at a superficial level.

In the Namibian context quality teaching and learning may not be achieved unless teachers are provided with professional development to acquire the necessary knowledge, either through pre-service or in-service training. A three-year study by O'Sullivan (2002) among in-service Education and Training (INSET) teachers in Namibia (1995 – 1997) about the implementation of changes in the ESL syllabus (i.e. from teacher-centered to learner-centered education) found that designers of the new Namibian syllabus after independence focused on reform rather than implementation realities. In other words, they did not consider training teachers to have content knowledge, pedagogical content knowledge, and curriculum knowledge to carry out the reforms. O'Sullivan (2002) found that teachers in Namibia were not implementing the new English syllabus because of a lack of teaching materials, lack of support to teach ESL, and because most of the teachers did not have the necessary qualifications to teach the subject. Studies in L1 show that Namibian teachers in Lower Primary have limited content and pedagogical knowledge about reading (Nghikembua, 2020; February, 2018). Although many Namibian teachers have obtained relevant teaching qualifications, some challenges such as limited in-service training in teaching some ESL aspects (such as reading strategies) are still a reality in Namibia. Teacher training institutions also seem not to provide enough training about reading and how to teach it (§1.2.5).

As already mentioned, in SACMEQ III and IV, Grade 6 teachers were also given the same reading and mathematics assessments as the learners. The results showed that the regions in Namibia where learners performed better had teachers with better reading performance (Shigwedha et al., 2017; SACMEQ III, 2010). The SACMEQ results suggest that competent teachers are more likely to teach learners effectively. However, being competent in reading does not necessarily make one an effective teacher, unless the teacher is provided training to develop pedagogical content knowledge.

Learners with poor reading backgrounds find themselves in a negative cycle of poor reading performance and academic performance and benefit less from reading instructions in school because of their low literacy levels (Fabunmi and Folorunso, 2010; Pretorius, 2002). In situations where learners have low literacy levels, high quality instruction is required to improve literacy levels. If learners with low reading skills attend high-poverty schools, their reading situation is less likely to improve because the schools tend to perform poorly. High-poverty schools perform poorly for various reasons. Firstly, it is hard for them to attract good teachers. Secondly, parents tend to have low literacy levels and provide limited support to their

children and the schools. Thirdly, lower learner achievement (or low cognitive skills) affects the quality of instruction rendered in that teachers teach the basics instead of focusing on the grade level requirements.

Schools with adequate reading materials and reading programmes are more likely to foster a reading culture. In most Namibian schools, especially rural schools, libraries are understocked and have outdated books that are not attractive to learners (Nengomasha, Uutoni and Yule, 2012) and schools have limited textbooks and support from the Ministry of Education (O'Sullivan, 2002). This unsupportive school environment makes a culture of reading difficult to foster in most Namibian schools. The PIRLS cycles consistently show that learners from schools with more books achieve higher scores in reading than their peers from schools with fewer books. Availability of books is an indication of the presence of a reading culture and a commitment to teaching and learning.

The reading culture at schools and homes affects learners' reading attitudes. Schools with a reading culture provide reading materials to learners and engage learners in reading activities. The PIRLS 2016, 2011, and 2006 cycles found better reading comprehension performance for learners from schools with libraries (Mullis et al., 2017; Mullis et al., 2012; Howie et al., 2008). Schools with well-stocked libraries tend to entice learners to experiment with reading, thus improving performance of learners in reading comprehension and other academic subjects. However, simply putting books in schools does not necessarily help. Teachers need to be trained on how to use the books and how to manage them. Unfortunately, some schools do not benefit from the available reading materials because the books distributed to the schools are locked away somewhere and remain unused (World Bank, 2018).

2.7.3 Text based factors
Variability in reading performance is also affected by text-based factors. The difficulty or ease of a text depends on aspects such as its textual and linguistic features, relationship between the text and the reader's knowledge and abilities, and the "activities in which the reader is engaged" (RRSG, 2002:14). The inherent factors of a text include genre, vocabulary load, linguistic structure, and discourse style. One way of assessing the difficulty or ease of a text is to use the Reading Ease index (§4.4.3 of Chapter 4). This approach quantifies text difficulty by looking at a combination of word and sentence length and the use of passive constructions in relation to overall length of a text, providing a rough estimate of a text's ease or difficulty. Here, longer

words are assumed to be more difficult than short words, high frequency words are easier than low frequency ones, shorter sentences easier than longer ones (longer ones are more likely to have embedded clauses, e.g. relative or subordinate clauses), and passive constructions are more difficult than active ones. However, other factors such as the complexity of a topic can also affect the difficulty or ease of a text. In this study, the texts used to assess learners' reading levels were tested for their readability statistics using the Reading Ease index (cf. Chapter 4 §4.4.3). When a reader's knowledge and experience do not match many of the inherent factors in the text, it becomes hard for the reader to comprehend the text (RRSG, 2002).

Because the reading comprehension intervention in this study also took into account learners' decoding skills, in the next section I describe different models that deal with the relationship between decoding and reading comprehension.

2.8 Theoretical models of reading ability

To understand the complexity of reading comprehension one needs to examine the models describing cognitive and linguistic processes of reading (cf. Kendeou, et al.,2014). This section looks at four theoretical models that emphasise different aspects of reading, namely Gough and Tunmer's (1986) simple view of reading, Perfetti and Hart's (2002) lexical quality hypothesis, Share's (1995) self-teaching hypothesis, and Wang et al.'s (2019) minimum threshold hypothesis. Although these reading models emphasise different aspects of reading, they share a common view that reading involves "the construction of a coherent mental representation of the text in the readers' memory", which includes interconnected textual information and background knowledge (Kendeou et al., 2014:11).

2.8.1 The simple view of reading

The simple view of reading was developed by Gough and Tunmer (1986) to explain the relationship between the elements of reading**.** In the simple view of reading, reading comprehension is regarded as the product of two components: decoding and language comprehension[7] (or oral language proficiency): RC = D x L (Hoover & Gough, 1990; Gough & Tunmer, 1986). In the simple view of reading, both decoding and oral language proficiency (linguistic comprehension) are viewed as necessary for reading comprehension but not

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[7] It should be noted that Gough and Tunmer (1986) used the term comprehension to refer to linguistic comprehension (or spoken language) rather than reading comprehension.

sufficient on their own. Decoding is typically measured by word recognition, and linguistic comprehension is usually measured by listening comprehension and/or vocabulary knowledge. Based on this view, reading difficulties in children learning to read can result from problems with either decoding skills or problems comprehending language in its spoken form, or from both of the aspects. This suggests that without adequate decoding skills reading comprehension cannot happen, and similarly, without adequate linguistic comprehension reading comprehension cannot take place (Gough & Tunmer, 1986). The simple view of reading suggests a linear relationship between decoding and reading comprehension.

The original simple view of reading model applied to reading in an L1, but it can also be applied to L2 readers. In the example given earlier, if a learner speaks English but cannot identify words such as *adventurous* and *tongue* in the text, he/she cannot understand the text properly. Similarly, if the learner can identify the words, but does not know the meanings of most of the English words in the text, he/she cannot comprehend the text, as decoding is not sufficient on its own. In support of the role of spoken language[8] knowledge in reading, Pretorius and Murray (2019) state that children may understand a text when it is read to them, but struggle to comprehend the same text when they read it on their own.

A number of studies that have investigated the relationship between decoding and linguistic competence support the simple view of reading. Hoover and Gough (1990) investigated the contributions of decoding and linguistic comprehension in reading comprehension in a longitudinal study (following learners from Grade 1 through to Grade 4) comprising a sample of English-Spanish bilingual learners. The results showed that a combination of decoding and listening comprehension made a significant contribution to variations in reading comprehension, and that the relationship between decoding and listening comprehension tended to be negative with samples of less skilled readers. The negative relationship is probably due to poor readers either having difficulties in decoding words or having poor linguistic competence (cf. Gough & Tunmer, 1986). Tunmer and Chapman (2012) examined the contribution of decoding and oral language to reading comprehension. The study comprised 122 Grade 3s from various socioeconomic and linguistic backgrounds, with a mean age 7 years. The authors did not indicate whether these learners were L1 or L2 readers of English. The

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[8] Oral (or spoken) language is conceptualised in terms of knowledge of phonology, morphology, vocabulary, syntax, grammar, and discourse (Spencer and Wagner, 2017; Belsky, Booth-LaForce & Bradley, 2005).

results showed that vocabulary correlated more strongly with listening (.69) and reading comprehension (.66) than with the word recognition measure using the Burt word reading test (.46). The results also showed that listening and reading comprehension correlate strongly (.68), which supports the relationship between knowledge of spoken language and reading comprehension. Tunmer and Chapman (2012) also found that both decoding and linguistic comprehension correlate with reading comprehension (.70 & .55 respectively).

Although Gough and Tunmer (1986) originally argued that decoding and linguistic comprehension make separate contributions to reading, Tunmer and Chapman (2012) maintain the view that the perspective for the independent contribution of decoding and linguistic comprehension to reading needs to be relaxed. They found that linguistic comprehension appears to influence reading both directly and indirectly through decoding. Castles et al. (2018) state two limitations of the simple view of reading. Firstly, it is not a model and it does not tell how its two components operate or develop. Secondly, there has been inconsistency in how the constructs of the simple view of reading are defined and assessed. Despite the limitations, the simple view of reading provides a useful description of the components underlying children's ability to learn to read.

2.8.2 Lexical quality hypothesis

The Lexical quality hypothesis posits that variations in readers' quality of word representation influence their reading skills and comprehension (Perfetti and Hart, 2002). Perfetti and Hart's (2002) lexical quality hypothesis underscores the role of word knowledge in reading comprehension. In a language such as English, knowledge of words is viewed as one of the major contributing factors to successful reading, including the quality of word knowledge. Lexical quality is described as the extent to which a reader's knowledge of a word "represents the word's form and meaning constituents and knowledge of word use that combines meaning with pragmatic features" (Perfetti, 2007: 359).

The lexical quality hypothesis suggests the possibility of a minimum threshold below which there is no clear relationship between decoding and reading comprehension (§2.8.4). Skilled readers demonstrate high quality word representations which include orthographic, phonological, and semantic-syntactic information (Perfetti and Hart, 2002). In other words, skilled readers are aware of how given words are spelled/written, how they are pronounced, and their meanings and grammatical features. A low quality word representation, which is

typical of poor readers, lacks one or more of the high quality features or the features are poorly represented. When a poor reader is presented with two homophones (e.g. *whole* and *hole*), he/she is likely to be confused even when the words appear in their context. Skilled readers on the other hand are familiar with most high frequency words and can use the context to accurately predict meanings of low frequency words (Perfetti and Hart, 2002). High quality words' representations reduce confusion in word form and meaning, therefore cognitive resources are used for higher level processing, resulting in better reading comprehension (cf. Wang et al., 2019).

According to the lexical quality hypothesis poor readers do not only struggle with word reading, but also have poor comprehension and a smaller vocabulary. Perfetti and Hart (2002) contend that there is a reciprocal relationship between word reading and reading comprehension, with word reading starting the causal relationship. In other words, children start to learn words before they can read to comprehend texts, and in turn comprehension increases the amount of reading they do to acquire more words.

2.8.3 Self-teaching hypothesis

The Self-teaching hypothesis posits that phonological decoding (print-to-sound translation) allows young readers to acquire orthographic representations on which skilled word recognition is based (Share, 1995). Phonological decoding is viewed as a "self-teaching device" enabling a child to develop word-specific orthographic representation independently that is helpful for skilled reading and spelling (Share, 1999: 96). When a child is introduced to the orthographic form of one word, for example *make*, he/she can independently learn to decode similar words such as *cake*, *bake*, and *lake*. As Nation, Angell, and Castles (2004: 79) put it, the self-teaching hypothesis refers to a child's ability to apply existing "phonological decoding skills to make links between new orthographic stimuli and their spoken forms and meanings and, in so doing, to establish unique item-specific orthographic representation".

According to Share (1999) early self-teaching depends on three aspects: a child's letter-sound knowledge, minimal phonological sensitivity, and the child's ability to use contextual information to determine pronunciations of words through partial decoding. This supports the decoding threshold discussed in the next sub-section (§2.8.4), suggesting that for self-teaching to happen children need to be taught decoding skills early in order for them to apply their existing knowledge to learn new words presented to them. As Wang et al. (2019: 399) put it,

self-teaching "only happens when the developing reader has enough decoding ability to begin with".

Self-teaching comprises two basic principles, including a phonological and an orthographic component. The phonological component is described as the ability to use letter-sound relationship to decode unfamiliar words. Phonological decoding is viewed as the central part of the self-teaching hypothesis, which Share (1995) refers to as the *sine qua non* of reading acquisition. The orthographic component refers to spelling knowledge which reflects visual analysis, memory, instructional, and print exposure (Share, 1999), which supports fast and accurate word recognition (Nation et al. (2004). Orthographic learning through instruction and exposure to print has been found to have a positive effect on self-teaching (Nation et al., 2004; Share, 2004; Cunningham, Perry, Stanovich, & Share, 2002; Share, 1999). Share (2004) found that even a single exposure to a word was sufficient for a child to recall orthographic details of the words, whereas some studies found that orthographic learning happens only when a child has more than one encounter with a word (Nation et al., 2004). Although there are differences in the frequency of exposure to a word, the researchers seem to support exposure as a means to orthographic learning. One cannot expect a child who has never been exposed to words to read them, suggesting the need to print exposure earlier when learning to read.

2.8.4 Decoding threshold hypothesis

The decoding threshold hypothesis was influenced by the three hypotheses described above. The decoding threshold hypothesis posits that the relationship between decoding and reading comprehension can only be reliably predicted beyond a certain minimum decoding threshold (Wang et al., 2019). The hypothesis was developed based on the analysis of two large existing data sets on which two studies were conducted by Wang et al. (2019). In the first study involving Grade 5-12 learners, they found a decoding threshold value below which there was no relationship between decoding and reading comprehension, while beyond the value there was a linear relationship between the two variables. In the second study (data set for Grade 5-9 learners), they found that learners below the minimum threshold value showed a stagnant growth in reading comprehension, providing support to the self-teaching hypothesis that suggests that decoding (word reading) results in vocabulary growth which consequently supports reading comprehension. It should be noted that the decoding threshold value may vary depending on the sample, grade level, and context.

According to the decoding threshold hypothesis, self-teaching only happens if a learner has sufficient decoding skills (Wang et al., 2019). This minimum threshold has implications for decoding instruction. It suggests that for all leaners to succeed in reading educators should identify learners who are at risk of reading success early when they start learning to read. In the Namibian context where decoding is emphasised from Grade 0-3, it suggests that learners with poor decoding skills in Grade 4 and beyond have a likelihood of remaining poor readers, as theorised by Stanovich (1986) and supported by the analysis of Wang et al. (2019). It seems decoding plays a vital role in learning to read and in reading comprehension, as supported by numerous research studies and theories, including the simple view of reading model (Gough and Tunmer, 1986), lexical quality hypothesis (Perfetti and Hart, 2002), and the self-teaching hypothesis (Share, 1995). Learners need to have sufficient decoding skills to comprehend what they read and to be able to teach themselves as they engage in reading.

In the next section, I will describe what successful reading entails to serve as a reference framework for this study.

2.9 What does reading success look like?

Literature discussed in the previous sections has provided information about what reading comprehension entails and what factors affect it. Teachers need to know this to bridge the gap between research and professional development. Many language teachers may not have an understanding about what reading success entails. As a result, they may not be able to help struggling readers or provide remedial teaching effectively. Although there is not much available evidence, the low academic performance of Namibian learners in general (Chapter 1) is an indication that schools are not successful in helping learners to succeed in reading and consequently improve their academic performance. Teachers should be able to identify problems early (such as limited success in phonological and phonemic awareness, and poor letter-sound knowledge) in initial literacy development, so that they can be remediated immediately. The longer they wait to fix up reading problems, the more difficult it is to fix them (cf. Pretorius, 2012).

Successful readers have what is called a reading ability; they are skilled at decoding and they comprehend what they read. The term 'reading ability' is regarded as a combination of reading comprehension and reading speed (Padgett, 1997). Accurate and fast readers tend to score well in reading comprehension assessments. These readers are able to shift attention from the lower-

level of reading skills (e.g. word recognition) to higher-order reading skills (e.g. applying background knowledge, integrating information across a text). For readers to be able to re-allocate attention during the reading process, they need to have cognitive flexibility, the ability to quickly shift attention from one reading aspect to another (Cartwright, 2017). Skilled readers are able to attend to various reading skills and knowledge at almost the same time to comprehend a reading text.

A skilled reader (in Upper Primary and beyond) should be able to read silently around 250 – 300 words per minute when reading straightforward narrative texts (Grabe, 2010; Nation, 2009). Although many L2 readers of English read well below 300 words per minute, Nation (2009) points out that a reasonable silent reading speed for L2 readers reading a text with known vocabulary (or grammar) and easy content should be around 250 words per minute. Nation (2009) may have been referring to L2 learners in secondary school because the level of reading (250 words) may be unrealistically fast for Upper Primary learners.

McCormick (1995) groups readers into four categories of reading ability using decoding accuracy (rather than reading rate) and reading comprehension performance as grouping criteria, namely independent level readers, instructional level readers, borderline level readers, and frustration level readers, as shown in Table 2.3.

Table 2.3 Categories of reading ability (McCormick, 1995)

Category of reading ability	Decoding accuracy	Comprehension level
Independent level readers	98%	95%
Instructional level readers	95%	75%
Borderline level readers	90 – 94%	55 – 74%
Frustration level readers	90% or lower	50% or lower

These four categories provide a useful illustration of the strong relationship between decoding and reading comprehension. Research shows that increased accuracy is associated with increased reading speed in English and in African languages (cf. Ardington et al., 2020).

Following McCormick (1995), learners reading at an independent level have 98% decoding accuracy and achieve a 95% comprehension level of a text for their age/grade. Independent reading is aided by a number of subcomponents such as a strong vocabulary knowledge, rich background knowledge, and familiarity with text structure. These readers do not need reading

assistance because they are able to read independently, and through independent reading they acquire more skills and knowledge necessary for reading comprehension. Readers reading at an independent level are highly skilled at reading and are able to apply a range of reading skills to comprehend a text at their maturational level (Pretorius, 2002).

Although instructional level readers do not have major reading challenges, they benefit from reading instructions. These readers have already learned how to read and need assistance in some areas, for example, in applying reading comprehension strategies. The instructional readers have 95% decoding accuracy and understand about 75% of what they read (McCormick, 1995).

The borderline readers need additional help in terms of reading exposure and practice to benefit from reading experiences (Pretorius, 2002). They need additional help probably because they have not yet developed sufficient reading fluency necessary for reading comprehension. Their decoding skills may be weaker and they do not read as fast and fluently as readers at the independent and instructional levels. For English, these readers may need assistance in recognising words that are irregularly spelled (sight vocabulary). The learners reading at borderline level have 90 – 94% decoding accuracy and achieve about 55 – 74% of the comprehension level. These learners have a lot of inaccuracies in reading. McCormick's (1995) categories suggest that a comprehension score of less than 75% is not good enough and indicates that a learner at this level still needs support in reading to reduce errors. According to McCormick's (1995) benchmark, a comprehension score of 60% signals a borderline reader. Lacking reading content knowledge, many teachers in Namibia might regard 60% as reflecting a competent reader rather than a borderline reader.

Learners reading at the frustration level face major reading challenges and they need more individualised and remedial attention. These readers may be reading at this level probably because they have not yet properly cracked the code of reading and need assistance in decoding, word recognition, and vocabulary development. Frustration level learners have 90% or lower decoding accuracy and about 50% or lower accuracy in comprehension (McCormick, 1995).

The Benchmarking project report (for Nguni African languages, with a conjunctive orthography) used a different developmental trajectory to McCormick's framework (Table 2.4).

Table 2.4 Reading threshold in Nguni languages (Ardington et al., 2020)

Category of reading ability	Decoding accuracy	Comprehension level
Reading less than 20 WCPM (not meeting the threshold)	Low level of accuracy	Very poor comprehension scores
Reading 20-34 WCPM (lower threshold)	At least 95%	Developing, but remain poor
Reading at least 35 WCPM (upper threshold)	Accurate readers	59 – 74%

Learners not meeting the decoding threshold can only benefit from instruction that focuses on developing their decoding skills (Ardington, et al., 2020). Readers reaching the upper threshold would benefit from reading comprehension instruction that emphasizes the teaching of vocabulary and reading comprehension strategies (cf. Ardington, 2020). Although details in Table 2.4 apply only to Nguni languages in South Africa, the benchmarking suggests the importance of considering learners' decoding ability before providing reading comprehension instruction. The Namibian English syllabi for all school phases do not make reference to benchmarks (or categories) of reading ability to familiarise teachers with different levels of reading ability. Even though the Upper Primary syllabus refers to the eight SACMEQ reading levels (Table 2.2 of this chapter), it does not provide explicit guidelines for applying them. Table 2.5 shows the very generalised competencies description for the English Upper Primary syllabus in Namibia.

Table 2.5 Score descriptions in Namibia: English L2 syllabus, Grade 4 – 7 (Ministry of Education, Arts and Culture. 2015a: 64)

Grade	%	Descriptions
A	80+	Achieved competencies exceptionally well. The learner is outstanding in all areas of competency.
B	70–79	Achieved competencies very well. The learner's achievement lies substantially above average requirements and is highly proficient in most areas of competency.
C	60–69	Achieved competencies well. The learner has mastered the competencies and can apply them in unknown situations and contexts.
D	50–59	Achieved competencies satisfactorily. The learner's achievement corresponds to average requirements. The learner may be in need of learning support in some areas.
E	40–49	Achieved the minimum number of competencies to be considered competent. The learner may not have achieved all the competencies, but the learner's achievement is sufficient to exceed the minimum competency level. The learner is in need of learning support in most areas.
U	0–39	Not achieved the minimum number of competencies. The learner has not been able to reach a minimum level of competency, even with extensive help from the teacher. The learner is seriously in need of learning support.

The descriptors in Table 2.5 are too generalised and apply to any subject. They may be inappropriate for reading because they do not distinguish between accuracy and fluency, between decoding and comprehension, nor do they distinguish different levels of comprehension, as done by McCormick (1995). Additionally, the descriptors do not take into account the complex multicomponent nature of reading and how it changes it over time, and do not indicate where potential reading problems may lie. There can be several factors that cause comprehension problems. Teachers need to know how well children decode to identify where the comprehension problems may lie. The intervention for this study needs to consider raising awareness among teachers regarding the reading comprehension benchmarks by McCormick (1995).

2.10 Conclusion

The reviewed studies have provided important details on what reading entails, aspects affecting the development of reading skills and reading comprehension. The theoretical framework in this study aligns to the view that reading includes decoding, comprehension, and response. This chapter also looked at types of reading comprehension and showed that there is a relationship between reading ability and school success. Since the academic performance of Namibian learners from Lower Primary to Senior Secondary school has been consistently low, there is a need for reading intervention to support teachers to develop knowledge about reading and how to teach it. The intervention may not only improve learners' performance, but also empower teachers to continue using the strategies beyond the intervention.

If teachers are made aware of what reading and reading success entail, they can be able to identify cracks in the process of learning to read earlier, and take the necessary steps to remedy the situation. Empowering teachers with knowledge about reading and how to teach it was one of the goals of this study. In Chapter 3, I will look at theoretical aspects regarding instructional practices for developing reading comprehension.

CHAPTER 3
A FRAMEWORK FOR READING COMPREHENSION INSTRUCTION

3.0 Introduction

Namibia is not alone in dealing with the challenges of teaching and developing literacy in less than ideal circumstances. Literacy challenges are typical of developing countries across the world because of high poverty levels, multilingualism with challenges in the education sector, poor or inefficient use of resources (World Bank, 2018), and some local languages not being well standardised. While most developing countries have made great strides in providing almost universal access to schooling in the early years, quality of schooling and teacher training remain big challenges (World Bank, 2018). Quality of schooling and learning are important for literacy development and school success. In this chapter I will discuss the literature on teaching reading and examine various reading interventions that could possibly be used to ameliorate reading comprehension levels of learners in the Namibian context. Ideas that seem promising from literature reviewed in this chapter were adapted for the intervention in this study. To provide readers with insights into the Namibian English as a second language (ESL) curriculum, I will first describe the content of the Namibian Upper Primary syllabus for English in terms of its position on the teaching of reading. Thereafter, I will describe how reading comprehension can be developed, from enhancing learners' reading fluency to providing them with various vocabulary and comprehension strategies. I will also discuss how teachers can effectively apply these strategies in their classrooms. Finally, I will describe phases in which each of the presented strategies can be taught.

3.1 The Namibian Upper Primary Syllabus

As English is the only "official national language of Namibia", measures have been put in place to ensure that all learners become competent in English through the curriculum and teachers' efforts (Ministry of Education, Arts and Culture, 2015a: 1). The *English Second Language Syllabus (Grades 4 – 7) 2015* (hereafter referred to as the syllabus) emphasises five language skills (listening, speaking, reading, writing, and grammar). The syllabus was developed to support the learning of English and to ensure that by Grade 7 "learners should have developed the English language literacy and communication competence that forms the basis for lifelong learning" (Ministry of Education, Arts and Culture, 2015a: 1). One of the main aims of the

syllabus in Namibia is to develop learners' proficiency in English. The specific aims of the syllabus do not specifically refer to the development of reading skills. I will first present the syllabus content pertinent to reading comprehension and vocabulary development, and then comment on these aspects.

The syllabus promotes reading comprehension to some extent, as it covers the teaching of reading comprehension and building vocabulary by using a learner-centred approach. The meaning of learner-centred approach is not specified in the syllabus, but it refers the syllabus users to other documents that describe what the approach entails. The syllabus mentions the need for learners to work at different levels, namely at the whole class level, in groups, in pairs, and individually.

Regarding reading at Grade 5 level, the syllabus states that Upper Primary learners in Grade 5 should develop reading skills, be familiar with reading strategies and use these strategies (such as skimming and scanning) to extract and comprehend information from narrative and expository texts (Ministry of Education, Arts and Culture, 2015a). The syllabus also mentions summarising and predicting as reading competencies that need to be developed. Regarding vocabulary learning, the syllabus states that Grade 5 learners should be able to extend their vocabulary up to 2,000 words, by the end of Grade 6 they are expected to have a vocabulary size 2,500, and by the end of Grade 7 they should reach 3,000 words. It does not specify whether this refers to passive or active vocabulary knowledge. Table 3.1, summarises the syllabus goals concerning reading comprehension and vocabulary development for Grade 5 learners.

Table 3.1 shows that the syllabus promotes the development of reading comprehension and vocabulary development to some extent; therefore it is possible to accommodate and integrate the intervention into the teachers' weekly timetable for Grade 5 learners. However, the teaching of reading comprehension and vocabulary depend on teacher capacity (O'Sullivan, 2002; National Reading Panel, 2000). Although the syllabus refers to the eight reading levels described in SACMEQ III and IV assessments (Table 2.2 of Chapter 2), it does not specify the level at which each grade level is expected to read. It does not explain how learners can move beyond the literal level to higher order reading skills. The syllabus states exactly the same competency for all the Upper Primary grades, that is, "demonstrate success to various questions set on the eight reading levels when reading a variety of text domains: narrative (story),

expository (information, e.g. how to operate a coffee maker) and documents (maps, charts)" (Ministry of Education, Arts and Culture, 2015: 24). This does not provide any guidance to teachers regarding the required or appropriate level of text comprehension questions.

Table 3.1 Reading and vocabulary teaching: Namibian Upper Primary syllabus for Grade 5 learners (Ministry of Education, Arts and Culture. 2015a)

Developing reading comprehension	Building vocabulary
• Apply pre-, while-, and post-reading strategies to enhance comprehension • Demonstrate success in various questions set on the eight reading levels when reading narrative and information texts • Read and extract specific information • Identify text features such as title, main and subheading, and predict the content of the text • Rearrange jumbled sentences • Identify main ideas in a text • Read poems to identify themes, feelings and tone • Identify elements of a story such as title, author, characters, and setting • Use pictures and titles to predict text content, and predict events relating the story line and characters	• Find meanings of unfamiliar words by breaking the words into their prefixes, suffixes, and roots, and using synonyms and antonyms • Learn connotation and denotation meanings of words • Extend vocabulary up to 2000 words • Break words into bases, prefixes, and suffixes (morphemic analysis) to determine their meanings • Use contextual clues to determine meaning of words

The use of skimming and scanning skills in reading assumes that the learners are fluent readers and can already comprehend their grade level reading materials. The fact that the syllabus only mentions a few reading strategies, when there is a wealth of other (more important) strategies that learners need to use (see §3.6), can limit teachers' efforts in developing learners' reading skills. The use of visuals such as tables, pictures and charts to construct meaning is only mentioned for Grade 4 competencies. Graphic elements (such as charts and tables) play a critical role in literacy development and are also important for reading to learn in textbooks. Fingeret (2012) analysed books approximate for Grade 2 and 3 learners in the USA and found that 60% of the graphics in the books provided additional information not included in the texts. Roberts, Norman, Duke, Morsink, Martin and Knight (2013: 2) argue that learners who have decoding skills and can "interpret graphical elements have a distinct advantage over those who do not".

If learners have not yet developed sufficient decoding skills, it may not be practical for the learners to use skimming and scanning skills (Pretorius, 2014). It is difficult for learners to scan or skim a text without having fluent decoding skills to do so. Although the syllabus mentions different levels of responsibility (i.e. group work, pair work, and individual activity), there are no explicit guidelines about how the levels of responsibility should be applied in class. The syllabus refers to summarising and predicting, but it does not explicitly refer to them as reading strategies.

Although the syllabus refers to specific vocabulary levels, it is not clear whether it is referring to word frequency levels (word families) or number of lexical items, nor is it clear if the syllabus refers to productive or receptive knowledge. Teachers may not be familiar with word frequency levels as the courses for student teachers at the University of Namibia do not integrate information about word levels. A knowledge of basic vocabulary at the 2,000 – 3,000 word level is necessary for a learner to participate in everyday conversations (cf. Pretorius & Murray, 2019). For Grade 5 learners to comprehend their books, they need a fairly larger vocabulary of, at the very least, 3,500 – 4,000 words because this mid-frequency level occurs increasingly in textbooks, but not much in day-to-day conversational language (cf. Nation, 2015). Therefore, the vocabulary size (i.e. 2,000 words) that learners are expected to achieve by the end of Grade 5 is not sufficiently adequate for them to understand content subjects textbooks. In South Africa, by the end of Grade 3, English first additional language learners are expected to know around 1,500 – 2,500 words and a list of 300 high frequency words is given in the Curriculum and Assessment Policy Statement (CAPS) (Department of Basic Education, 2011).

Although the language aspects required for a learner to develop reading comprehension skills are included in the syllabus in a very general way, the consistently poor academic performance of Namibian learners (§1.1.2 of Chapter 1) and poor training of teachers or teacher quality (§1.1.3 of Chapter 1) show that there is a gap between the intended curriculum and reality in practice. An intervention has the potential to help build teacher capacity and raise awareness about reading instruction. The next section describes some effective reading instructions for primary school learners, which could be used in an intervention.

3.2 Teaching reading comprehension

Learners who are good readers read fluently and understand what they read. Before teaching reading comprehension to learners, educators must be aware of what good readers do that enables them to comprehend what they read. First of all, as discussed in Chapter 2, for learners to benefit much from reading comprehension instruction, they should be fluent decoders. Over and above the fluency requirement, Table 3.2 shows further characteristics of good readers based on research (Duke & Pearson, 2002).

Table 3.2 What good readers do when they read (Duke & Pearson, 2002: 205-206)

- Good readers are *active* readers.
- From the outset they have *clear goals* in mind for their reading. They constantly *evaluate* whether the text, and their reading of it, is meeting their goals.
- Good readers typically *look over* the text before they read, noting such things as the *structure* of the text and text sections that might be most relevant to their reading goals.
- As they read, good readers frequently *make predictions* about what is to come.
- They read *selectively*, continually making decisions about their reading — what to read carefully, what to read quickly, what not to read, what to reread, and so on.
- Good readers *construct, revise, and question* the meanings they make as they read.
- Good readers try to determine the meaning of *unfamiliar words and concepts* in the text, and they deal with inconsistencies or gaps as needed.
- They draw upon, compare, and *integrate their prior knowledge* with material in the text.
- They think about the *authors* of the text, their style, beliefs, intentions, historical milieu, and so on.
- They *monitor their understanding* of the text, making adjustments in their reading as necessary.
- They *evaluate the text's quality and value*, and react to the text in a range of ways, both intellectually and emotionally.
- Good readers *read different kinds of text differently*.
- When reading narrative, good readers attend closely to the setting and characters.
- When reading expository (or information) text, these readers frequently construct and revise summaries of what they have read.
- For good readers, text processing occurs not only during "reading" as we have traditionally defined it, but also during short breaks taken during reading, even after the "reading" itself has commenced, even after the "reading" has ceased.
- Comprehension is a consuming, continuous, and complex activity, but one that, for good readers, is both *satisfying and productive*.

Any reading instruction should be based on the knowledge and skills described by Duke and Pearson (2002) in Table 3.2. The reading intervention for this study would require teachers to understand some of these characteristics of good readers for them to provide reading instructions that would make learners develop this understanding and the reading strategies.

Research shows that explicit reading comprehension instruction (i.e. teaching reading strategies explicitly) is more effective than implicit teaching (i.e. through incidental exposure),

especially with learners who are reading below their grade level (Çer & Şahim, 2016; Pretorius, 2014; Klapwijk & van der Walt, 2011; Almasi & Hart, 2011; Taylor, 2011). Therefore, this study focuses on teaching reading strategies explicitly. Explicit instruction refers to direct teaching of reading comprehension strategies by making learners aware of the strategies, and teaching them how to apply them consciously while reading.

The National Reading Panel (2000) has identified the following major topics that are central to learning to read: phonemic awareness, phonics, fluency, vocabulary, and comprehension (National Reading Panel, 2000). These topics are important part of explicit instruction strategies. Older learners at Grade 5 for whom reading is a learning tool, are expected to have some level of reading proficiency and fluency, therefore the instruction at this level should focus on reading comprehension strategies and vocabulary instead of decoding skills (i.e. phonemic awareness, phonics and fluency). In the Namibian context, as already discussed, it cannot be assumed that Grade 5 learners are already fluent readers since Namibian learners are likely to develop reading skills late because of various factors, such as poor exposure to spoken and written English.

Following Taylor (2011), effective reading instruction in the primary school has four dimensions: Word recognition, fluency, vocabulary, and comprehension development (Taylor, 2011, National Reading Panel, 2000). This is related to the major topics identified by the National Reading Panel (2000). For children who start decoding or recognising words, it is important that they are first taught the letters of the alphabet, and then sound-letter relationships at pre-primary level (§2.4.1 of chapter 2). Taylor (2011: xviii) describes four components of "grade-specific models" for reading instruction, to be developed from preschool to Grade 5, which are described below.

The pre-primary level is expected to develop learners' oral language, phonemic awareness, and develop emergent literacy. By the end of Grade 1, learners should have developed a sound knowledge of phonemic awareness, letter sounds, and decoding skills. By Grade 2, learners should be able to read graded readers at Grade 2 level. If learners cannot read at Grade 2 level, an intervention should focus on helping the learners read at the appropriate grade level at the beginning of Grade 2 (Taylor, 2011). By the end of Grade 2, the learner should be able to read simple narrative texts. By Grade 3, learners should have developed oral reading fluency, have knowledge of the appropriate vocabulary, and should be able to comprehend narrative and

informational texts at their level. Since learners will be required to use textbooks to read to learn in Grade 4, during the course of Grade 3 most readers should be making a transition to silent reading. In Grade 4 and 5, learners should be able to read fluently and comprehend both narrative and informational texts at their age level. Weak readers in Grade 4 and 5 need to be supported to comprehend what they read, through using comprehension strategies. In the Namibian context, the syllabus states that by the end of Grade 5 learners should be able to read their grade-level materials independently and should be able to comprehend both narrative and informational texts (Ministry of Education, Arts and Culture, 2015a).

3.3 Oral reading fluency development

The previous section focused on developing reading comprehension skills; in this section I discuss how oral fluency can be developed. Reading aloud is important for learners to practise accuracy, fluency and intonation, thus increasing their reading speed (Nation, 2009). Reading speed is important for a reader to focus attention on comprehending a text rather than on decoding words (Hudson, Lane, & Pullen, 2005). Learners reading very slowly below 20 words correct per minute (WCPM) in African languages hardly comprehend what they read and reading comprehension skills are unlikely to develop (Ardington et al., 2020). In English, learners reading less than 40 WCPM struggle to comprehend a text (Draper and Spaull, 2015). There are many strategies devised to improve learners' ORF such as repeated reading, paired reading, shared reading, class wide peer tutoring, and extensive reading (Strickland, Boon & Spencer, 2013; Nation, 2009; Welsch, 2006), which are further explained below.

3.3.1 Fluency strategies

Fluency strategies are deliberate activities in class intended to increase learners' reading speed and overall fluency.

In *repeated reading*, learners read the same text several times (about 3 times) to improve their decoding accuracy. Repeated reading emphasises practice to develop reading fluency (Hudson et al., 2005). In this type of reading, learners can read in groups, pairs, or individually. Table 3.3 provides details of what repeated reading entails. Strickland et al. (2013) reviewed literature published from 2001 to 2011 on the importance of repeated reading in improving ORF and comprehension skills of primary school learners with learning disabilities. The study found that the repeated reading strategy is effective and can increase learners' ORF and reading

comprehension. Results also suggest that learners have to practise on different texts as much as possible to benefit from repeated reading.

Research shows that repeated reading can be effective for learners with or without learning difficulties, provided the texts are within the learners' reading level (Dowhower, 1994). Cotter (2012) exposed struggling learners to a set of reading texts each week for nine months. The results showed that the learners doubled their ORF, and increased their reading comprehension by 20% to 53%. However, this was a very small study without a control group, so the evidence is rather flimsy. Stronger evidence comes from Dowhower (1987) who investigated the effect of repeated reading procedures on intermediate Grade 2 readers on oral reading. The results showed that repeated reading improved the learners', inter alia, reading speed, accuracy, and reading comprehension, and that gains from repeated reading on practiced texts transferred to the unpractised ones.

Paired reading is a form of reading in which a skilled reader is paired with a poor reader, or skilled readers paired to read the same text together. The purpose of paired reading is for the more proficient reader to assist the less proficient reader in reading (Nation, 2009; Kuhn, Rasinski & Zimmerman, 2014). The skilled reader's role is to correct the mistakes of a poor reader by just saying the correct pronunciation of a misread word without explanations. This activity requires learners to be trained on how to conduct paired reading. In the context of this study, the success of paired reading depends much on the number of learners who are proficient readers.

Shared reading (National Early Literacy Panel, 2008) is a form of interactive reading in which learners share the reading of a big book (books with enlarged texts and illustrations for all learners to see) with their teacher. The teacher starts by modelling the skill of fluent reading, and then the learners join in the reading process while guided by the teacher.

Class wide peer tutoring (Veerkamp, Kamps, & Cooper, 2007; Greenwood, 1997) refers to an assisted form of reading in which the teacher pairs all learners in class to teach each other. One of the learners in pairs teaches the partner by explaining the reading activity given by the teacher, practices reading with the partner, and provides feedback to his/her partner.

Extensive reading involves learners reading a large quantity of texts for an extended period, for study or pleasure purposes, to develop knowledge and skills incidentally. Extensive reading can be used for vocabulary development and fluency development (Nation, 2015; Nation, 2001). Research shows that long-term extensive reading leads to vocabulary growth (Schmitt, 2008; Cunningham & Stanovich, 2001; Nation, 2001; Stanovich, 2000).

Although all the strategies can work well, research seems to suggest that repeated reading is effective in improving reading speed and comprehension for poor readers (Strickland et al. 2013; Nation, 2009). Limited resources made the extensive reading option a challenge in Namibia. Additionally, classroom based strategies are needed first to get learners to a certain level before extensive reading becomes productive. Therefore repeated reading was used in this study for learners to practice decoding accuracy and improve their fluency.

Variations on repeated reading

There are different ways of doing repeated reading, with different conditions and requirements, as shown in Table 3.3.

4/3/2 repeated reading activity

A fluency approach that seems promising is the research-based strategy by Kuhn et al. (2014). Nation (2009) and Kuhn et al. (2014) describe a number of activities that could be used in repeated reading such as paired reading, 4/3/2 reading, and Fluency Oriented Reading Instruction (FORI), these are described below.

In 4/3/2 reading, each learner in class receives the same text. Thereafter the learners are paired whereby one learner is a listener and the other is a reader. The reading activity is timed and each learner is expected to read the same text to three learners in class. When learners are ready, the teacher says 'go' and each reader starts reading. When time has lapsed the teacher says 'stop' and each reader marks the point on the text where he/she stopped using a pencil. In the first reading, the learners are expected to read for four minutes to the first partners, and then exchange partners and read the same text for three minutes. In the final reading, learners read for two minutes to their third partners. The teacher tells the learners to speed up their reading so that each of their three listeners hears about the same amount of text even though the reading time is reduced. As the learners re-read the same text, they increase their reading speed because they become familiar with the text. The challenge with this activity is that the focus is only on

speed and not comprehension. As Kuhn et al. (2014) point out; an effective fluency activity should encompass comprehension rather than *only* reading quickly.

Table 3.3 Description of repeated reading and necessary conditions (based on Nation, 2009: 136)

Description of repeated reading	Condition for fluency development	Requirements for condition to be met
• The learner reads a text (about 50-300 words long) aloud with help where necessary, while the teacher or another learner listens. • The text is re-read reasonably soon after (within a day). If learners are working in pairs, they can re-read the text to one another in the same session and see if they read further the second time (this applies when time has been recorded). • The text is read again a day later • The text should only be a little bit above the learner's present reading level • Most of the running words should be easily recognised • The optimal number of repetitions is around 3 to 5 • Using texts intended to be read aloud, like poems, plays, jokes or stories can increase the purposefulness of the activity. • Repeated reading and repeated reading while listening to a taped passage give similar positive results.	1. Learners should be focused on the message 2. The material should be within the learners' zone. Not too easy. 3. There should be some pressure to perform at a faster than normal speed 4. There should be quantity of practice (To truly be a fluency development activity these four conditions need to be met.)	Have a listener. The reader is trying to communicate the message of the text to the listener. All the vocabulary is known and there are not too many irregularly spelled words Repetition provides this encouragement. To strengthen this condition, the time taken to read the text could be noted for each reading and the reader should be trying to beat her/his previous speed for the same text In repeated reading, the text is not very long but the repetitions mean that there is quite a lot of reading practice.

FORI and wide-reading FORI

Kuhn et al. (2014) examined the effectiveness of two fluency approaches involving repeated reading, namely Fluency Oriented Reading Instruction (FORI) and wide-reading FORI. The participants were Grade 2 English learners in the USA from diverse ethnicity, socioeconomic and linguistic backgrounds. The authors concluded that the approaches are useful for reading instruction because they improve learners' reading fluency and reading comprehension. The approaches were found easy to implement and worked well with struggling readers. In each of these two approaches, the teacher uses modelling, scaffolding, repetition, and extensive reading opportunity. Based on Kuhn et al.'s (2006) findings, Kuhn et al. (2014) describe two fluency

approaches (FORI & wide-reading FORI), and a related approach called the Fluency Development Lesson (FDL).

FORI relies on using scaffolded reading repetition instruction of a text over several days. In choosing texts for this approach, it is recommended that the teacher should use texts above learners' grade levels since learners will be receiving support in each lesson. However, since many learners in Namibia are reading below their grade level, it might be quite challenging to choose Grade 6 texts for Grade 5 learners even with reading support from teachers. According to Kuhn et al. (2014), the lesson plan in FORI follows a five-day cycle whereby the teacher provides full support at the beginning of the week, and then gradually transfers responsibility to learners, to the extent that by the end of the week learners can read the text on their own. The challenge with this approach is that learners are exposed to one single text over several days, and are not exposed to different texts.

The wide-reading FORI follows the same procedure as FORI, but learners read three texts over the five-day period instead of a single text, as done in FORI. The first text is regarded as the main text and the other two texts as additional texts. Day 1 is used for *introducing the main text* using pre-reading activities, which include activating or building background knowledge, working on vocabulary and/or making predictions about the content. Thereafter, the teacher reads the main text aloud to the learners. On Day 2, the teacher and the learners do *echo reading* of the previous day text (the main text). On Day 3, *extension activities* are given to the learners, which may include written or oral responses on alternative ending of a story or oral discussion on plot of the story, for example. These activities reinforce the need to read texts with understanding rather than just sounding out words. Day 4 and 5 of the wide-reading FORI involves *echo reading* and the teacher discusses the second and the third text with the learners. After echo reading the additional texts and doing comprehension activities, learners may be asked to read the text with partners if time is available. To provide additional practice, the teacher should ask learners to take the main text and additional texts home to read to their family (and/or friends).

Fluency Development Lesson (FDL)

Unlike the FORI approach, FDL does not spread lesson components over several days; instead, learners are taught to read a new text well every day for about 30 minutes (Kuhn et al., 2014). Although the FDL helps learners to get used to reading different texts on a daily basis, learners

may not get enough time to practice reading on a single text. The wide-reading FORI seems more appropriate than the FLD approach for the Namibian context, because it provides sufficient time for weak readers to practise reading a few texts several times a week.

Even though the reading fluency strategy (i.e. wide-reading FORI) by Kuhn et al. (2006) was used in a different context to the one in this study, it may be effective in the Namibian context, because it allows learners multiple practices to improve their reading fluency.

3.4 Vocabulary instruction

For primary school learners to benefit from reading comprehension instruction, they need a fairly large vocabulary size, which can be developed through direct instruction (§3.2). A study by Hu and Nation (2000) found that non-native speakers of English would need to know around 98% of words in a text to gain adequate reading comprehension of a narrative text. Based on the 98% coverage calculated by Hu and Nation (2000), Nation (2006) shows that English L2 learners would need knowledge of 8,000-9,000 words from the British National Corpus to comprehend unsimplified written texts. For graded readers at primary school level (i.e. simplified reading materials), the 98% reading threshold for L2 learners can be reached by a smaller vocabulary size of 3,000 words (Nation & Anthony, 2013; Nation, 2006). Laufer (1997) argues that the 3,000 word threshold would be necessary for English L2 learners to be able to transfer reading strategies from L1 to L2 and make successful guessing possible.

Measuring and understanding the development of vocabulary requires clarification of what counts as a word. The basic concept of the term 'word' refers to the "identifiable units in written and spoken language" (Scott & Nagy, 2009: 107). Nation (2001) describes four ways in which words can be counted: tokens, types, lemmas, and word families. The number of words in a sentence is referred to as 'word tokens. For example, the sentence "*I will read the book when I buy it*" has nine words (tokens) even though one of the words "*I*" occurs twice. The number of distinct words is referred to as 'word types'. In word types, we do not count a word if it appears again; therefore in the above example there are only eight word types. A lemma includes "a head word and some of its inflected and reduced (e.g. *won't*) forms" (Nation, 2001: 7). For example, *read*, *reads*, and *reading* is the same word or lemma. A lemma thus refers to a base form of a word and its inflections of plural and tense. A word family is defined as "a base form with its inflected and derived forms" (Laufer, 1998: 261). For example, the words *attract*,

attracts, *attracting*, *attracted*, *attractive*, *unattractive*, *attractively*, *attraction*, and *attractions* belong to the same word family. According to Bauer and Nation (1993), if a learner knows the meaning of one of the words from the same family, it is much easier to infer the meaning of other words in the family. Word family is the common way in which researchers count words because of its convenience.

3.4.1 Vocabulary frequency levels

As vocabulary knowledge influences reading comprehension (Pretorius & Stoffelsma, 2017; Hanson & Padua, 2011), it is critical to teach vocabulary to poor readers and provide sufficient print exposure so that they can develop their vocabulary. In English, words have been arranged into different categories according to their frequency of occurrence in texts. Examples of these frequency categories are: the 2,000, 3,000, 5,000, Academic Word List (AWL), and 10,000+ word levels (Nation, 2006). The 2,000 word level comprises the most frequently occurring words in texts and covers about 80% of running words in a generic text (Nation, 2006). The 10,000 (and above) word level comprises the least frequent words. The AWL comprises academic words (i.e. words appearing frequently in academic texts or discourse) and covers about 10% of the running words in academic texts (Coxhead, 2000). Nation and Anthony (2013) arrange English vocabulary into three frequency levels: High frequency (1,000 – 3,000); mid-frequency (4,000 – 9,000) and low-frequency (from 10,000). In contrast with books written for native speakers, books written for young English L2 learners are likely to include words from the higher word frequency levels (Nation, 2015). Knowledge of 3,000 words is useful for successful guessing and learning in English L2 (Nation, 2015; Laufer, 1997). High frequency words are words that learners can learn easily during the earlier years in school, whereas low frequency words are not easy to learn because of their low frequency in texts (Li & MacGregor, 2010).

Research generally distinguishes between two types of vocabulary knowledge: receptive and productive knowledge. Receptive vocabulary knowledge refers to words that we can recognise or understand when listening or reading (Zhou, 2010). Productive knowledge refers to words that we actively use to communicate when speaking or writing (Laufer, 1998). Receptive vocabulary is always much larger than productive vocabulary.

3.4.2 Vocabulary learning strategies: direct teaching

Hanson and Padua (2011: 10) define the term 'word learning strategies' as "tools learners can use to figure out the meaning of unfamiliar words and increase their word knowledge". Vocabulary can be taught explicitly (directly through providing conscious instructions) and it can develop through incidental exposure. For English L2 learners who have not mastered the high frequency words at the 2,000 word level, direct teaching of vocabulary is the fastest way to build their vocabulary (Hanson & Padua, 2011; Stæhr, 2008). However, much of learners' vocabulary is learned incidentally through exposure to written or spoken language (cf. National Reading Panel, 2000). The National Reading Panel (2000) found direct vocabulary instruction to be the most effective way for learners to learn new words. One of the reasons that explain the effectiveness of direct vocabulary instruction is that learners with a weak vocabulary cannot read widely to acquire words they need to comprehend texts.

Hanson and Padua (2011) identify three main word learning strategies that can be used to support vocabulary instruction: Using word parts (morphological analysis), using contextual clues, and using a dictionary. Stoffelsma (2019) discusses four evidence-based guidelines (or strategies) for effective vocabulary instruction in an English L2 classroom, based on the Multifaceted, Comprehensive Vocabulary Instruction Program work by Blachowicz and Fisher (2015) and Lems, Miller, and Soro (2017). These guidelines are: providing rich and varied language experiences, teaching individual words, teaching word-learning strategies, and fostering word consciousness. The vocabulary guidelines are summarised in Table 3.4.

The first guideline is supported by research in terms of providing learners with many and varied reading opportunities, for them to be exposed to both explicit and incidental vocabulary learning (Blachowicz & Fisher, 2011). The second guideline emphasises the need to help learners develop both high-frequency words and domain-focused or important content and concept vocabulary (Stoffelsma, 2019; Blachowicz & Fisher, 2011) for learners to make progress in learning. The third guideline (i.e. developing learners' independent word-learning strategies) involves teaching learners to take control of their vocabulary learning. Learners can select words they wish to study, identify word structure and reference for the words they want to know (Blachowicz & Fisher, 2011). Research shows that self-selection of words improves learners' vocabulary mastery more than teachers' input (Masoudi, 2017).

Table 3.4 Vocabulary teaching guidelines and strategies: Adapted from Stoffelsma (2019: 3)

Guidelines	Strategies of good vocabulary instruction by Blachowicz and Fisher (2015)	Effective word-learning strategies by Lems et al. (2017)
1. Provide rich and varied language experiences	• Flooding classroom with print • Fast instruction or simple word lesson • Focused instruction • Wide reading	• Use word cards or flash cards • Word walls in classroom • Provide enough repetitions of words through print exposure
2. Teach individual words (high-frequency and domain-focused) through explicit instruction	• Fast instruction or simple word lesson • Focused instruction • Mature word-learning strategies: active processing of words through choice, discussion and working with words (semantic maps, graphic organisers, word webs, and so on) • Use word definitions	• Use L1 as a resource to explain new words • Pre-teach vocabulary before reading a new text • Use pictures or let students draw, say, write or physically demonstrate new words • Form a mental image connected to the meaning of a new word (keyword method)
3. Develop learners' independent word-learning strategies	• Students' self-control of learning • Morphemic analysis • Contextual analysis • Dictionary use	• Teach different word forms (e.g. sleep, sleeping, sleepless, sleepy, and so on) • Make daily use of dictionaries
4. Foster word consciousness	• Using word games and wordplay	-

The last guideline is fostering word consciousness. Word consciousness refers to the "awareness and interest in words and their meaning" (Graves & Watts-Taffe, 2008: 186), and it includes taking notice of unknown words (instead of just 'tuning them out'), morphological awareness (sensitivity to word parts) and syntactic awareness (knowledge of word order) (Scott & Nagy, 2009). Teaching word consciousness can enhance primary school learners' vocabulary and comprehension levels (Neugebauer, Gámez, Coyne, Cólon, McCoach & Ware, 2017; Scott & Nagy, 2009).

3.5 Comprehension strategies

Reading comprehension strategies are conscious actions or steps taken by readers to support the comprehension of a text (Klapwijk & van der Walt, 2011; Almasi, 2003). Readers, for example, may seek to clarify meanings of key words in a text to deepen the understanding of the content. Teaching reading comprehension strategies is useful because the strategies can

improve learners' text comprehension (Almasi & Hart, 2011; Klapwijk & van der Walt, 2011; Taylor, 2011; De Corte, Verschaffel & Van de Ven, 2001). Research shows that learners benefit from reading comprehension strategy instruction only when they have fairly good decoding skills (Pretorius, 2014).

Many different comprehension strategies have been identified in the literature, these include: asking questions about the text, activating prior knowledge, visualising, making inferences and predictions, practising comprehension monitoring (re-reading sections of a text), identifying main and supporting ideas, reflecting on a text after reading and discussing it, learning about text structure, and summarising texts (Pretorius & Murray, 2019; Taylor, 2011; Block and Pressley, 2007; Duke, & Pearson, 2002). Reading comprehension strategies can be categorised into cognitive strategies and metacognitive strategies (Ahmadi, Ismail & Abdullah, 2013; De Corte et al., 2001). Cognitive strategies involve direct interaction with a reading task (Ahmadi et al., 2013), for example, making inferences and predictions, and identifying main and supporting ideas. Metacognitive reading strategies are concerned with learners' ability to regulate or monitor their own reading (e.g. comprehension monitoring). For example, learners can ask themselves questions to check their understanding of a text (§3.6.5). When conducting an intervention to teach reading comprehension strategies, teachers should start with easy-to-learn cognitive strategies and then move to higher-order metacognitive strategies (Taylor, 2011).

Intervention strategies

Research has shown that when a reading comprehension intervention is well planned and a sound instructional approach is followed, the intervention can have positive results, provided the teachers who implement it are well trained and implement it with fidelity (Pretorius, 2014). A well planned intervention and a sound approach consider the learning environment of learners, their language levels and learning styles, the capacity of the implementers, and research evidence. A learning style is a preferred way that learners follow to make sense of presented or reading materials. For example, learners could have a preference for the use of visuals, summarising, observing, or the use of analytical skills. It is important to consider learners' learning styles because these can have an effect on their use and learning of reading strategies in L2 (Gürses & Bouvet, 2016; Shen, 2010). Since there is no clear evidence from research on learning style and the findings are somewhat contradictory (Cuevas, 2015), it was not included in the intervention.

Taylor (2011) suggests that the best practices to teach reading comprehension strategies require a teacher not only to teach the intervention strategies explicitly, but also to consider motivational aspects, such as praising, using interesting texts, and showing successes, that would engage the learners. Also, working with other teachers to assess and improve the intervention is advisable (Taylor, 2011). A critical question about teaching reading comprehension strategies is: Should each strategy be taught alone and in isolation? This question will be answered in the following section.

3.6 Transformational view of teaching comprehension strategies

The transformational view of teaching reading comprehension strategies advocates not only teaching learners reading strategies, but also making learners strategic in reading (Almasi & Hart, 2011). When learners are strategic, they are able to use reading comprehension strategies taught to them to comprehend a text.

Almasi and Hart's (2011) transformational view of comprehension strategies (Figure 3.1) comprises four parts that are interlinked, namely context, agency and metacognition, scaffolding for transfer, and explicit instruction of a set of strategies.

The first aspect of the transformational view is context (the learning environment). Context is described as a "set of circumstances that are relevant for the learners to build knowledge when referring to content" (de Figueoredo, 2005: 129). According to Almasi and Hart (2011), the instruction of the comprehension strategies should be done in a context with a safe environment where learners are able to participate freely and build their own understanding about how they learn under different conditions, without fear of anger, ridicule, derision or shame. A safe learning environment is where learners learn that sometimes there are no right or wrong answers but rather different interpretations. Learners also learn that often there are right answers, but it is acceptable to make mistakes. The safe learning environment in teaching reading comprehension strategies requires a teacher to explain, model, provide guided practice to learners when reading, suggest correct responses, praise learners for their participation and for giving responses. In the Namibian context where many teachers have not been trained about the importance of a safe learning environment (UNESCO, 2013), a safe learning environment as described here may not be sufficiently developed, and therefore requires training.
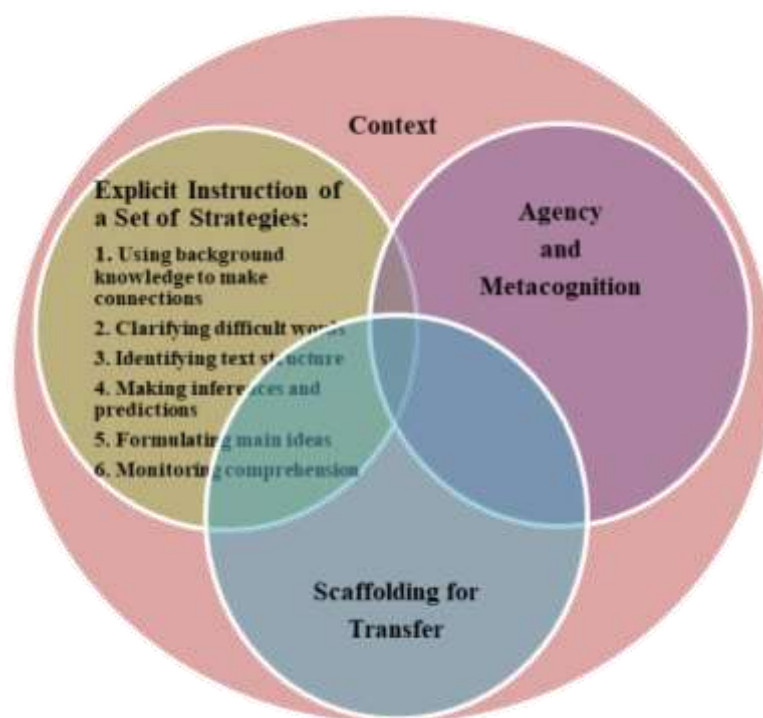
Figure 3.1. A transformational view of comprehension strategies. Adapted from Almasi and Hart (2011: 259). Adapted with permission.

The second aspect presented by Almasi and Hart (2011) is agency and metacognition. Metacognition refers to a reader's ability to reflect on his or her reading and their understanding of whether they know something, whether they are learning, or whether they made a mistake during the reading process and when their own comprehension breaks down (Ahmadi et al., 2013; Smith, 2004). In other words, metacognition allows readers to regulate their own reading process. When the transformational view of reading is applied in the classroom, a teacher models the action, engages learners in think-alouds, and asks learners to verbalise their thoughts while reading to promote metacognition. The agentic part of the transformational view of reading occurs when learners play an active role in reading and influences the way they read for the purpose of comprehending a text (Almasi & Hart, 2011). When learners have developed metacognition, they are able to decide which reading comprehension strategies they need to use. This implies that learners should first be taught cognitive reading comprehension strategies before metacognition strategies.

The third aspect is scaffolding for transfer. When a teacher uses scaffolded instruction, he/she initially assumes all responsibility for the activity, and then "gradually and incrementally

transfers responsibility for performing the task to learners" until they are able to perform the task independently without the assistance of the teacher (Kim, Boyle, Zuilkowski & Nakamura, 2016: 8). Scaffolded instruction can take the form of the gradual release model – *I do it* (teacher modelling), *we do it together* (guided practice), *you do it* (unprompted practice)**.** The scaffolding notion is not new, but is part of Vygotsky's approach to learning whereby learners interact socially with their skilled teacher, with the teacher modelling and providing instruction (Vygotsky, 1978).

The last aspect is explicit instruction of a set of strategies. Almasi and Hart (2011) have identified six research-based reading comprehension strategies. These include: using background knowledge to make connections, clarifying difficult words, identifying text structure, making inferences and prediction, formulating main ideas, and monitoring comprehension. These strategies are further elaborated in the paragraphs below. For long term gains in reading comprehension, these strategies are taught and practiced one-by-one, with each new strategy integrated into the reading practice in a conducive learning environment (Almasi & Hart, 2011; De Corte et al., 2001).

3.6.1 Using background knowledge

As defined earlier in Chapter 2 (§2.4.5), background knowledge refers to information or experience(s) that are important to understand a text. Learners' background knowledge plays a critical role in aiding reading comprehension (Hill & Liu, 2012; Smith, 2004). This happens because reading comprehension involves the construction of mental representation of a text, which includes "textual information and associated background knowledge interconnected by semantic relations, e.g. causal, referential, and spatial relations" (Kendeou, van den Broek, Helder, & Karlsson, 2014: 10). Even if a reader is familiar with all the words from a text, comprehension may break down if content knowledge of the text is missing (Schmitt et al., 2011). Without background knowledge on a topic, readers are forced to pay more attention to individual words to comprehend the text. If learners have to read a text about a crow and they are not familiar with it, for example, the teacher has to start with the learners' knowledge of birds, discuss birds in general and what kind of bird a crow is, and then connect their knowledge to the text. When prior knowledge is activated, children become more receptive to what follows in the text.

3.6.2 Clarifying difficult words:

Clarifying difficult words refers to making the meanings of unknown (or confusing) words clear or understandable through using strategies such as breaking down the words, using context clues, or using a dictionary. These strategies help learners increase their vocabulary knowledge and to be in a better position to comprehend what they read. Morphological analysis is an important strategy for clarifying difficult words as elaborated below.

Morphological analysis

Morphological analysis involves teaching learners to break complex words into morphemes (i.e. roots/bases, prefixes, and suffixes) (Bowers & Kirby, 2010), which has the potential to support literacy development (Goodwin & Ahn, 2013). Awareness of morphemes in words is important because they "play a semantic role, communicating lexical meaning (*dis + like*) through roots (friend, ped)" (Goodwin et al., 2012: 462). Learners who have morphological awareness are able to break the word 'unfinished', for example, into three parts:

base *<finish>* (*un + finish + ed = unfinished*)

When learners are able to identify morphemes and know their meanings, they can enhance their word learning and meaning construction (cf. Goodwin, 2012). In teaching word parts, learners should be informed about prefixes, root words and suffixes. Learners can be informed that *un* in the word *unfinished* is a prefix and it means 'not' and finished means 'completed doing something', *finish* is the root word and *ed* is the suffix which forms the past tense of the word finish.

Learners in primary school, especially those with weak decoding skills, need to be taught vocabulary building strategies through morphological analysis (word parts). When children are taught about morphemes, they learn to figure out meanings of words using their constituent parts, and can increase their vocabulary skills and become better readers (Wolter & Green, 2013). A study by Bowers and Kirby (2010) found that teaching morphological structure helps learners learn more words, including those that were not presented to them by their teachers.

Research on the acquisition of morphology distinguishes between three types of morphemes: inflections, derivations and compounds, which are all learned at different stages of language development (Wolter & Green, 2013; Carlisle, 2010; Tyler & Nagy, 1989). Inflections (or inflectional morphemes) are suffixes added to words to show their grammatical categories such

as tense, plural, comparison, number, and possession. Derivations (or derivational morphemes) refer to an affix added at the beginning of a free morpheme (i.e. prefix, e.g. _remark_) or at the end of the word (i.e. suffix, e.g. _helpful_) to create a new form of the word (e.g. the verb _help_ becomes an adverb _helpful_). Compounding (or composition) involves combining two words (i.e. free morphemes) to create a new word. For example, the word _firefighter_ comprises two free morphemes (i.e. _fire_ & _fighter_). Only a fewer studies have used the instruction method of segmenting and building compound words (Goodwin, Lipsky, Ahn, 2012). In Pre-school (or Grade 0) and early primary school, morphological instructions focus much on inflectional rules whereby learners are taught to make plurals of words (e.g. _kid–kids_; _child–children_), changing word tenses (e.g. _jump–jumped_; _cook–cooked_), and creating superlatives of words (_tall–taller–tallest_) (Goodwin et al., 2012). Goodwin et al. (2012) argues that young children need to be exposed to relatively simple morphological construction because their more explicit derivational awareness develops across primary school (from Grade 3 or 4). A study by Tyler and Nagy (1989) tested learners' knowledge of derivational morphology in Grades 4, 6, and 8, and found that knowledge of derivational suffixes increases up to Grade 8. According to Nagy & Anderson (1984, in Goodwin & Ahn, 2013), 60 to 80% of words found in learners' texts after Grade 3 are derived words. This suggests that morphological instruction should be intensified after Grade 3.

The awareness of affixes and base words helps learners to see words as constituting these component parts, which can allow them to infer the meaning of unfamiliar words (Wolter & Green, 2013). As Goodwin and Ahn (2013: 258) argue, learners who know root words, can read and spell words derived from those more accurately, and that knowledge of "markers of tense (e.g. runn_ing_), grammatical category (e.g. help, help_ful_), number (e.g. dog, dog_s_), and degree (e.g., fast_est_)" can help learners to read well. Research shows that morphological awareness instruction improves primary school learners' vocabulary knowledge and reading levels (Goodwin & Ahn, 2013; Goodwin et al., 2012; Bowers, Kirby & Deacon, 2010; Carlisle, 2010).

Goodwin & Ahn (2013) examined 30 independent studies to establish the effect of interventions emphasising morphological instruction. The study found that the interventions had a moderate to significant effect on literacy development in terms of phonological awareness, morphological knowledge, decoding, vocabulary, and spelling.

Another study by Goodwin et al. (2012) used a meta-analytic technique to identify effective practices for morphological instruction in primary and middle school classrooms. They found that effective instructional practices should include teaching learners to segment and build morphemes, use affix and root meanings, use morphemes to improve spelling, segment and build compound words, and identify cognates. In a review of 22 studies in different languages involving learners from pre-school to Grade 8, Bowers et al. (2010) found that morphological instruction is more effective in improving the reading ability of less skilled readers. Carlisle (2010) reviewed 16 studies to examine the role of morphological awareness instruction in learners' literacy development and found that morphological awareness can improve learners' phonological- and orthographic knowledge, and word meaning.

Research on English L2 suggests that the most effective way of teaching learners morphemes is to start with the most common prefixes such as *un-*, *re-*, *in-*, and *-anti-*, and the most frequent suffixes such as *-ly*, -er, and *-ness* (Nation, 2001). According to Stahl and Nagy (2006), 70% of English words with prefixes begin with the most frequent prefixes such as *un-*, *re-*, *in-*, *im-*, *il-*, *ir-*, *dis-*, *en-*, *em-*, and *non-*, and 80% of words with suffixes end with *-s*, *-es*, *-ed*, *-ing*, *-ly*, *-ion*, *-tion*, *-ition*, *-ation* and *-er/or*. The teacher should start by explaining to learners what is meant by 'word parts' and why they are important. Thereafter learners should be introduced to prefixes such as *un* in *unhappy*, *re* in *reopen*, *anti* in antivirus, and also suffixes such as *-ed* in *cooked*, *-ful* in *useful*, and *-able* in *comfortable*.

Learners need to be aware of relational knowledge when learning morphemes to avoid making wrong associations between words. Within derivational morphology, three types of knowledge can be distinguished: relational, syntactic, and distributional knowledge (Tyler & Nagy, 1989). Relational knowledge is the ability to recognise morphological relations between words and the understanding that words can share morphemes (prefixes, affixes and roots). For example that *examine* is related to *examination*, whereas *off* is not related to *offer*; that *regression*, *repeat* and *return* share the prefix *re-*, but that *read* and *region* do not.

3.6.3 Making inferences and predictions

Making inferences and predictions are higher levels of processing information. Inferencing is concerned with connecting pieces of information in a text using textual clues and background knowledge in order to understand another piece of information which is not stated explicitly (Kispal, 2008; Cain, Oakhill & Bryant, 2004). Inferencing is important because it deepens

comprehension of a text (Kispal). Kispal (2008) identified a number of inference types such as coherence inferences (or text-connecting), elaborative inferences (or gap-filling inferences), local inferences, and global inferences.

In coherence inference a reader connects different parts of a text to identify referents of certain words or parts of a text. For example:

A learner asked his teacher for permission to visit his mother in hospital.

In this sentence, a reader can only fully understand the meaning of the sentence if he/she understands that the pronouns *his* and *him* refer to the same learner. A teacher can model the inferencing strategy in front of learners by asking himself/herself questions such as "Who asked permission to visit his mother in hospital?" "Who can give permission?" "Who should be permitted?"

In elaborative inferences, a reader uses his/her general knowledge and life experiences to supply missing details (Iza & Ezquerro, 2000). In the example above, a reader would need to use his/her background knowledge about why people go to hospitals to be able to conclude that the learner probably wanted to see his mother who was hospitalised. The details about the wellbeing of the learner's mother are missing in the sentence, but with general knowledge and life experiences the connection can easily be made. Local inferences operate at sentence and paragraph level. A reader uses information from one part of a text to understand other details in the same text.

Coherence representation in global inference covers the whole text and the reader infers overall ideas such as theme, main points and moral of the text by using pieces of information from the text and world knowledge (Kispal, 2008). The clues that help one make the inference in the global inferences are much further apart than in local inferences so they have to stay in working memory longer.

As learners practise inferencing, they should also do a number of activities that require them to predict what can happen next or what happened earlier based on details in a text. Predicting is a form of inferencing. To predict means to guess what will happen in a story using available clues (Pretorius & Murray, 2019). Making predictions can connect readers to a text and makes them want to read more to confirm their predictions.

3.6.4 Identifying main ideas

Formulating main ideas refers to recognising or identifying key points in a text. Teaching learners to identify the main ideas in a text helps them to know what is important in a text and to improve their reading comprehension as they can understand the writer's main points (Naidu, Briewin, & Embi, 2013). An educator can use different strategies here, depending on whether the text is a narrative or information text. A narrative text relies on story schema (identifying setting, character, problem, resolution, and the theme). In information texts, learners can be taught to identify main ideas by using headings, sub-headings and topic sentences, which usually occur at the beginning of a paragraph. Summarising is an important academic skill and part of skilled reading. Teaching learners how to identify main points helps them summarise texts.

3.6.5 Monitoring comprehension

When learners are able to monitor their comprehension, their understanding of texts improves (Pretorius & Murray, 2019). Comprehension monitoring is a very important component of metacognition (§3.6). Monitoring comprehension involves realising when and where comprehension breaks down. Castles et al. (2018) define comprehension monitoring as the process of evaluating one's own understanding of a text, identifying when there is comprehension breakdown and when necessary, use strategies or skills to repair any misunderstanding. If a reader cannot notice a problem in comprehension, he/she will be unable to apply a strategy that can fix the problem. A learner can look for consistencies and inconsistencies in his/her understanding when reading a text, such as contradictory sentences, and statements that contradict background knowledge (Cain et al., 2004).

A study by Wassenburg, Bos, de Koning and van der Schoot (2015) investigated the effectiveness of a reading comprehension strategy instruction (i.e. inconsistency-detection) aimed at improving Grade 3 and 4 learners' reading comprehension monitoring strategies in the Netherlands. The researchers used a pre- and posttest control group design. The results showed that Grade 4 learners in the intervention group significantly improved their inconsistency-detection skills and improved their general reading comprehension performance. However, Wassenburg et al. (2015) did not find evidence of more effective use of comprehension monitoring strategies among Grade 3 learners in the intervention group, suggesting that the younger learners were not yet matured to handle comprehension monitoring activities taught to them. The current study deals with older learners, so the strategy was

included. Research shows that comprehension monitoring instruction adopting think-aloud strategies such as self-questioning, predicting, and rereading are effective in promoting primary school learners' comprehension monitoring skills (Baumann, Seifert-Kessell, & Jones, 1992). English L2 learners need comprehension monitoring skills to examine whether the strategies they adopt to comprehend texts help them to successfully overcome their comprehension challenges (Yang, 2002). Comprehension monitoring can be taught by explaining what it entails, why it is important, and by modelling the strategy. Pretorius and Murray (2019) state three steps for teaching comprehension monitoring. These are: identifying when there is comprehension breakdown, identifying the cause of comprehension breakdown, and taking action to fix the comprehension problem.

3.6.6 Identifying text structure

Identifying text structure is about teaching learners how a text is organised. When learners develop awareness of how a text is organised, they are better able to follow its logical organisation, and even remember the text better and improve their comprehension levels (Meyer and Ray, 2011; Cain et al., 2004; Walter, 2004). A study by Walter (2004) showed a positive correlation between knowledge of text structure and reading comprehension. This is because the knowledge of text structure makes it easier for a reader to predict and follow events in the text and enables readers to establish patterns with the previous narrative.

For information texts, the teacher can use texts from learners' books to explain each text structure, model how to identify the text structure, and give activities' to leaners in groups, pairs and individually. Meyer and Ray (2011) group text structures of information texts into six categories: description, sequence or time order, problem-and-solution, cause and effect, collection, and compare and contrast. In Table 3.5, features of text structure and some of their signal words and expressions are presented, as stated by Meyer and Ray (2011).

Table 3.5 Text structures and their signal words and expressions (Meyer & Ray, 2011)

Information text structure	Signal words / expressions
descriptions	*attributes of*, *characteristics are*
sequence	*first*, *next*
problem-and-solution	**Problem:** *problem*, *difficulty*
	Solution: *solution*, *in response*
cause and effect	*because*, *therefore*
collection	*and*, *in addition*
compare and contrast	*in comparison*, *however*

Once learners have learned signal words for each text feature, they will be able to understand the text structure of various texts. For example, a teacher can ask them questions such as "What do you think is the structure of this text?" Why do you think so?" Sometimes different structures occur in the same text, for example, cause and effect can be embedded in the problem-and-solution text structure.

3.7 Reading phases for the strategies

When teaching reading strategies, it is best to start with cognitively less challenging strategies, following the order in which they are presented in Figure 3.1.

Research has shown that the most effective way to teach reading comprehension strategies is to integrate multiple strategies (Almasi & Hart, 2011; National Reading panel, 2000). Each strategy can be taught separately and practiced, and then integrated into reading so that applying the various strategies becomes a 'habit of mind'. Table 3.6 shows the reading phases in which each of the strategies can be applied.

Table 3.6 Reading comprehension strategies (adapted from Almasi & Hart, 2011)

Reading phase	Reading comprehension strategy
Before reading	• Clarifying difficult words • Activating background knowledge • Making predictions
During reading	• Making inferences and predictions • Identifying text structure • Identifying main ideas • Monitoring comprehension
After reading	• Checking if predictions were met • Identifying text structure • Formulating main ideas • Summarising

The reading comprehension strategies (Figure 3.1) can be grouped into three stages; *before*, *during*, and *after* reading (Klapwijk & van der Walt, 2011). All in all, Figure 3.1 shows that a strategy intervention is not only about teaching comprehension strategies, but also about creating a conducive learning context and helping learners transfer the strategies for them to become independent readers.

3.8 Reading comprehension strategy instruction

Strategy instruction involves integrating multiple reading comprehension strategies (Wigfield, Guthrie, Tonks & Perencevich, 2004). Graham and Kelly (2018) carried out a study to examine the effectiveness of early reading strategy instruction. The authors analysed 18 reading intervention studies (for Grades 1-4) in different contexts in developing countries. The results showed that early reading interventions can be effective in various contexts (including where little learning happens), and can improve learners' basic literacy aspects (i.e. ORF) and their advanced literacy aspects (i.e. reading comprehension). As the review shows that early reading interventions can work in a wide variety of contexts, including developing countries, one can assume that the results are applicable to the Namibian context. Although the interventions were found to be effective, they are not a panacea for reading challenges (Graham & Kelly, 2018). For an intervention to succeed, various aspects need to be considered such as teacher training, scripted teacher guides, and on-going in-classroom coaching. In Chapter 5 (§5.9), the effectiveness of scripted literacy instruction will be discussed. Coaching issues will be discussed in Chapter 6 when fidelity to the reading intervention of this study is described.

In teaching each strategy or a combination of strategies, a teacher should explain the strategy to the learners for them to develop awareness, and how it is applied, model the use of the strategy in front of learners, and allow learners to practice the strategies several times at different levels, that is, in groups, triads or pairs, and individually (Almasi & Hart, 2011; De Corte et al. 2001; National Reading Panel, 2000). Once strategies have been well taught and practised, they do not have to be taught all over again in each grade. In higher grades, teachers can check what the learners know about the strategies, give reading activities where they can use the strategies, or revise them if necessary.

3.8 Conclusion

This chapter provided a view of the broader theoretical and empirical framework pertinent to instructional practices for developing learners' ORF, vocabulary, and reading comprehension strategies. The chapter has particularly focused on issues such as reading instruction that can enhance learners' decoding skills and reading comprehension, and their practicality in different teaching and learning contexts. The reviewed literature was selected with the view to inform the framework for the current reading intervention study. The selected reading comprehension strategies have worked well elsewhere, and it is possible for the strategies to be implemented in the Namibian context. The literature reviewed shows that reading interventions for learners

with low language proficiency can be effective and it is possible to implement the intervention in different contexts. For the current study to be aligned with the theories presented here, the intervention needs to be well planned to produce similar positive results.

CHAPTER 4
RESEARCH METHODOLOGY

4.0 Introduction

This chapter describes the design process of this study from context analysis to the intervention. Firstly, I will describe the purpose of this study, the research questions, its research design and approach, and ethical aspects. Thereafter, I will describe the pilot study and its findings. Finally, I will describe how the main study was carried out in light of the pilot study results and the context analysis.

4.1 Purpose of the study

The purpose of this study was to develop, implement, and evaluate a context-based reading comprehension intervention in the Namibian educational context. The intervention started with a literature review (Chapter 2 & 3) and a context analysis (Chapter 5), and thereafter an intervention was designed based on the outcomes of the literature review and context analysis (Chapter 6). Thereafter an evaluation of the actual effectiveness of the reading intervention was done (Chapter 7). I followed a convergent data collection style during the intervention whereby quantitative and qualitative data were collected at almost the same time during the intervention period. The reasons for combining both quantitative and qualitative data are twofold: (i) Firstly, I wanted to better understand the quantitative results of the reading tests by incorporating the participants' views; (ii) and secondly, I wanted to gain insight into the participants' perspectives in the context of the intervention (Creswell, 2014).

4.2 Research approach

As indicated in Chapter 1 (§1.3.1), a modest interventionist approach was applied in which the six quality criteria for formative assessment as proposed by Nieveen (2007) were adopted to guide this study. These six quality criteria are: relevance of the intervention, consistency of the intervention, expected practicality, actual practicality, expected effectiveness, and actual effectiveness. The six criteria were categorised into three phases in this study (Table 4.1) as proposed by Plomp (2007). For each phase a set of sub-questions was formulated.

Table 4.1 Phases of the study (Plomp, 2007)

Phase 1	Phase 2	Phase 3
Context and problem identification	Design, development and implementation	Evaluation
• Relevance	• Consistency • Expected practicality • Actual practicality • Expected effectiveness	• Actual effectiveness
Pilot study and Baseline study	Intervention	Pre-Posttests and post-intervention interviews

During Phase 1 (literature review and context analysis), a heuristic-inductive approach was followed in which data were collected with the aim to establish patterns that would emerge from the data (Seliger & Shohamy, 1989). First, reading comprehension challenges and existing reading comprehension instructional practices in general and in Namibian schools in particular were investigated through literature review and context analysis. Thereafter, informed by the findings from the literature review and baseline assessments, a set of prototypes comprising reading comprehension activities for Grade 5 learners was developed.

For Phases 2 (Design, development and implementation) and Phase 3 (Evaluation), a prototyping approach was followed (Nieveen, 2007). A prototype is defined as "a preliminary version of the whole or a part of an intervention before full commitment is made to construct and implement the final product" (Nieveen, 2007: 90). The prototypes were developed through formative evaluation, in which interventions are designed, tested, and adjusted through various iterations. These prototypes were preliminary versions of teaching and learning activities to improve Grade 5 learners' reading proficiency. Five methods were used in the prototype development, namely self-evaluation, expert appraisal, walkthrough with teachers implementing the intervention, field test (or try-out), and micro-evaluation (Nieveen, 2007; Tessmer, 1993). In this study, prototypes were developed based on three iterations which were based on feedback from experts, participants, and my own reflections. In other words, the evolutionary prototypes were refined three times and evolved to the final product by applying the above mentioned six quality criteria (Nieveen, 2007). The development of the prototypes is described in more detail below.

Phase 1: This phase is concerned with the context and problem identification of a study. The first quality criterion that guided the context and problem identification phase was the *relevance of the intervention*. The relevance criterion determines whether there is a need for

the intervention and whether its design is "based on state-of-the-art (scientific) knowledge" (Nieveen, 2007: 94). The relevance of the intervention was determined through a context analysis of the Namibian educational context, a literature review, and a baseline study in which the Grade 5 learners' reading levels and the teaching and learning contexts were assessed. The purpose of the baseline study was to help in answering the relevance question in more detail. The research question and four sub-questions that were addressed in the context and problem identification phase (i.e. Phase 1) were informed by the relevance criterion and read as follows:

Research Question 1: ***What are the characteristics of the English reading levels and context of Grade 5 learners in Namibia?***

> *1a. What kinds of reading comprehension challenges are displayed by Grade 5 learners?*
>
> *1b. How do teachers teach reading comprehension strategies?*
>
> *1c. Is there a need for an intervention to improve Grade 5 learners' reading comprehension?*
>
> *1d. What are the characteristics of teaching and learning activities that could lead to an improvement of the situation found in the context analysis?*

Research Question 1 is dealt with in Chapter 5.

Phase 2: This phase concerns the design, development and implementation of the educational intervention. As shown in Table 4.1 the research questions that were addressed in this phase were founded on the following four quality criteria: Consistency, Expected practicality, Actual practicality and Expected effectiveness. The research questions and the criteria on which they are based will be further explained below. The first quality criterion, *consistency of the intervention*, involves determining whether the intervention is 'logically designed'. The research questions related to this criterion were:

Research Question 2: ***Is the intervention logically designed?***

> *2a. Which aspects of teaching reading are important to include in the design?*
>
> *2b. Does an intervention that emphasises the teaching of reading comprehension strategies fit within the existing Upper Primary syllabus in Namibia?*
>
> *2c. Will it address the reading problems revealed in the context analysis?*

The baseline study data were used to inform the design of the intervention before it was carried out. The consistency of the intervention was evaluated in the design phase (cf. Chapter 6). An expert appraisal was used whereby the designed intervention was sent to two experts from the field (research supervisors) to evaluate the design. Based on their feedback, adjustments were made to the intervention design. This was the first (small) iteration.

The second quality criterion is the *expected practicality*. This criterion assesses whether the intervention is expected to be usable in practice. The development stage during which the expected practicality can best be evaluated is the stage where part of the intervention has been developed to the extent that it can be used by the target group in practice. An example of a design that is in this development stage is a course outline or a teacher guide for the first few weeks of the course. In the current study, a *Teachers' Guide* was developed. The *Teachers' Guide* included teaching and learning materials and also provided set texts to use, given the constraints of resources in the schooling context. The questions that addressed expected practicality were:

Research Question 3: ***Is the intervention expected to be usable at Grade 5 level?***
> *3a. Is the Teachers' Guide sufficiently clear to the users?*
> *3b. Are the number and level of activities acceptable to teachers?*
> *3c. Can the intervention fit within the existing Grade 5 teaching timetable?*

The teachers who were part of the intervention were asked to comment on the design and materials, and their feedback was incorporated. This was the second (small) iteration. For further details of this iteration see Chapter 6 (§6.2).

The third quality criterion is the *actual practicality*. The actual practicality addresses whether the intervention is indeed usable in practice. This criterion was assessed halfway through the intervention. Questions that addressed actual practicality were the following:

Research Question 4: ***Is the intervention usable at Grade 5 level?***
> *4a. Is the level of the content too difficult or too easy for the learners and teachers?*
> *4b. Can the teachers cover all the given topics within the given lesson times?*
> *4c. Do learners have sufficient time to do their homework?*
> *4d. Are the teaching and learning materials for the intervention sufficiently available?*

4e. Is there fidelity to the reading intervention programme?

A micro-evaluation (or classroom observations) where part of the material and strategies are tested in practice was done to assess the actual practicality. Combined with the assessment of the expected effectiveness (see below), this was the third iteration. For further details of this iteration see Chapter 6.

The fourth criterion is the *expected effectiveness*. The expected effectiveness determines whether the intervention is expected to result in the desired outcomes. The questions that addressed the expected effectiveness of this intervention were:

Research Question 5: *Is the intervention expected to result in improved reading comprehension of Grade 5 learners?*

    5a. Does the intervention have a positive effect on learners' reading contributions in class?

    5b. Is there a change in the teachers' classroom practices?

    5c. Is a change of attitude noticeable amongst learners with regard to academic reading?

    5d. What are the teachers' perceptions about teaching comprehension explicitly as suggested in the Teachers' Guide?

    5e. What are the teachers' feelings about the uptake from their learners?

Classroom observations and interviews with learners and teachers were used to investigate the expected effectiveness. In this study, the expected and actual effectiveness were assessed separately, but their results were combined to inform the third iteration. For further details see Chapter 6.

Phase 3: In this phase the evaluation of the intervention is conducted. This phase is guided by the sixth and last criterion: the *actual effectiveness*. This criterion determines whether the intervention results in the desired outcomes. The effectiveness of the intervention was assessed through a summative evaluation. To assess the effectiveness of the intervention, a posttest was administered once the intervention had finished. The evaluation of the intervention at this stage considered the results of the pre- and post-reading comprehension tests. The questions to evaluate the final intervention were the following:

Research Question 6: ***Did the reading comprehension intervention result in the desired outcomes?***

> *6a. How did the reading comprehension intervention affect teachers' attitudes towards the teaching of reading comprehension strategies to Grade 5 learners?*
>
> *6b. How did the reading comprehension intervention affect Grade 5 learners' reading comprehension levels?*

The testing of the prototypes followed a quasi-experimental design to assess the actual effectiveness of the intervention. In a quasi-experimental design, an intervention that is not based on random sampling is tested to establish its effectiveness (White & Sabarwal, 2014). In this case, Grade 5 learners in existing classes participated in the study.

Van den Akker (1999: 10) describes effectiveness as a situation whereby the intervention's experiences and outcomes "are consistent with the intended aims". One of the measures of effectiveness is statistical significance where one looks at whether there were significant differences in performance before and after the intervention, and between control and intervention groups. Four schools were involved in this quasi-experiment, which I refer to as Group A (two intervention schools) and B (two control schools) in Figure 4.1.

Group A O_1--------------------------X--------------------------O_2

_____

Group B O_1_____O_2

Key:

X = Treatment

O_1 = Pre-test
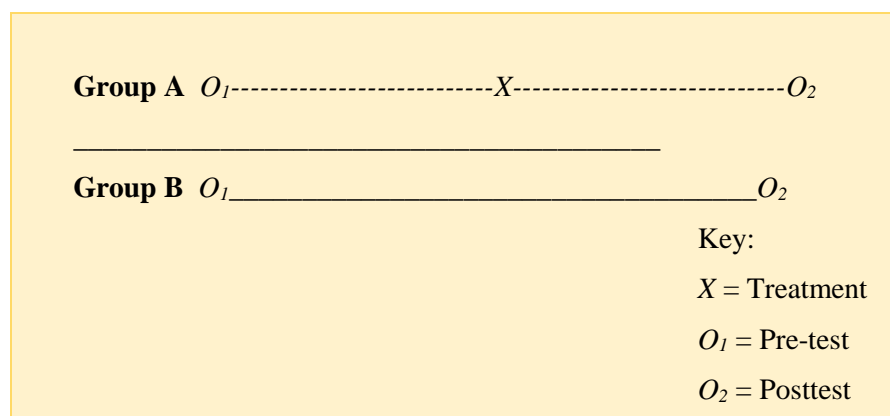
O_2 = Posttest

Figure 4.1 Quasi-experimental design (Creswell, 2014)

Figure 4.1 shows the quasi-experimental design used in this study. Both Group A and B are intact groups which were given pre-tests and posttests in reading assessment. Given the amount of time that was expected to go into the design, delayed posttests were also administered, in

order to try and measure the effect of the intervention after some time had passed. Because of time constraints, the test for word recognition was not delayed, whereas the tests for Oral Reading Fluency (ORF) and reading comprehension were delayed for two and three weeks respectively. Only Group A (the intervention group) received treatment in reading. For further details of the actual effectiveness of the intervention, see Chapter 7

This study was longitudinal in nature (the intervention itself was carried out over a 4-month period). A longitudinal study involves following the development of a group of people in order to collect data from the same group "at different points in time" (Dörnyei, 2007:82). Within the quasi-experimental design, an embedded mixed methods design was used, where I incorporated quantitative and qualitative data in the intervention (see Chapter 1, §1.2). A mixed methods approach involves the integration of both the elements of quantitative and qualitative approaches from data collection to data interpretation (Plano-Clark, Huddleston-Casas, Churchill, O'Neil-Green & Garrett, 2008).

4.3 Ethical considerations

Researchers are advised to conduct their studies responsibly by considering the needs of the participants and legal issues in their discipline (Social Research Association, 2003; Dörnyei, 2007). Following Creswell (2014), the Social Research Association's (2003) suggestions, and university regulations, the ethical issues I followed are briefly described here. After the research proposal was approved, I firstly obtained ethics approval from the Ethics Committee at the University of South Africa (cf. Appendix 1). Prior to the data collection, I sought written permission from the Ministry of Education, Arts and Culture to collect data from the five schools (Appendix 2). I also obtained written permission from the schools' principals (Appendix 2). After permission had been granted to collect data, the next step was to approach the participants (learners, teachers, and principals) to explain the purpose of the current study and request them to sign Assent Forms and Informed Consent Forms voluntarily (Appendix 3). Before the learners signed Assent Forms, their parents were requested to sign Informed Consent Forms because the learners were minors. I tried to build trust by informing the participants about the data collection procedures and that their participation and results would remain anonymous.

During data collection, I once again reminded participants about the purpose of the study, how data would be used, what the benefits for participating would be, and that they had the right to

withdraw from the study at any stage of the experiment. I ensured that I would minimise disruption for the school programmes by not interfering with the flow of school programmes.

In the study, I respected the anonymity of the participants by not using their names, rather referring to them, for example as Teacher 1 or School 1 principal. After analysing the data, I shared the study results with the Ministry of Education, Arts, and Culture through a meeting as it is one of their conditions for granting permission to collect data from the schools. I also shared the results with the participating schools and other researchers.

4.4 The research instruments and procedures

There were five research instruments used in this study (Appendix 4), of which three were literacy assessment instruments. The three literacy assessment instruments were selected to assess the reading skills of the Grade 5 learners (Figure 4.1), viz. a word reading test, an oral reading fluency test, and a reading comprehension test. These instruments, and the data collection procedures, will be explained below (§4.4.1 – 4.4.5).

4.4.1 The Burt Word Reading Test

The Burt Word Reading Test (BWRT) was used to establish learners' word recognition ability (decoding). As discussed in Chapter 2, word reading is regarded as a major component of decoding ability (§2.3.1). The BWRT was developed in 1974 in Scotland using a sample of 2, 200 primary school learners (Scottish Council for Research in Education, 2007). Although the test was developed over 40 years ago, it is still useful today as it has been reassessed and standardised over the years. The test was developed for English home language (HL) speakers, between 6 – 13 years. Although there is no evidence of its standardisation on English second language (L2) learners, it can still be used to test English L2 learners as it is helpful in establishing learners' word recognition (or decoding) skills of words of increasing length and complexity (sight and decodable words). The age norms for the BWRT will not be applied to the results of learners in study because ages are normed only for HL English speakers.

The BWRT is an untimed test that comprises 110 words, arranged in decreasing font size and increasing word difficulty; it starts with short, common, high frequency words (it includes sight and decodable words), which then decrease in frequency levels and increase in length. The test is designed to be administered to learners individually (one-on-one). Each learner is required to read the words on the card orally (from left to right), until the learner has read 10 consecutive

words incorrectly. The words that have been read correctly are then counted and converted into a reading age (in years and months) using the BWRT table.

In the ESL context, particularly in the Namibian context where the test is not standardised, comparing the BWRT score with learners' reading age is unrealistic. It should be noted that the BWRT assesses only word recognition ability out of context (i.e. in a list format) and not comprehension. A higher score on the test by a learner indicates increased decoding skill but does not necessarily imply higher levels of reading comprehension for the learner. Based on evidence from New Zealand, the BWRT is considered to be valid because there is a reasonable correlation between the Burt scores and reading comprehension, and it also shows that the Burt has test/retest reliability of scores (Ministry of Education New Zealand, 2019). The BWRT has a test/retest reliability higher than .95 and internal consistency higher than .96 (Gilmore, Croft, & Reid, 1981). Chapman, Tunmer, and Prochnow (2001) report that the BWRT has a high reliability coefficient of .97.

4.4.2 The Oral Reading Fluency test

An ORF test is used to assess learners' fluency levels when reading words in context (Wright, 2013; Nation, 2009; Hasbrouck & Tindal, 2006). This is a contextual decoding test that complements the out-of-context (list format) word reading decoding test. Since ORF is the bridge between decoding and comprehension (Pretorius & Spaull, 2016), learners need to develop sufficient fluency in reading to benefit from reading texts. According to the National Reading Panel (2000), learners with low reading fluency levels can have difficulties in comprehending their reading materials. According to international standards, learners reading less than 40 words correct per minute (WCPM) in English are non-readers and can hardly understand what they read (Draper and Spaull (2015).

In the ORF test, learners are asked to read aloud, individually, for one minute on an unpractised grade-level prose text (Hasbrouck & Tindal, 2006). It is recommended that the ORF texts for older learners from Grade 3 should be at least 250 words long and the texts should not have illustrations (Wright, 2013). However, for L2 learners, the reading speed is usually slower and a text of less than 200 words can be used. In the pilot study, the ORF text comprised 187 words and none of the participating learners even got close to the 187th word in the ORF test (§4.4.7.2).

The ORF text used in this study was about how a leopard got its spots and had an image of a leopard on the top right side of the page. Learners were asked comprehension questions up to the point where they stopped reading. The readability statistics and the vocabulary profile of the text are provided in Table 4.2. The Flesch–Kincaid readability test (available in Word) was applied to test the difficult or ease of the texts in this study. The readability tests were developed in the USA to test readability of English texts (Dubay, 2004).

In Table 4.2 two readability outcomes are reported: the Flesch reading ease and the Flesch–Kincaid grade level (Dubay, 2004). The Flesch reading ease index was originally developed to evaluate the readability of military manuals in the United States (US), and it describes a reading scale from 1 to 100. Currently it is being used outside the context of US military to check readability of a wide variety of texts. The higher the index, the easier the text is to read. For example, scores between 0 and 30 show that the text is very difficult and is estimated to be suitable for college students; whereas scores between 80 and 100 show that the text is suitable for early grades. The Flesch–Kincaid grade level is used in the field of education to present the readability scores in relation to the US grade levels. For example, a score between 3.0 and 3.9 indicates that the text is suitable for Grade 3 learners (See Table 4.2). I established the readability of the texts in this study by uploading the texts on the Flesch Kincaid Calculator which provides a Flesch Readability Ease score and the corresponding Flesch-Kincaid grade level.

Table 4.2 Text features of the ORF text

Readability statistics		Vocabulary profile	%
Number of words	187	1,000 word level	83.8
Average words per sentence	9.8	2,000 word level	11.1
Average characters per word	4.0	4,000 word level	3.0
Passive sentences	5%	6,000 word level	1.0
Flesch reading ease	87.3	8,000 word level	1.0
Flesch-Kincaid grade level	3.5	Academic Word List	0.0

The high Flesch reading ease score in the ORF text indicates that it should be relatively easy for Grade 5 L2 learners to read as it is equivalent to a Grade 3 text in the US. In the Namibian context, the text can be suitable for Grade 4 and 5 learners since English L2 learners learn to read a bit later than native speakers. Another reason for the suitability of the text for Grade 5

learners in the Namibian context is that most of the words in the text (about 95%) are high frequency words within the 1,000-2,000 word levels which, by Grade 5, should be known to these learners (see Table 4.2).

4.4.3 The reading comprehension test

The reading comprehension test and its marking scheme were adopted from the Progress in International Reading Literacy Study (PIRLS) 2006 and 2011 reports and the National Education Evaluation and Development Unit (NEEDU) in South Africa.

Before the final test used in the main study was adapted, I piloted two tests (Test 1 & Test 2) to establish the suitability of texts used in the two tests. Test 1 was adopted from PIRLS, and it comprised a combined total of 34 marks for literal and inferential reading comprehension. The PIRLS test with its marking scheme was adopted from the PIRLS 2006 and 2011 report (the two texts that are released in the public domain after each PIRLS cycle). The test had two texts (Text A & B) comprising a total of nine marks for literal reading comprehension and 25 marks for inferential reading comprehension, totalling 34 marks. Test 2 was used by NEEDU in South Africa to assess South African Grade 5 learners' ESL reading comprehension. The test comprised a narrative and an information text with a combined total of seven marks for literal and 13 marks for inferential reading comprehension, totalling 20 marks.

The final reading comprehension test comprised one narrative (Text A) and two information texts (Text B and C) (See Table 4.3 & Appendix 4). Text A was a narrative text about how the San in Southern Africa used to hunt and gather their food. Text B was an information text about the life of a San boy in which the nomadic life of the boy and his family is described (both these topics are not unfamiliar to Namibian learners). Text C was an information text about making experiments to establish how small creatures such as ants, pill bugs, and worms find their food.

I tested the three texts for their reading ease using the Flesch readability ease test (cf. §4.4.2 of this chapter) and their vocabulary profile using the British National Corpus (BNC) and the Corpus of Contemporary American English (COCA) profile option. The BNC-COCA shows vocabulary frequency bands ranging from 1,000-25,000 words. Table 4.3 shows the readability statistics and vocabulary profile of the three texts.

Table 4.3 Text features of the reading comprehension texts

Readability statistics	Text A (NEEDU)	Text B (NEEDU)	Text C (PIRLS)
Number of words	283	251	740
Average words per sentence	13.4	12.5	10.9
Average characters per word	4.2	4.0	3.9
Passive sentences	9.0%	0.0%	8.0%
Flesch reading ease	77.7	86.5	93.1
Flesch-Kincaid grade level	5.7	4.3	2.9
Vocabulary profile			
High frequency: 1,000-3,000 word level	92.5%	90.1%	93.5%
Mid-frequency: 4,000-9,000 word level	4.4%	7.7%	6.4
Low frequency: 10,000+ word level	2.9%	2.3%	0.0%

According to the Flesch Reading Ease index (Table 4.3), all the three texts should in principle be relatively easy to read and appropriate for Grade 5 level. Text C has the highest Reading Ease index score, but being an information text, it also has lots of visuals and procedures to follow. Generally, all the texts appear to have relatively short sentences and words, which make reading easier as sentences are shorter in lower grades. Additionally, the texts are easier to read and understand because they mainly comprise the active voice. The occurrence of a large number of passives in a text is regarded as a measure of more complex language.

Table 4.3 shows that the three texts mainly comprise common core English words at the 1,000 and 3,000 words levels, suggesting that the vocabulary used in the texts is within the range of the learners' grade level. The words from low frequency levels between 10, 000 and 20, 000 word levels are very few. There were four low frequency words in Text A (i.e. veld, giraffes, ostriches, and eland) and two in Text B (i.e. veld and melons). The low frequency words in Texts A and B would be familiar words in the Namibian context.

4.4.4 The Learner Reading Questionnaire

To better understand the learner perspective and the teaching and learning context, 25 closed-ended items were included in a questionnaire intended for the learners, dealing with five different aspects of reading, viz. learners' reading attitudes, reading background, reading habits, reading strategies, and also access to reading materials. The Learner Reading Questionnaire was designed for the study and included items adapted from two sources, namely the PIRLS 2016 Student Questionnaire (National Center for Education Statistics (NCES), 2016) and the PISA Student Questionnaire (Organisation for Economic Co-operation and Development (OECD), 2013).

4.4.5 The interviews

Two semi-structured interview guides were used, one for teachers and one for the school principal, to gauge their perspectives (face-to-face) about the learners' language and reading skills, reading resources, what they know about reading, how they teach reading, and how they promote a reading culture in their schools. The interview items for teachers were based on their perceptions of their learners' performance in reading comprehension, learners' language level, the importance of reading skills, their role in promoting reading, availability of reading resources, the teaching of reading comprehension strategies, and their own reading habits. The principal's interview items were based on the learners' reading ability, availability of reading materials, how teachers promote a reading culture, and their role in promoting a reading culture in their schools.

The instruments presented in this section were tested in the pilot study and changes to the instruments will be explained in the pilot study section. The final versions of the research instruments are presented in Appendix 4.

4.5 Pilot study

This section reports on the implementation and results of the pilot study that was carried out in a single school in the small town of Katima Mulilo in the Zambezi Region, in March and April 2018. The purpose of the pilot study was to assess the effectiveness of the five language assessment instruments described in section 4.4, to establish the validity and reliability of the instruments and improve the items, format and procedures where necessary, before using them in the main study. The five instruments were described above (§4.4.1 – 4.4.5) and will therefore not be further described here. Importantly, the pilot study also served as part of the context analysis.

4.5.1 School context

Only Grade 5 learners in a single school with Grade 0-10 classes participated in the pilot study. The school was randomly selected from five primary schools in Katima Mulilo. The pilot study school was not part of the schools that participated in the main study but, like the schools in the main study, the pilot school was situated in a low socioeconomic community. The classrooms at the school seemed to be overcrowded as there were over 40 learners in the classrooms with a capacity for 35 learners, which may contribute to learning problems. The

school did not have enough chairs and desks for all the learners, and learners without chairs at the school were normally encouraged to bring their own chairs from home. The school did not have a school library, neither were there reading corners in the classrooms or book collections for learners to borrow books, similar to the main study schools.

4.5.2 The participants

A total of 38 learners comprising 22 girls and 16 boys between the ages of 10 and 12.7 years participated in the pilot. One Grade 5 class was randomly selected and all the learners in the class were requested to participate in the pilot study. The parents of three learners did not sign Consent Forms therefore these three learners were not assessed. Two teachers were selected (an English teacher and a Social Studies teacher) for interviews. The English teacher was purposefully selected because she was the only teacher for Grade 5, and the Social Studies teacher was recommended by the school principal because she was committed and hardworking.

4.5.3 Pilot study procedures

In all, 38 of the 41 learners in the Grade 5A class were assessed. Ten of the 38 learners did not do all the assessments because they were absent from school when some of the assessments were conducted. The ten learners were included in the pilot data analysis for the assessments in which they participated. The instruments were administered within six days, in the morning during the first school trimester (March and April 2018). All assessments were done in the morning because learners are not required to come back to school in the afternoon.

Learners in the pilot study were assessed in March 2018 and interviews with teachers and the school principal were conducted in early April, two weeks after the school break. On Day 1 and Day 2, I administered the ORF test in an office to the learners individually. Each learner was asked to read a narrative text aloud for one minute. I used a stopwatch to measure time, with one copy of the text for me and one for the learner. Only English was used in administering the test because learners seemed to follow instructions. On Day 3 and 4, I administered the BWRT to the learners individually in English. The group paper-and-pencil reading comprehension tests in the pilot (Test 1 and Test 2) were both administered by myself to the whole class on Day 5, using only English for explaining the test. One of their teachers was present when the test was administered. The learners wrote the two tests in their classroom,

and learners were advised not to copy from each other or to make a noise during the assessments.

Test 1 took learners 1 hour and 30 minutes to complete. Test 1 should have been set for 1 hour and 20 minutes (40 minutes per text) as per PIRLS instructions, but this was overlooked in the pilot study. After writing Test 1, the learners were given a 30-minute break before Test 2 was administered. When learners were asked to write Test 2, some appeared not interested in writing the second test although they had been informed earlier that they were going to write two tests. Although Test 2 was set for 40 minutes, the learners completed it within 30 minutes; which may suggest that they were disengaged from the task and not bothered too much about their performance.

On Day 6, I administered the Learner Questionnaire (paper-and-pencil assessment) to the whole class. Learners completed each of the 22 questionnaire items one-by-one, after they were explained (and when necessary, translated into the learners' L1) before moving to the next item. This was done to ensure a better understanding of the questionnaire items and for them to complete the items at the same pace. Their L1 was only used to clarify items in case learners were unable to understand items in English. I informed them not to look at each other's responses. The questionnaire took longer to complete than anticipated (about 30 minutes) as some learners did not know the meaning of some of the words in the questionnaire such as 'Agree' and 'Disagree' and I had to explain the words.

After the two-week school break, interviews with the two teachers and the principal were done individually in the morning on Day 7 of data collection. I first interviewed the Social Studies teacher, followed by the English teacher, and finally the principal. The results are presented in the order in which the research instruments were administered, except for the BWRT and the ORF because the BWRT should have been administered first.

4.5.4 Scoring and analysis procedures

Data capturing and analysis was done using the Statistical Package for the Social Sciences (SPSS) version 24. For the BWRT, only the words that were read correctly were counted to establish a raw word recognition score.

For the ORF test, I marked all errors made by the learner while they were reading for one minute. Thereafter, I subtracted the errors from the total number of words read to obtain the score of WCPM for the learner (Nation, 2009; Hasbrouck & Tindal, 2006).

The reading comprehension tests were marked twice using the marking scheme provided by the test designers (§4.4.3). In the first round of marking, I noted the marks on a separate page, and after two days, I marked the tests again writing the scores on the answer sheets. The marks of each test were written on a separate sheet and the answer sheets were compared to establish whether there were some discrepancies. In instances of inconsistencies, I examined the cause and resolved it. The scores for all the reading tests (the BWRT, ORF, and reading comprehension) were captured in SPSS, version 24.

For the Learner Reading Questionnaire, Likert scales were used to score each of the questionnaire items. As indicated by Dörnyei (2007: 199), each response was quantified using 1-5 point allocation[9]. The questionnaire items for positive statements were positively keyed whereas those for negative statements were negatively keyed, and the points were allocated as indicated in Table 4.4.

Table 4.4 Learner Reading Questionnaire point allocation

Responses	Positively keyed items points	Negatively keyed items points
Strongly disagree	1	5
Disagree	2	4
Neither agree nor disagree	3	3
Agree	4	2
Strongly agree	5	1

In order to allocate a sub-score to each questionnaire category (i.e. reading attitudes, reading background, reading habits, reading strategies, and access to reading materials), I added raw scores for all items in each category (Table 4.5). The totals of possible scores from the relevant items in each subcategory were computed; the reading attitudes category had the highest sub-score of 49 (Table 4.5). The items that are italicised in Table 4.5 (for the reading background, reading strategies, and access to reading materials) were not quantified because they are nominal scales. Only item 10 (about problems learners have when reading) for reading

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[9] It should be noted that some questionnaire items had less than five options, so the highest possible point allocation for some items was less than five points.

background was not quantified, whereas for access to reading materials only item 17 (about whether there are a lot of interesting English books in their library) was quantified.

Table 4.5 Learner Reading Questionnaire items

Learner Reading Questionnaire	Items	Sub-score
Reading attitudes	2, 4 – 8, 12, 15, 16, 18	4 – 49
Reading background	3, *10*, 11a – c, 13	5 – 25
Reading habit	9, 19, 21	5 – 15
Reading strategies	*14*	__
Access to reading material	17, *20, 22*	5

The items for the reading attitudes were clearly overrepresented and the reading strategies items were underrepresented, suggesting a need to adjust the questionnaire items.

For the interview items, a content analysis was done to the responses of the two teachers and the principal. Firstly, I transcribed the interviews, and then read through each transcribed interview several times to become familiar with the details. Thereafter I highlighted similar ideas across the interviews using different colour highlighters, and then clustered them. I then allocated a theme related to this study to each group of responses. I refined the allocated themes several times until they covered all the details. The following six themes were generated from the teachers' and the principal's responses: 1. Teachers/principal difficulty in reliably assessing the levels at which their learners perform; 2. Teachers showing awareness of the value of reading skills; 3. Learners not being motivated much to read; 4. Limited reading materials; 5. Limited knowledge about reading and how to teach it; and 6. Teachers not reading for pleasure.

4.5.5 Statistical analysis

The quantitative data that the pilot study yielded were analysed using both descriptive and inferential statistics. Descriptive statistics describe features of collected data by providing summaries about data sets such as mean, standard deviation, and performance at different percentiles. Inferential statistics are used to establish whether the observed differences in learners' performance can be generalised to the entire population (i.e. all the Grade 5 learners at the pilot school) by examining significance in relationships or differences between variables or groups, using statistical tests (Dörnyei, 2007). The Kolmogorov-Smirnov test of normality was used to test for normal distribution of the data. For the normally distributed data (BWRT, ORF, & Test 2), the following parametric tests were used: ANOVA, an independent and paired samples t-test, and a chi-square test. For the non-normally distributed data (Test 1), Spearman's

Rank-Order Correlation or Spearman's correlation in short (represented by r_s) was used. Spearman's correlation was also used due to the small sample size (38).

4.6 Results of the pilot study

This sub-section presents the results of the pilot study and the reliability index for each instrument. According to George and Mallery (2003), Cronbach alpha values should be viewed as follows: ≥ .90 – Excellent; ≥ .80 – Good; ≥ .70 – Acceptable; ≥ .60 – Questionable; ≥ .50 – Poor; ≤ .50 – Unacceptable. For a classroom examination, a reliability coefficient of .70 or higher is desirable (Wells and Wollack, 2003).

4.6.1 Pilot decoding results

Table 4.6 shows the pilot learners' means in terms of overall BWRT score, real age, BWRT age, minimum and maximum scores, age groups, and gender. The table also shows the ORF means in terms of overall score, errors, and words read correctly. The Cronbach reliability coefficient for the BWRT in the pilot study was a high .97. No learners scored a zero in the BWRT, and only one learner (representing 3%) scored a zero in the ORF test.

Table 4.6 shows that, with an average BWRT mean of 52.9 the learners generally had poor word recognition ability. As the total number of words on which learners were tested was 110, a score of 52.9 shows that the learners were not able to recognise the majority of the words. Even the best performing learners at the 75th percentile had low word recognition with a mean of 63. The table also shows that the BWRT age mean ranges from 5 years 8 months to 13 years 7 months.

Table 4.6 shows that, at face value, the grade age learners of 10 years old (66%) outperformed other age groups on the BWRT. Since there were only 2 learners who were 12 years old, they were combined with the 11-year-olds. An independent samples *t*-test showed that there were significant differences between the scores for the 10-year-olds and the learners above 10 years (t (29) = 3.44, p = .002). Table 4.6 shows uniform performance in word recognition between female and male learners.

Table 4.6 BWRT and ORF results

BWRT (n=31) ORF (n=35)	BWRT mean score and (SD)	Real age mean	BWRT age mean	Total words read mean	Total errors mean	ORF: Words read correctly mean and (SD)
Range	52.9 (19.0) 11-104	10.4 10-12.7	8.3 5.8-13.7	70.0 0-147	5.8 0-15	64.2 (31.2) 0-145
Percentiles:						
25th						49
50th	41.0					63
75th	49.0					77
	63.0					
10 year olds (n=19)	60.3 (18.9)	10.4	8.9	77.0	4.9	72.1
11/12 year olds (n=12)	41.0 (12.3)	11.5	7.2	56.6	7.6	49.0
Females (n=16)	52.8 (22.9)	10.4	8.3	71.6	5.7	65.9
Males (n=15)	52.9 (14.5)	10.4	8.1	68.0	6.0	61.9

A similar pattern of poor reading is observed in ORF. Because ORF is a timed test, the Cronbach reliability test cannot be applied to it. Table 4.6 shows that on average the Grade 5 learners were reading very slowly, and at a similar level as Grade 2 English HL readers (Hasbrouck & Tindal, 2006). Only three learners were reading at English HL grade level. One learner was even unable to read the title of the ORF text, and scored a zero.

Similar to the BWRT results, we see better performance by learners whose age is grade appropriate. The *t*-test results showed a significant difference between the two age groups (i.e. 10-year-olds and older learners) (t (28) = 2.39, p = .024). Table 4.6 shows that girls were reading slightly faster than boys, but the *t*-test showed no significant differences in ORF between the genders (t (33) = .39, p = .700).

4.6.3 Reading Comprehension tests

In all, 36 learners wrote the two pilot tests. The reliability coefficient for Test 1 (T1) was .86 and for Test 2 (T2) it was .74. For ease of presentation, all the raw scores have been converted to percentages. Table 4.7 shows mean percentages (literal, inferential, and total reading comprehension scores) and standard deviation (SD) for the two tests, and also for age groups and gender.

Table 4.7 Pilot reading comprehension scores

	T1 Lit.	T1 Infer.	T1 Total	T2 Lit.	T2 Infer.	T2 Total
All (n=36)	45.9	20.5	27.2	48.0	21.6	31.9
	(24.6)	(15.9)	(17.1)	(24.4)	(12.9)	(15.7)
Percentiles: %						
25th			14.7			15.0
50th			23.5			35.0
75th			40.4			45.0
10 year olds (n=24)	54.6	25.8	33.4	56.5	24.7	37.0
11/12 year olds (n=12)	28.7	10.0	14.9	30.9	15.4	21.6
Females (n=20)	47.2	20.4	27.5	45	23.5	32.2
Males (n=16)	44.4	20.7	27.0	51.0	19.2	31.5

The learners performed poorly on both Tests (see §2.9 of Chapter 2 for a description of reading success). Performance was similar across the two tests, with a mean total score of 27.2% for Test 1 and 31.9% for Test 2. There were no zero scores in both tests. Even the best performing learners at the 75th percentile performed well below 50%. Test 2 was shorter and the learners finished the test earlier than the expected time, suggesting that it might have been easier for them than Test 1, on which they scored a bit lower.

The analysis of the items in both tests showed that there were no outliers on the items, except for item 24 in Test 1. The item was based on inferential reading and none of the participating learners came to the right answer. Generally, the learners performed far more poorly on inferential reading than literal items, even though performance at the literal level was also poor.

As in the ORF and BWRT assessments, the grade age group at 10 years performed better than the older learners in both tests. The *t*-test results showed that performance between the age groups were statistically different in both Test 1 and Test 2 (t (33) = 4.55, p = .000 and t (32) = 3.59, p = .001, respectively).

Table 4.7 shows that at face value girls performed slightly better in both tests, but similar to the decoding skills, these differences were not statistically significant (t (34) = .084, p = .934 and t (34) = .130, p = .897 respectively), suggesting that there was no gender gap in reading comprehension in the pilot group.

4.6.4 Relationship between assessments scores

Because the data were not normally distributed (§4.5.5), nonparametric Spearman's rho was applied to determine correlations between scores of the ORF test, the BWRT and reading comprehension. There are three specific purposes of using a correlation; to establish whether there is a relationship (i) between the decoding subtests, (ii) between decoding skills and comprehension skills, (iii) and between the performances on the two reading comprehension tests.

Table 4.8 Correlations between reading comprehension, ORF, and BWRT

	T1 total	T1 lit.	T1 infer.	T2 total	T2 lit.	T2 infer.	ORF	BWRT
T1 total	-		-	.85	.73	.79	.67	.63
T1 lit.		-	.76	.78	.65	.72	.63	.56
T1 infer.			-	.79	.66	.74	.63	.55
T2 total				-	-	-	.75	.67
T2 lit.					-	.65	.67	.65
T2 infer.						-	.68	.59
ORF							-	.74

All correlations highly significant at the .001 level (2-tailed).

Table 4.8 shows highly significant positive correlations between ORF, BWRT and literal and inferential reading comprehension in Test 1 and Test 2. The highest significant correlation is between the overall scores for comprehension Test 1 and Test 2 ($r_s = .85$, $p = .000$), suggesting that the two tests produce similar results, and therefore either one of them can be used to assess reading comprehension.

4.6.5 Learner Reading Questionnaire

In all, 35 learners completed the questionnaire. The Cronbach reliability coefficient of all the questionnaire categories combined was .75. The reliability for the individual questionnaire categories was very low, except for the reading attitude items. The reliability coefficient of reading attitudes was .79, for reading background it was .15, for reading habits it was .26, for reading strategies it was .37, and .46 for access to reading materials. The low reliability of the reading background and reading habit may have resulted from the fact that very few items were used or the possibility that individual items in these categories were not very reliable.

4.6.5.1 Learners' reading attitudes, background, habit, and access to reading material

Table 4.9 shows the means of the four questionnaire categories that were computed as percentages, based on the total possible score from the relevant scale items in each subcategory (§4.5.4). Following the PIRLS 2016 assessment framework, I will use an example of the reading attitudes scores to briefly describe how the questionnaire scores were calculated. A score of 50% and below shows that learners *do not like reading* (or have reported a poor reading attitude). Scores on the scale between 60 and 74% were interpreted as learners *somewhat like reading* (or have a fairly good reading attitude). A score of at least 75% was interpreted as learners *very much like reading* (or have a positive reading attitude).

Table 4.9 Learner Reading Questionnaire scores in percentages

Category	Mean	Number of learners	SD
Reading attitudes	75	32	13.3
Reading background	63	26	11.1
Reading habit	67	35	14.3
Access to reading material	79	35	24.0

Table 4.9 shows that the learners reported to like reading very much, they claimed to have a fairly good reading background and reading habits, and they also reported having access to a lot of reading materials. These scores suggest that the learners might be motivated to read. Unfortunately, since only the reading attitudes reliability coefficient was acceptable, the results of other reading categories need to be interpreted with extreme caution. Changes need to be made to the items and/or inform the participants about the expectations for completing the items during the questionnaire administration (§4.6.8).

Table 4.10 shows that, at face value, the grade age learners at 10 years had a higher mean score on the reading attitudes and reading background. However, Pearson's chi-square results showed that there were no significant differences between the age groups in all the questionnaire categories. The chi-square results were X^2 (28, N = 32) = 24.339, p = .664 for reading attitudes; X^2 (18, N = 26) = 21.444, p = .258 for reading background; X^2 (16, N = 35) = 18.481, p = .296 for reading habit; and X^2 (8, N = 35) = 8.094, p = .424 for access to reading materials.

Table 4.10 Learner Reading Questionnaire scores, percentage means, per age group and gender

	Reading attitudes	Reading background	Reading habits	Access to reading material
Age				
10 (n = 22)	78.4	64.94	65.45	80.91
11 & 12 (n = 13)	68.83	60.44	69.74	76.92
Gender				
Females (n = 20)	75.40	61.07	68.33	80.00
Males (n = 15)	74.64	66.55	65.33	22.47
Total score	75.06	63.38	67.05	79.43

For gender, the descriptive statistics on Table 4.11 show small differences in means between female and male learners. The Pearson's chi-square results showed no gender differences in all the questionnaire categories. The chi-square results were X^2 (14, N = 32) = 13.376, p = .497 for reading attitudes; X^2 (9, N = 26) = 12.002, p = .213 for reading background; X^2 (8, N = 35) = 11.181, p = .192 for reading habit; and X^2 (4, N = 35) = 5.986, p = .200 for access to reading materials.

4.6.5.2 Reading strategies

This sub-section examines the extent to which the learners claimed to apply reading strategies, and also describes reading challenges faced by the learners when reading English books. A total of 34 learners answered the item on access to reading materials.

Table 4.11 shows that the majority of the learners do not usually apply the reading comprehension strategies indicated, as less than 50% of the learners selected the option of 'usually' for applying the strategies. About 35 % of the learners indicated that they question themselves as they read. However, this strategy is usually applied by skilled readers, and the results on the tests do not show a similar performance. This kind of discrepancy suggests that the learners may have given socially desirable responses.

Table 4.11 Learners' preferred reading strategies in percentage scores

Questions	Response categories	Total (%)
First skim the book	I never do this	44.1
	I sometimes do this	47.1
	I usually do this	8.8
Take note of headings and subheadings	I never do this	18.7
	I sometimes do this	62.5
	I usually do this	18.7
Only read for short stretches at a time	I never do this	29.0
	I sometimes do this	48.4
	I usually do this	22.6
Write notes in the margins of the textbook.	I never do this	41.2
	I sometimes do this	29.4
	I usually do this	29.4
Underline parts that I think are important	I never do this	21.2
	I sometimes do this	45.4
	I usually do this	33.3
Look up words that I don't understand in a dictionary	I never do this	18.2
	I sometimes do this	60.6
	I usually do this	21.2
Look up words in a dictionary and then write their meanings	I never do this	28.1
	I sometimes do this	46.8
	I usually do this	25.0
Ask myself questions about the information while I read.	I never do this	16.1
	I sometimes do this	48.4
	I usually do this	35.5
Re-read sections when I don't understand what's going on	I never do this	25.0
	I sometimes do this	43.7
	I usually do this	31.2
Draw mind maps or flowcharts of the information	I never do this	46.6
	I sometimes do this	30.0
	I usually do this	23.3
I ignore pictures, maps, charts or diagrams	I never do this	44.8
	I sometimes do this	37.9
	I usually do this	17.2
Make notes while I read (in a notebook).	I never do this	36.6
	I sometimes do this	36.6
	I usually do this	26.6

To give a clearer view on how the learners responded to the frequency scale response options in Table 4.11, the learners' overall frequency of choices in raw form are provided in Figure 4.2.

Frequency scale (%)

	I never do this	I sometimes do this	I usually do this
	30.7	44.8	24.4
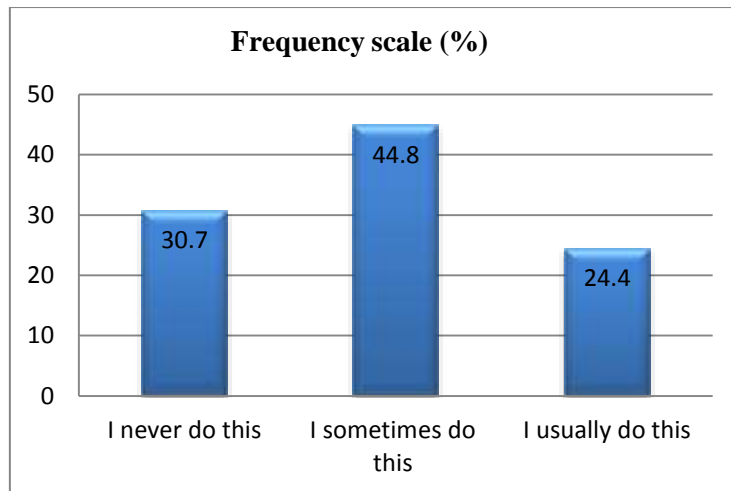
Figure 4.2 Frequency response options regarding learners' preferred reading strategies

The middle option was selected by about 45% of the learners, suggesting that they were inclined to choose a neutral answer and there is a need to include an extra option for better discrimination.

Figure 4.3 provides learners' responses to item 10 which required them to indicate the kind of problems they have when reading English books. Item 10 forms nominal data and has no quantitative value, therefore it did not contribute to the reading background sub-score in Table 4.6.

Reading problems (%)

Lots of unknown words	Difficult grammar	Keeping track of main idea/argument	Forgetting text details	Understanding diagrams & tables
37.6	12.9	18.2	18.2	12.9
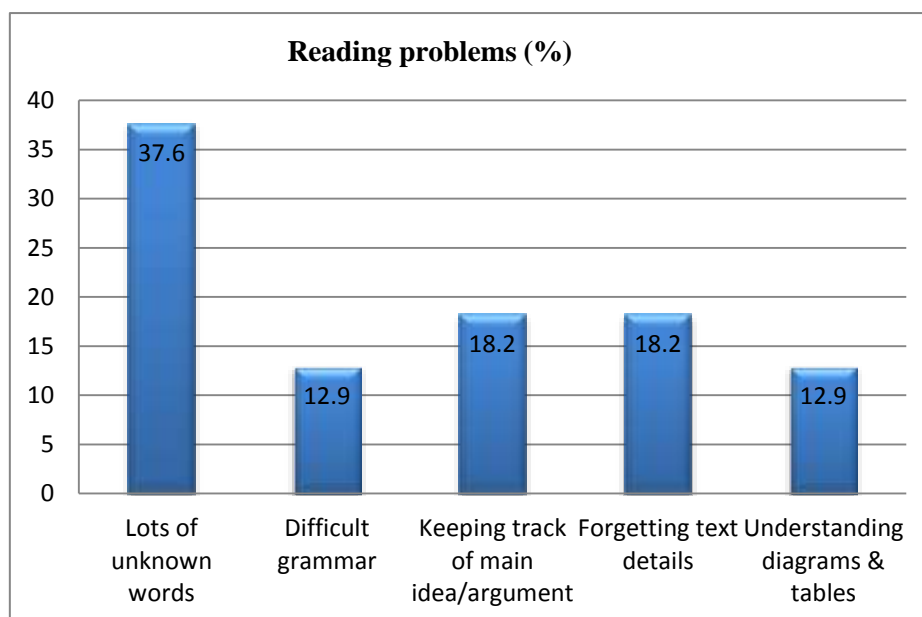
Figure 4.3 reading problems for learners (n = 35)

Figure 4.3 shows that unknown words seem to be the biggest challenge for learners when reading. Considering the performance of the learners on the tests, the results provide an indication of the real reading challenges the learners in the pilot study face.

4.6.5.3 Access to reading material

Figure 4.4 shows that most of the learners (about 57%) have less than 50 books and about 43% have more than 50 books in their homes. The number of learners with more than 50 books is considered to be relatively high considering the low socioeconomic status of the region. This suggests socially desirable responses, which needed to be addressed in the main study (§4.4.8).
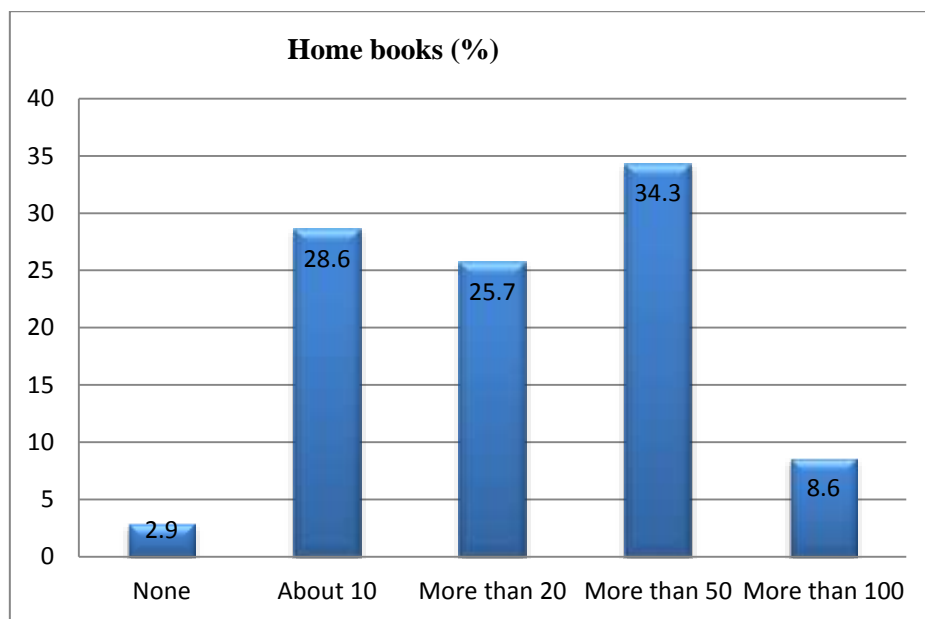
Figure 4.4 Available books in learners' homes

Figure 4.5 shows that only three learners come from homes where newspapers are never bought. The majority of the learners come from homes where newspapers are bought more than once a week.
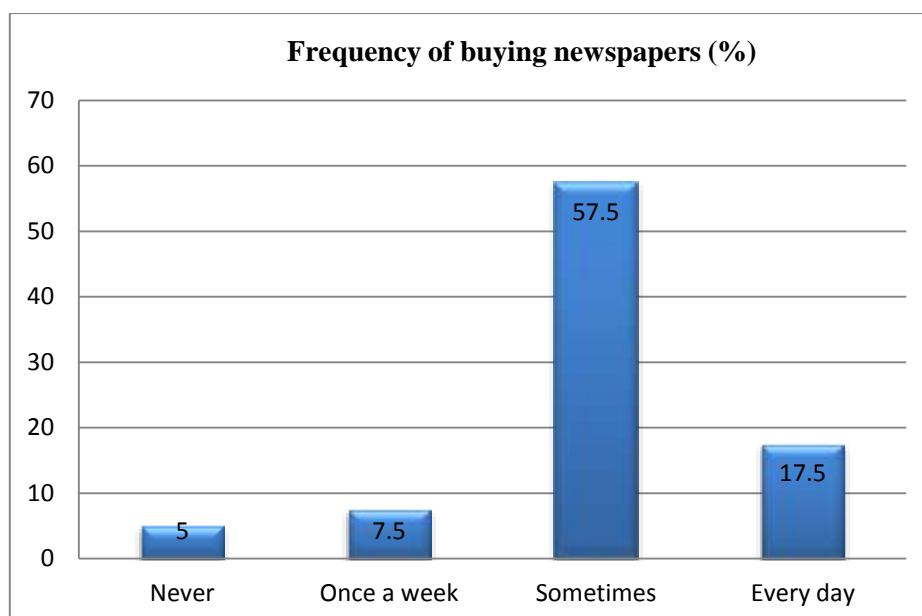
Figure 4.5 Availability of newspapers in learners' homes

4.6.6 Interviews findings

Two teachers (an English teacher and a Social Studies teacher) and their school principal were interviewed and the interviews were recorded, transcribed, and analysed for themes. The interviews were conducted individually in an office at school. The interview schemes can be found in Appendix 4. When the teachers and the principal were interviewed, they were not yet aware of the performance of their learners on the reading assessments. The outcomes are presented according to the themes that emerged. There were six themes that were determined from the interview responses of teachers and the school principal.

Unrealistic assessment of learner's performance

The first theme that emerged was the teachers' and the principal's difficulty in reliably assessing the reading levels at which their learners perform. They seemed to overrate the learners' performance. The two teachers both indicated that the majority of their learners read well and have good vocabulary, and only a few learners (two or three learners in each class) seemed not to be reading well. The English teacher said that she had not noticed learners who struggle with reading in English. Both teachers described their learners' vocabulary as being very good and pointed out that the majority of their learners could express themselves well orally in English, and comprehended most of their English reading texts. The Social Studies teacher argued that her learners had strong vocabulary knowledge as they normally corrected her when she miswrote a word on the chalkboard. The principal also indicated that he was

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satisfied with the general reading ability of the learners because they read "on average" and "some above average" but at the same time he indicated that the learners did not read much and that he had never seen or heard about his learners visiting the public library in town.

Both teachers indicated that they were not familiar with the reading comprehension tests that were administered to their students, after skimming through the tests. However, they appeared to be confident that that their learners would score well on both tests and estimated a mean score of between 50 and 65%.

When I revealed the scores of the learners on the reading comprehension tests, the Social Studies teacher described the results as an "eye opener" because she did not know that her learners were poor readers. She also expressed gratitude for the assessments because she felt that something could be done to help the learners improve their reading comprehension. The English teacher on the other hand became defensive and blamed the Grade 1-3 teachers, and the Ministry of Education, Arts and Culture for not providing enough reading resources to schools. She also blamed automatic transfer of learners who fail a grade. She appeared to be contradicting her earlier statements that her learners were good readers. She explained that because of her Grade 4 and 5 learners' poor reading skills she sometimes spent the whole school trimester teaching the learners the letters of the alphabet and phonics, which they should have learned earlier in Grade 1-3. The contradictions suggested that there was a need to ask follow-up questions to probe beneath the surface.

The perceived value of reading skills
The second theme that emerged was teachers' professing awareness of the value of reading skills. The English teacher indicated that learners with good reading skills are able to read on their own to gain knowledge in all their school subjects and they can even voluntarily visit libraries to read books. The Social Studies teacher pointed out that reading skills help learners to do class activities well and to answer comprehension questions correctly. She also indicated that good readers in Grade 5 are able to do class activities as required and they can also pass their assessments. The English teacher indicated that learners who are good readers in Grade 5 make her teaching much easier because they are able to comprehend what they read, follow class activities, and assist each other in learning activities. Both teachers thus acknowledged the importance of reading in the schooling context.

Reading motivation

The third theme that emerged was about teachers' views that learners were not motivated much to read. The Social Studies teacher pointed out that the Namibian curriculum requires all school subject teachers to have reading periods (see §5.6 of Chapter 5). She indicated that, to motivate learners to read, she has to incorporate reading activities in all her lessons every day. She also pointed out that she normally asks learners to read words, sentences and summaries for Social Studies written on the chalkboard. The English teacher was a bit hesitant to answer the question despite repetition of the question three times. Eventually, she pointed out that she normally encourages learners to read, corrects their mistakes, gives them guidance in reading, and uses reading games for learners to become fluent readers. It seems the two teachers did not notice the difference between the two questions regarding teachers' roles in motivating learners to read (in general) and how they (specifically) motivated learners to read. The differences between the two questions needed further clarification in the main study.

When the principal was asked about what teachers do in their classrooms to promote a reading culture among learners, he mentioned that promoting a reading culture in the classrooms is seriously neglected at the school despite the policy for the Ministry of Education, Arts and Culture requiring all subject teachers to have a reading period each week. He pointed out that teachers do not use the existing reading periods because they do not have a reading culture themselves (they are not used to read a lot) and they are not teaching learners how to read or motivating them to read. The principal stated that he personally did not do anything to improve the reading ability of the learners except to encourage all the teachers to use the reading periods for reading activities.

Availability of reading material

Another theme that emerged from the data was limited access to reading materials in the school. Both teachers indicated that the available resources were out-dated and that learners could not relate to the reading materials. The teachers felt that the school needed more learning and teaching materials, especially for the new Namibian curriculum. The English teacher pointed out that limited reading materials at the school made it difficult for them to teach and develop learners' reading comprehension. It seemed that the situation was made worse by a lack of a school library. The teachers mentioned that the library that existed had been turned into a classroom and the books from the library were packed in one of the school offices where learners could not reach them.

Reading resources in the home and school environment

Both the Social Studies teacher and the English teacher seemed to believe that there were plenty of reading materials in their learners' homes, such as newspapers, magazines, and story books. When I asked them to provide evidence on how they knew that the learners had many reading materials in their homes, both teachers referred to some learners coming to school with reading materials from their homes that are not prescribed for any of their school subjects. It is not clear on how many learners this appraisal was based. The interview with the school principal supported the view that the school had limited reading materials. He pointed out that the reading materials were not enough and the school did not even have a library.

Knowledge about teaching reading

Another theme that emerged based on the analysis of the teachers' responses was limited knowledge about reading and how to teach it. Both teachers only referred to fluent reading and correct pronunciation of words as indicators of good reading. The English teacher elaborated a bit by pointing out that a good Grade 5 reader reads fluently and with understanding. The teacher was not asked to explain what she meant by "fluent reading", therefore more probing was required in the main study on this question.

As to whether teachers had heard of reading comprehension strategies and to mention the strategies with which they were familiar, the Social Studies teacher indicated that she had never heard of reading comprehension strategies. The English teacher was hesitant to answer the question, but later indicated that she had heard of reading comprehension strategies, and she then referred only to skimming and scanning.

Asked about what grade the English teacher thought reading comprehension strategies could be taught, she replied that she thought they should be introduced in Grade 5 because in Grade 4 learners cannot yet read well and they can easily forget the strategies. In response to the question about when in the week/period she taught reading comprehension strategies, she said that it depended on the learners. Sometimes she did it once a week, and sometimes several times if learners did not understand.

Teachers' reading for pleasure

The last theme that was identified was teachers' reading for pleasure. Regarding the question about how often the teachers read for pleasure, it was surprising to uncover that both teachers reported not reading for pleasure. The Social Studies teacher indicated that she did not have time to read for pleasure because of her workload. The English teacher also had a similar response and indicated that she did not even read novels. The principal was not asked the question.

Both teachers were hesitant to answer the question regarding when they started reading for pleasure. The Social Studies teacher indicated that she started reading for pleasure in Grade 8 and that she used to read story books and magazines. The English teacher laughed and then appeared to be thinking about the answer, and finally she indicated that she used to read story books in Grade 11 and 12 because they were assessed on literature in school. The teacher also indicated that in Grade 11 and 12 she liked reading love stories in magazines.

To summarise, the interview items for the teachers and the principal provided helpful information. There was a tendency to give desirable responses, which suggested a discrepancy between the image they wanted to project about reading and the actual poor reading abilities of the learners. The pilot made me realise that there was a need for me to probe beneath the surface to get more helpful details.

4.6.7 Discussion of the findings

The main purpose of the pilot study was to test the five instruments and procedures for the main study. This section describes which changes in the instruments and procedures needed to be made after testing them, and why these changes were needed.

4.6.7.1 Learner assessments

Even though the majority of the learners performed poorly on the reading tests, it did not mean that the tests were too difficult for their grade level; rather, it was an indication of poor language and reading proficiency of the learners. Large scale studies have shown that Namibian learners perform poorly in Grade 10 and 12 examinations (§1.2.3 of Chapter 1) and in SACMEQ assessments (Table 2.2 of Chapter 2), suggesting that the poor performance may not be caused by the test instruments which are biased against them, but because of reading problems. It was thus decided to continue using the same tests in the main study to establish whether the reading comprehension intervention could improve their reading levels so that they could cope better

with texts at their grade level. The poor decoding results indicated that the learners had limited word decoding ability, and fluency, a prerequisite for reading comprehension.

Only five learners had a BWRT age of 10.4 and above, indicating that their word recognition ability was at a similar level to HL learners. The results of the ORF assessment showed that the learners were reading slowly, and only three learners were able to read 110 WCPM, a level that Grade 5 English HL learners are expected to reach at the beginning of an academic year (§2.4.2 of Chapter 2). Despite the fact that I put the learners at ease before reading and that the venue was quiet, they still read slowly. This suggests that the learners' poor decoding skills probably cannot be attributed to distracting factors in the data collection procedures followed; therefore the same procedures were followed in the main study.

In the ORF assessments, the Grade 5 age appropriate learners at 10 years old outperformed the older learners of 11 and 12 years old. This younger group of learners reached the 70 WCPM threshold for reading comprehension suggested by Pretorius and Spaull (2016). The comparability of the results suggests that the ORF test is a suitable instrument in the Namibian context.

The results of the reading comprehension tests showed that the learners who participated in the pilot study were poor readers. The results for the NEEDU assessment among Grade 5 rural South African learners were extremely poor, with a mean test score of 23% (Pretorius & Spaull, 2016). In the pilot study, the Namibian students' score on the same NEEDU test was slightly better (31.9%), suggesting that the NEEDU test could be used in the main study. The test items distinguished well between literal and inferential performance in reading comprehension.

Although Test 1 was longer and took long for the learners to complete, the learners performed similarly on both tests. As expected, they performed more poorly on inferential questions than on literal questions in both tests, and the literal and inferential questions correlated robustly across the tests. The high correlations between tests suggest similarity in performance across tests, hence tapping into the same constructs. In all, the results for the reading comprehension tests suggest that any of the two tests could be used to assess reading comprehension since they produced similar results. The results also suggested that there was a need for a reading intervention.

The Learner Questionnaire produced results that seemed inconsistent with the results of the reading assessments. The high means for reading attitudes, reading background, and reading habit are not consistent with the performance of the learners in the ORF test, the BWRT, and the two reading comprehension tests, nor with what is reported about resource availability in schools. For this reason, a few items for the Learner Questionnaire were modified (§4.6.8).

The discrepancies that emerged between questionnaire responses and assessment performance suggest that the participating learners gave socially desirable responses. Even learners who performed poorly in the ORF test and reading comprehension tests provided positive responses. For example, a learner who struggled to read the title of the story used in the ORF test indicated "Strongly agree" for enjoying reading aloud in class and understanding all her textbooks that are written in English. However, one of her classmates accompanied her to the ORF assessment room to inform me (the researcher) that her friend did not know how to read. In general, the learner provided only positive responses in the questionnaire, despite having an overall score of 33% in Test 1 and 15% in Test 2. This shows that she struggled to read and probably did not enjoy reading. The other evidence of providing socially desirable responses was manifest when some learners gave conflicting responses, for example by indicating that they are slow readers on one item and on another indicated that they read fast and understand most of what they read.

Besides social desirability, the learners' responses can also be ascribed to the Dunning-Kruger effect. This is a cognitive bias in which people tend to overrate or hold favourable views about their cognitive ability when they have not yet gained mastery of a skill and are unable to recognise their incompetence, while people who have mastered a skill often underrate their performance (Kruger & Dunning, 1999). The learners in this study may have lacked a broader frame of reference for reading competence and could not recognise that they were poor readers; they may have felt confident that they were actually competent in reading and felt that they read a lot. Because of social desirability and possible Dunning-Kruger effect, the instrument needed to be modified and the findings of the main study needed to be triangulated at the end, to examine possible socially desirable responses or self-overrating.

When the learners were asked to evaluate the reading levels of their classmates 27 out of 34 learners agreed that their classmates struggle to read, six learners gave a neutral response, and only one learner disagreed. It seems that when it came to evaluating their classmates the learners gave honest responses. Countering socially desirable responses needed a stronger

focus in the main study (§4.6.8). Therefore, for the main study new items were added to try to counteract these trends and participants were urged to provide honest responses when the questionnaire was administered to increase its reliability.

The findings for giving socially desirable responses suggest that researchers should interpret the results of a reading questionnaire cautiously. The reading level of children may affect the reliability of their responses in a questionnaire; they may not have a broader framework for self-assessing their reading. The researcher can triangulate data, as done in this study, to establish whether there are some inconsistencies in the findings.

The results in Table 4.11 suggest that many learners did not apply the reading comprehension strategies that were identified in the instrument, probably because they were not familiar with them. In selecting options for reading comprehension strategies, the middle option in the instrument seemed to be the most popular option, suggesting that the learners probably regarded it as the neutral or "safe" option as they may have avoided providing negative responses. The tendency for selecting the middle option also suggests that there was a need to add a fourth option in the main study such as *I don't often do this*, as explained in sub-section 4.6.8.

The results on the availability of books in learners' homes (Figure 4.4) may also be based on socially desirable responses, considering that even in Grade 5 the learners still have poor word recognition. A study by Kirchner, Alexander and Tötemeyer (2014) in Namibia shows a poor state of reading materials in learners' homes. The learners might have counted newspapers, magazines and their school books as part of the books in their homes. Therefore, item 20 in the Learner Reading Questionnaire (§4.6.8) was modified.

To some extent, the results for the Learner Reading Questionnaire shed light on the learners' learning context. However, the results also suggested that some modifications were needed to the questionnaire to counter socially desirable responses and reduce ambiguity (e.g. item 20) and increase reliability in the main study. All the questionnaire items also needed to be clarified for the learners as they were not adept at reading them on their own.

4.6.7.2 Teacher and principal interviews

The interview items seemed to have worked well because they covered the relevant topics and the respondents were able to answer all the questions. However, some of the teacher responses indicated that some topics needed further probing.

The teachers in the pilot study seemed to portray their learners in a positive light regarding their performance in reading comprehension, possibly because they did not share a common view of what successful reading looks like at different grade levels and overestimated their learners' reading abilities. Considering the poor performance of the learners in ORF, word recognition and reading comprehension, the teachers seemed to have a different perception of reading success. In the main study interview, a question was included on what they thought reading success entails. As Pretorius and Spaull (2016, online) point out, many teachers focus "primarily on code-based reading activities in the classroom" rather than promoting meaningful reading. The teachers in this study may have been spending little time on teaching reading because they had an impression that their learners were good readers because they were able to recognise words (even though they did so relatively slowly).

The principal's interview seemed to complement findings from the teachers' interviews. He expressed satisfaction with the reading ability of the learners and indicated that they read on and above average. In Namibia, many teachers have a different notion of the term *average* and refer to a score of 50% (or half of the total marks) in an assessment as an average, and the score is not considered as weak. This perception might have been influenced by the descriptions of competencies in the Namibian syllabi. For example, the *English Second Language Syllabus (Grades 4 – 7)*, refers to a score between 50 and 59% as an average (Ministry of Education, Arts and Culture. 2015a) (Table 2.3 of Chapter 2). For the main study, teachers were instead asked to explain their understanding of the term *average*.

Both teachers appeared satisfied with the vocabulary knowledge of their learners. This perception may be partly attributed to limited knowledge of what is required to be a successful reader. Teachers are unlikely to develop activities for vocabulary building if they believe that their learners have an adequate vocabulary. The teachers' argument that their learners can comprehend most of what they read may be attributed to reading comprehension assessments that do not consider the performance on literal and inferential questions. Probing questions about how well they know their learners' vocabulary and what good reading entails needed to be included in the main study.

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The pilot study interview results suggested that the teachers and the principal may not have been aware that many of their learners had low reading levels and struggled to comprehend what they read. Learners may also have believed that they were good readers because their teachers told them that. In general, the interview results showed that there was no real common understanding of what reading is and what skilled reading looks like. Therefore, more probing was needed in the main study. The results also suggested a need for a reading comprehension intervention.

4.6.8 Summary of modifications to research instruments and procedures

The main purpose of the pilot study was to pilot test the instruments that were going to be used in the main study, but it also served a secondary purpose as it provided results that pointed to the need for some kind of reading intervention. The results of the pilot study were used to refine the reading assessments, the Learner Reading Questionnaire, the teacher and principal interviews, and also to determine whether the instruments were usable in the Namibian context and appropriate for the level of the learners. In light of the pilot study results, this section provides changes to the research instruments and procedures followed in the pilot study.

1. Although the scores in the ORF test and the BWRT were very low, the instruments were not modified because they seemed valid and reliable.
2. The reading comprehension test also seemed valid and reliable. The reactions of the learners when they were given the second test (§4.5.3) suggested that it was better to use a single test instead of two tests. That is why, for the main study, a single test of 38 marks was used, comprising shorter narrative and information texts from Test 1 and 2, to reduce learner fatigue.
3. For the Learner Reading Questionnaire, in the main study, to try to discourage socially desirable responses, participants were urged to provide honest responses and the researcher ensured that learners did not have an opportunity to see each other's responses as they complete the items.
4. New items were added to the Learner Reading Questionnaire to have a fairer representation of the reading strategies category, and to counter socially desirable responses and reduce ambiguity. Three items (items 23, 24, & 25) to measure reading strategies were added to the questionnaire. For the existing reading strategy questionnaire item (item 14), I added a fourth response option (i.e. *rarely*) to counter

the tendency of selecting the middle option. For item 20, which required learners to indicate the number of books available in the homes, I indicated in brackets at the end of the question that they should not count magazines, newspapers and their school textbooks. This point was also made orally in the learners' L1 during the administration of the questionnaire in the main study. In hindsight, using pictures to depict different amounts of books, as done in the PIRLS assessments might have worked better in the main study.

5. The teacher and principal's interview items were not modified for the main study, although my interview technique was improved to include more follow-up probing questions.

4.7 Main study

The main study included a baseline assessment with a 2018 cohort of Grade 5 learners, and pre- and post-intervention assessments with a cohort of 2019 Grade 5 learners. The outcomes of the baseline and pre-tests (reported in Chapter 5) were integral to the context analysis and provided the final determination on how to conduct the main study.

4.7.1 The participants

The participants in the main study comprised Grade 5 learners in four schools in Katima Mulilo, including their English teachers, and school principals. In total, there were five primary schools with Grade 5 classes in Katima Mulilo, of which one school participated in the pilot study. There were two intervention and two control schools, which were assigned randomly to the treatment or control conditions. A total of 729 learners (365 participants in the baseline, 364 in pre-tests and 353 in the posttests), seven teachers, and four school principals participated in the main study, totalling 740 participants. In the delayed post-intervention assessments, the number of learners reduced a bit (from 364 to 353, an attrition rate of 3%) because of school transfers and mortality. Although there were more than two classes for Grade 5 in each school, only two Grade 5 classes per school were selected to participate in the study for data collection. The selection of classes used Grade 5 A − B stream of classes (i.e. Grade 5A and B classes were selected from each school). The learners came from different socio-economic backgrounds, but most of them were from low socio-economic backgrounds.

4.7.2 The research instruments

The same research instruments described in section 4.4 were used in the main study, with some modifications, as explained above in sub-section 4.6.8. The research instruments were tested again with the intervention and control schools during the baseline study in September/October 2018.

4.7.3 Data collection procedures

In September/October 2018 a baseline study was conducted with Grade 5 learners in the intervention and control schools using all the research instruments, to determine the reading levels of a Grade 5 cohort before the intervention. The research instruments were administered in the same order as in the pilot study, except that the BWRT was administered first. Formal interviews with teachers and principals were done here, as in the pilot study. The main purpose of the baseline study was to provide information about the learning and teaching context, to serve as a framework for designing and fine-tuning the intervention, and from which to assess the effectiveness of the intervention by comparing the reading levels for the 2018 Grade 5 cohort prior to the intervention and the 2019 cohort that was subjected to the pre- and post-intervention assessment.

In January/February 2019 when the intervention began, pre-tests were administered to 2019 Grade 5 cohort learners to assess their reading levels before the intervention was carried out. I administered all the research instruments within 24 days, starting with the individually administered BWRT and then the ORF test. After the ORF test, the whole-group reading comprehension test was administered to all the learners in their classrooms. Thereafter, learners were given a 30- minute-break and then the Learner Questionnaire was administered in the same venue.

The intervention was carried out from June to October 2019. During the intervention, I carried out classroom observations and random interviews with learners and teachers to investigate the expected effectiveness and actual practicality of the intervention. In October/November 2019, posttests were administered to assess the actual effectiveness of the intervention.

4.7.4 Scoring and analysis procedures

The data were scored and analysed as done in the pilot study (§.4.5.5 of this chapter). Data scoring and analysis was done by myself and the data was captured on SPSS.

4.7.5 Statistical techniques

The same statistical techniques used in the pilot study (§3.4.6 of this chapter) were applied in the main study. Additionally, the main study included the Kolmogorov-Smirnov test of normality and non-parametric tests such as the independent samples Kruskal-Wallis and Mann-Whitney test for independent samples.

4.7.6 Data interpretation

As explained in section 4.2, the research questions covered three phases, namely 1. Context analysis and problem identification; 2. Design, development and implementation; 3. Evaluation of effectiveness (cf. Stoffelsma, 2014; Dowse & Howie, 2013). The results were analysed according to the research stages; research questions related to stage 1 were interpreted first, followed by stage 2 and then 3 (Chapters 5-7). The findings for learners and teachers/principals are first presented separately in the order of the research questions, and then later integrated, so that findings could be interpreted across the data bases. For the quantitative aspect of the study, I interpreted statistical results whereas for the qualitative part I interpreted emerging themes and patterns. Contradictions or inconsistent results are explained (cf. Creswell, 2014; Camburn & Barnes, 2004) and I also indicate whether the intervention made a difference or not.

4.8 Conclusion

This chapter has presented the methodology for this study, and then described the learning and teaching contexts of the pilot study school, the research instruments, procedures, and results of the pilot. Generally, the research instruments and procedures adopted in the pilot study worked well, with a few adjustments required: compiling a single reading comprehension test to reduce learner fatigue; adding extra items to the Learner Questionnaire to provide a fair representation of reading strategies, counter socially desirable responses and increase reliability of the instrument; and probing on some issues in the interviews to get more details on the participants' perspectives. The data collected showed that the participating learners struggle to read and teachers had limited knowledge about reading. The discrepancies between learner performance on reading comprehension tests and what learners claimed about reading suggested that a reading intervention would not come amiss if the inconsistencies are explained.

CHAPTER 5
BASELINE STUDY FINDINGS

5.0 Introduction

Chapter 5 presents three components of the baseline study, namely Grade 5 reading results, questionnaire outcomes, and teacher interview outcomes. All three components helped shape the design of the intervention, so this chapter will explain how the results were used to inform the intervention in the research schools, and based on the findings, the chapter will describe the type of teaching and learning activities targeted for the intervention. The baseline study was conducted before the intervention to address the first quality criterion of *relevance* of the study (cf. §4.2 of Chapter 4), to obtain data on the learners' reading abilities, their reading attitudes, background, habit, strategies, and access to reading materials, and teachers' knowledge about reading and how to teach it. The results of these tests, questionnaire and interviews provide an answer to Research Question 1: ***What are the characteristics of the educational context and English reading levels of Grade 5 learners in Namibia?***

The following four research questions were designed to capture salient aspects of the learners' learning context and reading levels:

1a. *What kinds of reading comprehension challenges are displayed by Grade 5 learners?*

1b. *How do teachers teach reading comprehension strategies?*

1c. *Is there a need for an intervention to improve Grade 5 learners' reading comprehension?*

1d. *What are the characteristics of teaching and learning activities that could lead to the improvement of the situation found in context analysis?*

5.1 School context

Four primary schools (School 1-4) within Katima Mulilo participated in the baseline study. There were only five schools with Grade 5 classes in the town. One of the five schools was randomly selected to participate in the pilot study, which was conducted in March and April 2018, and the remaining four schools all participated in the main study, which included baseline and pre- and post-assessments. Based on the participating teachers' and my own observations, most of these learners were from homes with low socioeconomic status. The Southern and

Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ) IV assessment found that only 21% of Grade 6 learners in Namibia, who were assessed in the Zambezi Region, were from a higher socioeconomic group[10] (Auala, Amakutuwa & Ailonga, 2017). The total number of learners in School 1 was 958, School 2 had 1556, School 3 had 1400, and School 4 had 1750 learners. As in the pilot study, the classes were overcrowded and some had over 50 learners in a classroom with a capacity of 35 learners.

The classroom observations showed that resources were a challenge in the participating schools, as indicated in Table 5.1. The resources that were available were not enough and did not seem readily available.

Table 5.1 Description of some school resources

School	Total number of learners in Grade 5A and 5B	Total number of chairs in Grade 5A and B	Total number of desks / tables in Grade 5A and B	Availability of library (Yes/No) / number of books	Functionality of library (Yes/No)	Total no. of learners visiting the library per week	Reading corners
School 1	110	110	108	721	No	225	No
School 2	108	108	106	No	-	-	No
School 3	95	89	90	210	No	9	No
School 4	90	90	89	350	No	250	No

Table 5.1 shows that all the schools that participated in the baseline study did not have the full complement of chairs and desks for learners. Many of the available chairs were loose or broken. School 3 was the worst affected school as the classrooms were in an appalling state and some learners sat on their desks or the floor as there were not enough chairs for all the learners. School 2 did not have a library and teachers were constantly complaining about the shortage of books for learners. Although School 1, 3 and 4 had libraries, the libraries seemed dysfunctional as they were poorly stocked and used as staffrooms, and as venues for staff meetings. Although School 4 had the largest number of learners visiting the library, the library was not reader-friendly because learners could not read in the library, but only borrow books to read elsewhere. According to the teacher who serves in the library in School 3, only a few learners are allowed to visit the school library per week because of the limited number of books.

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[10] The socioeconomic status results for the SACMEQ assessment were obtained through learner questionnaires in which proxy indicators (such as housing conditions and household possessions) were used to assess the quality of their homes.

In general, School 4 appeared attractive, relatively well organised and managed, and the learners seemed disciplined compared to the other three schools.

5.2 The participants

A total of 365 Grade 5 learners, seven teachers, and four school principals participated in the main study. Six teachers were purposefully selected because they were teaching English in Grade 5 classes and one Social Studies teacher was recommended by his school principal. The learners' ages ranged from 10.1 years to 16.1 years, with a mean age of 11.3 years. School 1 had only two Grade 5 classes whereas Schools 2-4 had four Grade 5 classes each; only two classes were selected per school using the Grade 5A – B stream of classes.

Table 5.2 Participants information

School	Total number of learners in classes	Number of participants	Age range	Mean age
School 1	110	104	10.3 – 15.7	11.5
School 2	108	100	10.1 – 13.9	11.2
School 3	95	81	10.3 – 16.1	11.5
School 4	90	80	10.4 – 14.7	11.3
Total	403	365	10.1 – 16.1	11.3

A few learners did not participate, either because they were absent during the assessments or their parents did not give consent for them to participate. According to their teachers, most of these learners were from low socioeconomic homes and many of their parents were illiterate.

5.3 Results of the reading assessments

This section reports on the quantitative results of the assessments and addresses Research Question 1a: *What kinds of reading comprehension challenges are displayed by Grade 5 learners?* It should be noted that because the assessments took place over two days, some participants were not assessed on all the research instruments because they were absent from school on one of those days.

5.3.1 Decoding assessment outcomes

Word reading and oral reading fluency measures were used to assess the learners' decoding skills. All in all, 338 learners were tested on the BWRT for the baseline study. The Cronbach alpha reliability coefficient for the BWRT was .97, which is considered high (§4.6 of Chapter 4). The Kolmogorov-Smirnov test of normality showed that the data for all the schools were

not normally distributed: School 1 (D(df) = 98, $p < .05$; School 2 (D(df) = 89, $p > .05$; School 3 (D(df) = 63, $p > .05$; School 4 (D(df) = 73, $p < .05$. For ORF the results were: School 1 (D(df) = 98, $p < .05$; School 2 (D(df) 89, $p < .05$; School 3 (D(df) 63, $p < .05$; School 4 (D(df) = 73, $p > .05$. Therefore, non-parametric tests were applied to analyse the data further.

Table 5.3 shows the learners' overall means in terms of real age (in years and months), and BWRT raw score out of 110 items, including the BWRT age. The latter means are based on HL English children. There were no learners who scored zero.

Table 5.3 Overall BWRT results

	BWRT score	Real age	BWRT age
All (n=365)			
Mean	52	11.3	8.2
SD	19.8		
Minimum-Maximum	1-100	10.1-16.1	5.4-13.3
Percentiles:			
25th	37		
50th	49		
75th	68		

* The BWRT comprises 110 words in total.

Table 5.3 shows that the learners generally had poor word recognition ability. Even the best performing learners at the 75th percentile had a low recognition word level with a mean of 68. The standard deviation (SD) of 19.8 shows a wide dispersion of the BWRT scores from the mean. The mean BWRT age of these English second language (L2) learners is 3.1 years below the word reading norm of English home language (HL) learners of the same age.

Levene's test for equality of variance was met for the BWRT scores in the four schools ($F(3, 334) = .409$, $p = .747$). Table 5.4 presents the descriptive results of real age, BWRT score, and BWRT age for the four participating schools, age groups, and gender.

The results of an independent samples Kruskal-Wallis test showed that there were significant differences between the schools (X^2 (3, N = 338) = 29.205, $p = .000$). The Kruskal-Wallis one-way ANOVA (k samples) post hoc test showed that the significant differences emerged only between School 4 ($M = 61.6$, $SD = 18.8$) and the other three schools, indicating that School 4 significantly outperformed the other schools (School 4 and 1: $p = .010$; School 4 and 2: $p = .000$; School 4 and 3: $p = .004$).

Table 5.4 Baseline BWRT mean per school, age, and gender, and SD

	Real age mean	BWRT score		BWRT age	
		Mean	SD	Mean	SD
School					
School 1 (n = 104)	11.5	52.6	18.9	8.2	1.8
School 2 (n = 100)	11.2	44.3	18.4	7.6	1.5
School 3 (n = 81)	11.5	50.4	19.9	8.1	1.8
School 4 (n = 80)	10.9	61.6	18.8	9.0	1.8
Age group					
10 (n = 54)	10.8	55.6	18.5	8.6	1.7
11 (n = 200)	11.4	56.1	19.8	8.6	1.8
12 (n = 74)	12.4	46.1	17.6	7.6	1.5
13 – 16 (n = 37)	13.7	34.6	14.3	6.7	0.9
Gender					
Females (n = 205)	11.3	53.7	19.6	8.3	1.8
Males (n = 160)	11.4	49.7	20.1	8.0	1.8

Table 5.4 shows the four age groups of the study. In Namibia, learners start Grade 1 in January of the year they turn seven. The 10 and 11-year-olds form the majority of the Grade 5 learners in the study; they are at grade age level. Since there were only a few older learners of 13 years and above, they were combined to form a single age group[11].

The results of an independent samples Kruskal-Wallis test showed that there were significant differences between the age groups (X^2 (3, N = 338) = 39.062, p = .000). A Kruskal-Wallis one-way ANOVA (k samples) post hoc test was then conducted to test pairwise comparisons of age groups. The test showed that significant differences emerged between the 10-year-olds (M = 55.6, SD = 18.5) and 13 to 16-year-olds (M = 34.6, SD = 14.3), and between 11-year-olds (M = 56.1, SD = 19.8) and 12-year-olds (M = 46.1, SD = 17.6), between 11-year-olds and 13 to 16-year-olds (M = 34.6, SD = 14.3), and 12-year-olds and 13 to 16-year-olds. The 10- and 11-year olds did not differ from each other, but they differed from the oldest group (13-16 years) (10-year-olds and 13 to 16-year-olds, p = .000; 11-year-olds and 13 to 16-year-olds, p = .000). The 11-year-olds also differed from the 12-year olds (p = .005). The two older groups (12 and 13-16 years) also differed significantly from each other (p = .040). Although the older learners had repeated Grade 5 or previous grades, their word recognition was still poor, suggesting that they had learning difficulties and needed special attention. Repeating a grade did not seem to help them catch up.

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[11] There were 26 13-year-olds, seven 14-year-olds, three 15-year-olds, and one 16 year-old.

Mann-Whitney test for independent samples showed that there were no significant differences between the scores for girls and boys in word recognition.

Moving from single word reading to passage reading, oral reading fluency performance is now examined.

Table 5.5 Overall Grade 5 baseline ORF test results

	Total words read	Total errors	Words read correctly
All (n=325)			
Mean	66.3	7.5	58.6
SD			32.2
Minimum-Maximum	6-160	1-28	0-158
Percentiles:			
25th			35
50th			57
75th			78

Table 5.5 shows that on average the Grade 5 learners were reading very slowly, similar to Grade 2 HL readers (Hasbrouck and Tindal, 2006). One learner could not read at all and was even unable to read the title of the ORF text. Only five learners were reading at rates comparable to HL readers. Table 5.6 shows descriptive results based on school, age, and gender.

Table 5.6 Baseline ORF means per school, age, and gender

	Mean words read	Mean errors	Words read correctly	
			Mean	SD
School				
School 1 (n = 98)	64.2	7.4	56.8	27.6
School 2 (n = 89)	63.3	8.4	54.6	35.1
School 3 (n = 63)	55.5	7.6	47.4	26.8
School 4 (n = 73)	82.1	6.4	75.7	32.5
Age groups				
10 (n = 52)	70.8	6.8	63.7	27.7
11 (n = 174)	72.2	6.6	65.5	33.9
12 (n = 65)	57.2	9.1	47.9	26.0
13 – 16 (n = 32)	45.1	10.1	34.9	23.0
Gender				
Females (n = 184)	68.9	7.2	61.7	32.4
Males (n = 139)	62.8	7.8	54.6	31.6

The means of all the four schools show low ORF levels. Table 5.6 suggests that higher ORF scores have slightly fewer errors made during the test. Here again, learners from School 4 seemed to have higher ORF scores and fewer errors. A Kruskal-Wallis one-way ANOVA (k samples) post hoc test confirmed that there were significant differences between the schools (X^2 (3, N = 323) = 30.688, p = .000). As for the word recognition test, significant differences emerged only between School 4 (M = 75.7, SD = 32.5) and the other three schools. The results were: School 4 and 1 (p = .001); School 4 and 2 (p = .000); and School 4 and 3 (p = .000), with School 4 significantly outperforming the other schools in ORF.

An independent samples Kruskal-Wallis test results showed that there were significant differences between the age groups regarding reading fluency (X^2 (3, N = 323) = 36.663, p = .000). A Kruskal-Wallis one-way ANOVA (k samples) post hoc test results showed that there were no significant differences between the 10 (M = 63.7, SD = 27.7) and 11-year (M = 65.5, SD = 33.9) on-grade groups, but significant differences occurred between them and the other two age groups: 10-year-olds and 12-year-olds (M = 47.9, SD = 26.0) (p = .018); 10-year-olds and 13 to 16-year-olds (M = 34.9, SD = 23.0) (p = .000); 11-year-olds and 12-year-olds (p = .002); and 11-year-olds and 13 to 16-year-olds (p = .000).

The Mann-Whitney test for independent samples showed that there were significant differences between the genders for ORF (U = 10986.000, p = .030), with girls scoring significantly higher than boys.

5.3.2 Reading comprehension

A total of 348 learners wrote the reading comprehension test. The Cronbach reliability coefficient for the test was .82. Table 5.7 shows the overall scores for the reading comprehension test in percentages, which was analysed in terms of literal (out of 12), inferential (out of 26) and total score (out of 38). The percentage of learners with a zero score was very low (0.6%).

Table 5.7 shows a weak mean total score of 24.6% for the participating learners in the reading comprehension test. Even the best performing cohorts at the 75th percentile performed below 40%. The weakest performance appears in inferential reading (a mean of 20.5%, compared to 33.5% for literal comprehension). Generally, the results indicate that the learners struggle to comprehend texts, even at the literal level.

Table 5.7 Overall baseline reading comprehension scores

	Literal score	T2 Inferential score	Total score
All (n=348)			
Mean	33.5	20.5	24.6
SD	21.1	12.7	14.4
Min.-Max.:	0-83	0-69	0-74
Percentiles:			
25th	17	12	13
50th	25	19	21
75th	50	31	34

Table 5.8 presents the learners' performance in terms of school, age group, and gender.

Table 5.8 Baseline reading comprehension mean per school, age, and gender

n = 348	Literal score %		Inferential score %		Total score %	
	Mean	SD	Mean	SD	Mean	SD
Schools						
School 1 (n = 103)	34.9	21.2	21.6	12.5	25.8	14.2
School 2 (n = 92)	30.2	20.7	19.2	12.5	22.7	14.2
School 3 (n = 79)	24.6	16.2	13.6	9.4	17.0	10.5
School 4 (n = 74)	45.1	20.9	28.0	12.0	33.5	14.4
Age groups						
10 (n = 54)	37.4	21.6	23.7	12.8	28.0	14.5
11 (n = 185)	37.0	22.1	22.9	12.6	27.4	14.6
12 (n = 72)	26.9	17.0	17.2	11.1	20.2	12.1
13 – 16 (n = 37)	22.9	15.6	10.5	9.0	14.5	9.9
Gender						
Females (n = 196)	34.5	22.0	21.3	13.1	25.5	14.8
Males (n = 152)	32.2	19.9	19.5	12.1	23.5	13.7
Total score	33.5	21.1	20.5	12.6	24.6	14.4

Table 5.8 shows poor performance for each of the four schools. The fact that the schools performed well below 50% even in literal reading comprehension suggests that most of these learners are non-readers. An independent samples Kruskal-Wallis test showed that there were significant differences between the schools (X^2 (3, N = 348) = 54.953, p = .000). A Kruskal-Wallis one-way ANOVA (k samples) post hoc test showed no significant differences between School 1 and 2, and significant differences between School 4 and the other three schools (School 1 and 3 (p = .000); School 1 and 4 (p = .002); School 2 and 3 (p = .044); School 2 and 4 (p = .000); and School 3 and 4 (p = .000).

The Kruskal-Wallis test also showed significant differences between the age groups (X^2 (3, N = 348) = 35.039, p = .000): significant differences emerged between the 10- and 11 year-olds on the one hand, and the 12- and 13-year-olds on the other hand, but no significant differences emerged between the younger learners at 10 years and 11 years, and between older learners at 12 years and 13 – 16 years.

The Mann-Whitney test for independent samples showed no significant differences in comprehension between girls and boys.

5.3.3 Relationship between reading components

Non-parametric Spearman's rho was applied to determine relationships between the two decoding scores (the BWRT and ORF), and the reading comprehension (RC) test scores.

Table 5.9 Correlation between ORF, BWRT and reading comprehension

	RC total	Literal	Inferential	ORF	BWRT
RC total				.74	.72
Literal			.72	.68	.66
Inferential				.70	.68
ORF					.84

All correlations highly significant at the .001 level (2-tailed)

Table 5.9 shows robust highly significant positive correlations between BWRT, ORF and reading comprehension. The most robust highly significant correlation is between the BWRT and the ORF test scores (r_s = .84, p = .000), suggesting a close association between word reading and passage reading skills. The two decoding measures, ORF and BWRT, also show a robust highly significant correlation with reading comprehension.

The relationship between decoding skills and reading comprehension supports Gough and Tunmer's (1986) simple view of reading (§2.8.1 of Chapter 2). In this model, reading comprehension relies on decoding skills and linguistic comprehension. The low reading comprehension levels of learners in the baseline study might have been partially caused by their poor decoding skills. These learners need higher decoding skills for their attention resources to focus on meaning construction rather than on word identification (cf. Kuhn & Stahl, 2003).

5.4 The Learner Reading Questionnaire findings

The results for this section are part of Research Question 1a which provides background information and informs the context. A total of 346 learners completed the questionnaire. The Cronbach reliability coefficient of all the five questionnaire categories combined was .73, which is acceptable (§4.6 of Chapter 4). The results are presented according to the five categories of the Learner Questionnaire.

5.4.1 Reading attitudes, background, habit, strategies, and access to reading material

Table 5.10 shows slightly high means (in percentages) of the combined five questionnaire categories.

Table 5.10 Learner Reading Questionnaire scores

Category	Mean (%)	SD
Reading attitudes (n = 345)	68.2	5.9
Reading background (n = 342)	54.1	4.0
Reading habit (n = 344)	67.0	2.6
Reading strategies (n = 345)	63.6	1.9
Access to reading material (n = 345)	67.1	1.4

Table 5.10 shows that the means for all the questionnaire categories, except reading background, are between 60 and 70%. The means suggest that although the learners claim to have fairly positive reading attitudes (§4.6.5.1 of Chapter 4), their reading background is generally not supportive (about 54%). The responses also suggest that the learners claim to apply reading comprehension strategies (63.6%) and report having access to a fairly good number of books (67.1%). Given these generally positive responses, one would expect a fairly good reading performance of the learners.

Table 5.11 presents the questionnaire scores in terms of school, age group, and gender. As in the BWRT, ORF, and reading comprehension test, School 4 shows slightly higher responses in all the questionnaire categories relative to the other schools, and School 3 shows the lowest scores. The Pearson's chi-square results showed that there were significant differences between the scores of the schools in all the questionnaire categories, except for reading strategies. The chi-square results were X^2 (87, N = 345) = 127.228, p = .003 for reading attitudes, X^2 (54, N = 342) = 94.376, p = .001 for reading background, X^2 (36, N = 344) = 71.399, p = .000 for reading habit, X^2 (30, N = 345) = 36.674, p = .187 for reading strategies, and X^2 (15, N = 345) = 61.746,

$p = .000$ for access to reading materials. The chi-square test does not indicate where the significant differences lie between the groups.

Table 5.11 School, age, and gender means

	Reading attitudes %	Reading background %	Reading habit %	Reading strategies %	Access to reading material %
Schools					
School 1 (n = 103)	67.5	51.6	64.5	63.6	69.7
School 2 (n = 91)	66.7	56.0	66.9	60.0	52.9
School 3 (n = 77)	64.7	47.0	62.9	63.1	66.7
School 4 (n = 74)	74.9	63.1	74.7	68.3	81.6
Age groups					
10 (n = 54)	68.5	53.3	67.4	61.0	71.8
11 (n = 184)	70.1	56.8	68.3	64.6	67.4
12 (n = 70)	66.1	49.9	63.0	64.7	62.2
13 – 16 (n = 37)	62.3	49.6	66.8	59.9	68.6
Gender					
Females (n = 194)	70.6	55.0	68.0	65.0	69.0
Males (n = 151)	65.2	52.9	65.6	61.7	64.8
Total score	68.2	54.1	67.0	63.6	67.1

The Pearson's chi-square results showed no significant differences between the age groups in any of the questionnaire categories.

For gender, Table 5.11 shows that girls have slightly higher means in all the questionnaire categories. The Pearson's chi-square results showed that there were gender differences in reading attitudes, suggesting that girls like reading more than boys (X^2 (29, N = 345) = 43.474, $p = .041$). For the rest of the questionnaire categories, there were no significant gender differences.

5.4.2 Reading strategies

This sub-section describes more closely how learners' claim to apply certain reading comprehension strategies and the challenges they report.

Table 5.12 generally shows that the learners claim to apply different reading comprehension strategies. For example, 71.6% claim to sometimes or usually re-read sections of a text they do not understand, and 60.4% sometimes/usually ask themselves questions while reading. Considering the low scores in the reading comprehension test, the learners might have provided socially desirable responses.

Table 5.12 Learners' preferred reading strategies

Questions	Response categories	Total	Subtotals
		%	%
First skim the book	I never do this	29.6	
	I don't often do this	14.0	43.6
	I sometimes do this	38.4	
	I usually do this	18.0	56.4
Take note of headings and subheadings	I never do this	26.6	
	I don't often do this	15.7	42.3
	I sometimes do this	32.0	
	I usually do this	25.7	57.7
Only read for short stretches at a time	I never do this	28.4	
	I don't often do this	34.6	63.0
	I sometimes do this	16.4	
	I usually do this	20.6	37.0
Write notes in the margins of the textbook	I never do this	48.7	
	I don't often do this	14.3	63.0
	I sometimes do this	19.3	
	I usually do this	17.7	37.0
Underline parts that I think are important	I never do this	18.8	
	I don't often do this	14.1	32.9
	I sometimes do this	29.5	
	I usually do this	37.6	67.1
Look up words that I don't understand in a dictionary	I never do this	18.5	
	I don't often do this	12.9	31.4
	I sometimes do this	30.7	
	I usually do this	37.9	68.6
Look up words in a dictionary and then write their meanings	I never do this	28.6	
	I don't often do this	12.7	41.3
	I sometimes do this	27.9	
	I usually do this	30.8	58.7
Ask myself questions about the information while I read	I never do this	24.0	
	I don't often do this	15.6	39.6
	I sometimes do this	32.3	
	I usually do this	28.1	60.4
Re-read sections when I don't understand what's going on	I never do this	16.6	
	I don't often do this	11.8	28.4
	I sometimes do this	32.3	
	I usually do this	39.3	71.6
Draw mind maps or flowcharts of the information	I never do this	40.5	
	I don't often do this	15.4	55.9
	I sometimes do this	24.1	
	I usually do this	19.9	44.0
I ignore pictures, maps, charts or diagrams	I never do this	24.7	
	I don't often do this	26.1	50.8
	I sometimes do this	14.4	
	I usually do this	34.8	49.2
Make notes while I read (in a notebook)	I never do this	32.0	
	I don't often do this	13.7	45.7
	I sometimes do this	25.1	
	I usually do this	29.2	54.3

Figure 5.1 shows the frequency of responses to item 10 of the Learner Reading Questionnaire regarding the reading challenges learners face while reading English books. A total of 346 learners answered this item. The learners were required to select one or more items for the problems they face when reading.
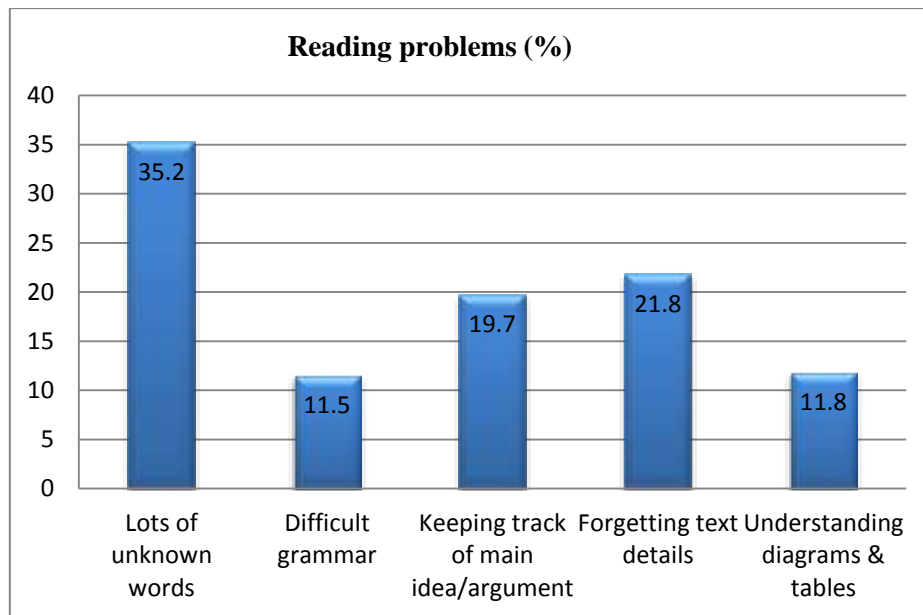
Figure 5.1 Aspects that pose reading problems for learners (n = 583)

Figure 5.1 shows that learners regard unknown words as the biggest challenge they face when reading. This suggests the need to improve the learners' vocabulary through a reading intervention. The second problem they face is forgetting text details, which can be caused by a lack or poor use of reading comprehension strategies. Additionally, the reading problem may be caused by poor decoding skills, resulting in cognitive attention going into decoding, making it difficult to hold text details in memory to construct meaning.

5.4.3 Access to reading material
This sub-section describes the findings for items 20 and 22 which were concerned with access to reading materials.

Figure 5.2 shows that about 31% of the learners did not have reading materials in their homes. The majority of the learners (i.e. about 63%) had less than 20 books in their homes.
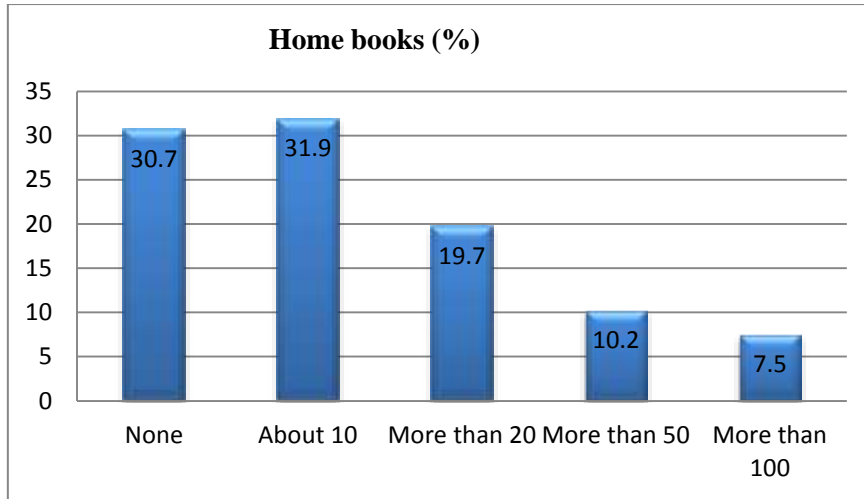
Figure 5.2 Available books in learners' homes (n= 345) (Item 20)

Only about 8% of the learners reported having more than 100 books in their homes, (which, given the generally low socioeconomic status of the schools' communities, may also reflect a socially desirable response). On the other hand, this number of learners with more than 100 may indicate that some learners come from slightly higher socioeconomic homes with more literacy capital.

Figure 5.3 shows the relationship between the reported number of books and the learners' performance in reading.
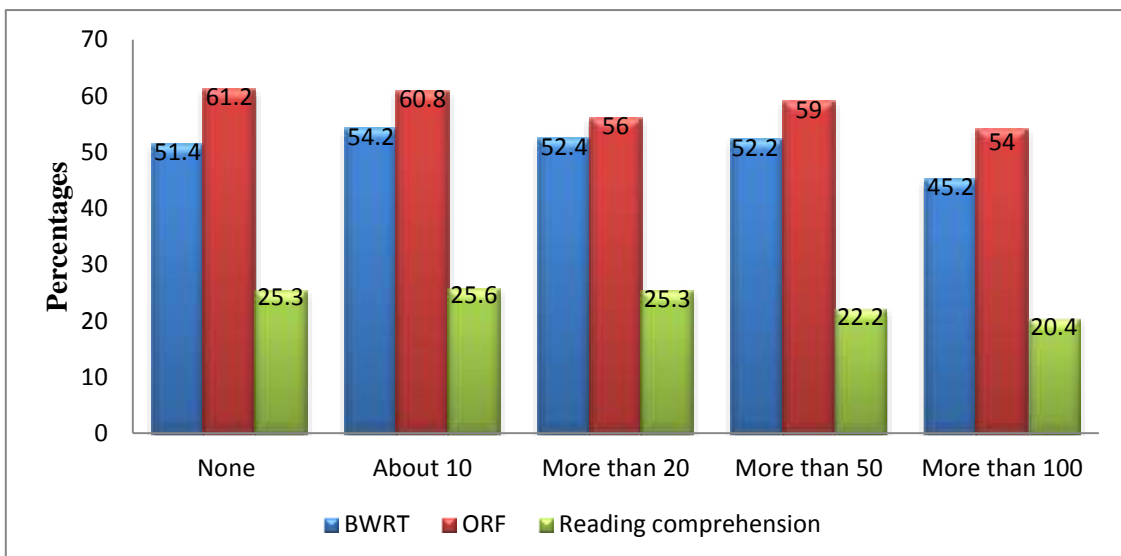
Figure 5.3 Relationship between number of books in learners' homes and reading performance

Spearman's rho showed that there was a negative association between book access and reading comprehension performance ($r_s(342) = -.078$, $p = .151$). Generally, Figure 5.3 shows that the learners who reported to have less than 50 books performed better in the reading assessments than those who claimed to have more than 50 and 100 books. The learners who indicated that they have more than 100 books in their homes (i.e. about 8% of the learners) had the weakest performance in the assessments. Homes with more books can support literacy because children have the opportunity to access the books and are more likely to engage in any form of reading at home. Figure 5.3 suggests that the poorest readers were inclined to provide socially desirable responses, probably because they wanted to be regarded as good readers or because of Dunning-Kruger effects.

Figure 5.4 shows that 11% of the learners indicated living in homes where newspapers are never bought. It seems the option for "Sometimes" was the popular choice with about 60% of the learners selecting it.
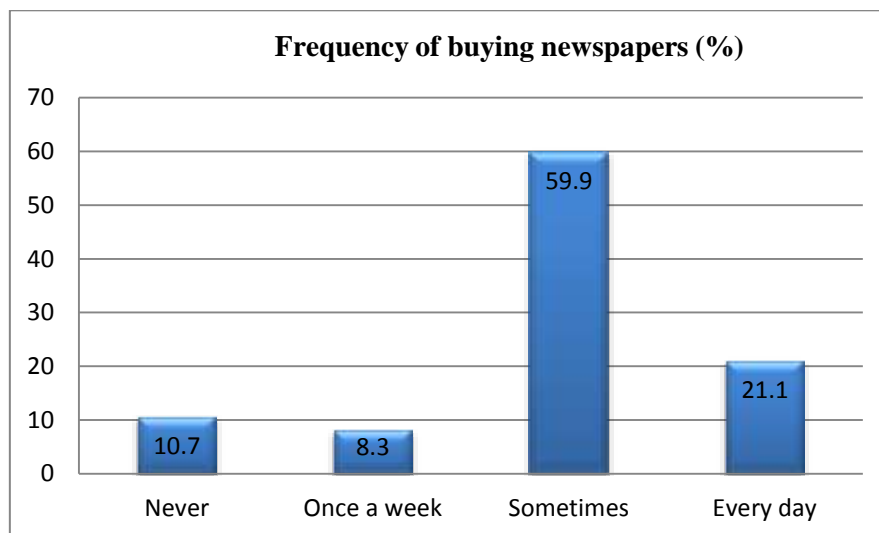
Figure 5.4 Availability of newspapers in learners' homes (n = 337) (Item 22)

In the next section the qualitative findings from the interviews with teachers and principals are presented.

5.5 Interview findings

This section addresses Research Question 1b. Before the intervention, a total of seven teachers (six for English and one for Social Studies) and four school principals were interviewed. Their biographical details are provided in Table 5.13. They have teaching experience from 9 to 38

years, and their highest qualifications are Basic Education Teacher Diploma (BETD), Bachelor of Education Degree (B.Ed.), and Bachelor of Education Honours (B.Ed. Hons.)

Table 5.13 Teachers and principals' biographical information

Teacher (T) / principal (P)	School	Gender	Age	Years of Teaching experience	Qualifications
T1	1	Female	-	16	BETD
T2	1	Female	34	9	BETD
T3	2	Female	27	2	B.Ed. Hons.
T4	2	Female	38	14	B.Ed.
T5	3	Female	37	14	BETD
T6	3	Male	36	12	BETD
T7	4	Male	34	10	BETD
P1	1	Male	57	37	B.Ed.
P2	2	Male	36	13	B.Ed.
P3	3	Male	53	35	B.Ed.
P4	4	Female	58	38	B.Ed. Hons.

The same procedure described in Chapter 4 (§4.5.4) was followed in interviewing the participants and analysing the transcripts to establish themes from the participants' responses. The following seven themes were determined from the responses of the teachers and the principals:

1. Teachers/principals' difficulty in reliably determining the levels at which their learners perform;
2. Teachers expressing awareness of the value of reading skills;
3. Learners are seen as not being motivated much to read;
4. Limited availability of reading materials;
5. Teachers revealing limited knowledge about reading and how to teach it;
6. Teachers not reading much for pleasure;
7. Teachers shifting responsibility for reading development.

The findings are presented according to the themes that emerged. The theme regarding teachers expressing limited knowledge about reading and how to teach it is examined in greater detail in section 5.6.

5.5.1 Teachers' and principals' perceptions about their learners' performance

The first theme that emerged from the interview data was about teachers'/principals' difficulty in reliably determining the levels at which their learners perform, based on questions about

reading, vocabulary, and estimating performance from the test. There were three trends that emerged within this theme: some described the majority of the learners as good readers, some regarded the majority as being poor readers, and some acknowledged they had a mix of good and poor readers. When probed further, some discrepancies between the respondents' responses and the learners' test results emerged.

Regarding reading, two teachers (representing 28.6%) felt that most of their learners are good readers, whereas five teachers (71.4%) acknowledged mixed reading ability. For example, Teacher 1 indicated that "three quarter of my learners can read well". Teacher 2 stated that when it comes to reading activities her learners "know what they're doing and they understand what they are reading". In spite of the fact that some of the teachers consider half of their class to be poor readers, they still regard all their learners as able to understand what they are reading. For example, the Social Studies teacher (Teacher 6) pointed out that although the learners read at different levels, they are all able to read to understand their school books. This suggests that teachers are under the impression that even weaker readers understand texts. The other possible explanation for the teachers overrating their learners' reading performance is because they had a misplaced notion of reading. For example, when one of the teachers was asked about what he referred to as 'reading well', he talked about his learners being able to read aloud clearly when they are given reading activities. In other words, it seems reading aloud is the teacher's notion of a good reader.

The principals seemed to acknowledge reading problems more than teachers, possibly because they had access to results from other schools in the region or school cluster and were therefore more aware of a broader perspective. School 4 principal seemed more confident, and the results show that School 4 did perform better than the other schools (normative), but in terms of reading criteria, the learners from all the schools were not yet good readers.

One principal stated that most of her learners were good readers; two indicated that they had a mix of good and weak readers, and one principal mentioned that most of his school learners were poor readers. For example, School 2 principal stated that he was not satisfied with the general reading ability of his school learners because of the learners' low performance compared to other schools in the Zambezi Region. School 4 principal indicated that she was satisfied with the reading ability of her learners because when it comes to reading competitions at the school she was impressed with how well her learners read. She further indicated that her

school learners normally produce good results in English and they borrow books in the school library, therefore she believed that the learners had a good reading culture.

Regarding vocabulary, the teachers were asked to describe the vocabulary knowledge of their learners. Two teachers described their learners' vocabulary as sufficient to understand reading materials, one teacher had a mix of learners with good and poor vocabulary, three teachers described their learners' vocabulary as poor, and one teacher was unable to gauge the vocabulary level of her learners. The same trend emerged in vocabulary as with reading. For example, Teacher 1 was overly optimistic about her learners' reading and vocabulary, Teacher 7 described his learners' vocabulary as poor, except for a few learners. The response from Teacher 7 that only a few of his learners had good vocabulary seemed to contradict his earlier statement that most of his learners could read well. Learners who read well are expected to have a good vocabulary that enables fluent reading and comprehension.

On the question about whether the teachers were familiar with the test administered to their learners, all seven teachers indicated that they were not familiar with the test. The teachers were asked to estimate the expected performance of their learners on the test (after they had looked through the test paper), and their predictions varied. Three teachers predicted that their learners would score around 50%, one teacher indicated that scores would vary from very weak to very good, two teachers predicted a score between 60% and 70%, and one teacher was not sure how her learners would perform. Two teachers referred to an average performance when they were asked to estimate the performance of their learners. When they were asked to explain what they meant by an average score, they indicated that it is a score from 50 to 59%.

Generally, considering the performance of the learners in the tests (§5.3.2), it seems the teachers tended to overestimate their learners' reading abilities. Even those who said they were mixed (some poor, some good) seemed to overestimate the abilities of their learners. The assessment results showed that even those at the 75th percentile (typically, the better readers) were not proficient readers. Several factors can account for this overrating, for example, poor content knowledge of reading, lack a broader frame of reference of what constitutes good reading and unfamiliarity with reading criteria.

One of the possible reasons for overrating the learners could stem from unreliable/unrealistic school assessments, that is, good learner performance on the assessments that the teachers set themselves. In one of the intervention schools, two English teachers requested me to look at

the reading comprehension questions they set for their learners and assist them in setting extra questions. All the assessment items focused only on literal reading comprehension. When I suggested that they include a few challenging questions at inferential reading comprehension level, the teachers objected, stating that their learners might fail and they would have to account for it. This suggests that the language and reading assessment measures that some of the teachers and principals use are superficial and not reliable indicators of ability.

Considering the performance of their learners in the reading assessments, two conclusions can be drawn from these responses. Firstly, teachers may not know much about reading or how to assess leaners, possibly due to poor training. Secondly, they may have tried to save face because acknowledging that they have learners who struggle to read may be seen as admitting that they are bad teachers.

5.5.2 Value of reading skills

Another theme that emerged was that of teachers expressing awareness of the value of reading skills, to some extent. The teachers attach value to reading skills mainly in functional terms, like helping learners answer assessment questions correctly and pass their school subjects. They did not mention other benefits such as developing general knowledge and being a life reader.

On the question about the role of reading skills in classes (or the curriculum), the seven teachers provided similar responses. For example, Teacher 2 responded:

> *If learners cannot read, it means they will fail because if they cannot read they will not understand what a question wants them to do. But those ones who can read then they can do well in learning than those ones who cannot read.*

Reading skills such as skimming and scanning were considered important for the following reasons; they help learners to understand the texts provided to them in school and, consequently, understand all their school subjects. From a language point of view, it was noted that reading skills contribute to developing learners' English language, writing skills, and advance their understanding as to how words are used in different contexts.

From the teachers' responses, various reasons emerged about why it is important for learners to be good readers in Grade 5. Some of the salient reasons given were: interest in visiting libraries to borrow books, ability to retell the stories they read, improve their learning, learn well and understand all their subjects, find learning much easier and interesting, understand vocabulary used in assessment questions, and perform well in school. It seems the teachers were aware of the value of learners being good readers, to some extent, even though they did not have good readers in their classes.

5.5.3 Learner motivation in reading

The responses from the teachers and the principals showed that they perceived the learners as not being motivated much to read. It seems that some strategies that teachers claimed to use to motivate learners to read are counter-productive. For example, four teachers claimed that they assign a lot of reading activities to the learners (such as giving them texts to read on their own) as a way of motivating them, but they seemed not to guide them on how to read. The Upper English syllabus recommends that teachers should select interesting texts and spend time guiding learners how to read.

On the question about what they think as their role in motivating learners to read, they mentioned five aspects. Firstly, they mentioned that their role was to explain to their learners the importance of reading. Secondly, they stated providing reading materials such as newspapers and magazines and a lot of reading activities in order for the learners to develop their reading skills. Providing a lot of reading materials can work for learners who have developed sufficient decoding skills. However, if learners struggle with decoding, then exposure to texts is likely to be daunting. The third aspect they mentioned was advising their learners on what to do to improve their reading. On this, they stated that they advise their learners to listen to the radio, watch some television programmes related to what they read, and encourage them to read frequently. Fourthly, one teacher mentioned reading newspapers to her learners in class, and guiding them on how to read. Another aspect they mentioned as their role is making learners read in class by asking them to read words on the chalkboard at the beginning of a lesson and organising reading competitions.

The teachers were asked how they motivate their learners to read. Four teachers mentioned that they encourage learners to read in class despite the difficulty of a text. This is a daunting task because giving learners a difficult text, for example, with a lot of unknown words, can make

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them consider reading a difficult activity, and consequently develop a negative attitude towards reading (cf. Pretorius & Murray, 2019; Castles, Rastle & Nation, 2018). One of the teachers also mentioned advising the learners to watch TV to learn English and to listen to the radio. They also stated that they give learners activities to read in groups and to the whole class, and organise classroom reading competitions so that their learners can be motivated to read.

Further, two teachers stated that they help learners with the pronunciation of unfamiliar words only when they have read the words wrongly. One teacher mentioned that she reads to her learners for them to listen to how she reads before asking them to read. This way, the teacher acts as a reading role model in front of learners. The teachers indicated that they also motivate learners to read by asking both reluctant readers and poor readers to read to the whole class. Another aspect mentioned is encouraging learners to visit the library to borrow books. However, the teacher admitted that some learners do not do their homework or borrow books from the library. This suggests that reading is a difficult activity to the learners.

One of the teachers mentioned that he motivates learners to read by telling them the importance of reading and asking them to reduce the time of watching television and rather spend more time on reading at home. Further, the teacher stated that his learners did not read at home, only in the classroom, therefore he used to give them different materials such as magazines and newspapers. When he was asked whether his learners used the library, he mentioned that the library was dysfunctional because it was used as a staffroom and learners did not find time to sit there and read.

All the teachers regard their strategies for motivating learners as effective because their learners put much effort in learning how to read. However, they admitted that not all the learners improve their reading skills, and some did not even follow advice given to them regarding reading regularly both at home and school.

The principals were asked about the reading culture of learners in their schools, and they expressed mixed views. Three principals acknowledged that their schools had a poor reading culture. They gave three reasons to support their perception of a poor reading culture. Firstly, the learners did not visit their school library or read books voluntarily, and instead they spend most of their time using their cell phones. The second reason is that the principals had observed their learners not reading in preparation for examinations even if they were aware that the end-

of-year assessments were near, but they opted to "lay their heads on desks rather than reading". Thirdly, one of the principals mentioned that a reading culture did not exist because his school did not even have a library, and there were no real attempts to develop a reading culture among learners. The principals who had school libraries stated that the learners were not willing to read because even if the library was open in the morning and afternoon only a very few learners would visit the library. The principals also observed that their learners prefer watching pictures or television over reading. Based on their responses, the principals seemed to think that it was up to the learners to display 'reading culture' behaviours, rather than a reading culture being shaped by top-down leadership at the school.

Only the principal at School 4 seemed to be content with the reading culture of the learners at her school because most of the learners tended to visit the school library to borrow books. However, this is contrary to Teacher 7 in School 4 who indicated that learners did not normally visit the library because it was not reader-friendly. The principal further supported the existence of a reading culture at her school by stating that when readathon activities took place at the school, learners usually appeared excited and that all learners from Grade 0-7 prepared very well for the reading activities. As stated earlier (§5.5.1), it seemed the principal was confident about her learners because of their better performance compared to other schools in the region.

5.5.4 Limited reading materials

Generally, the interview with the teachers and the principals showed that the learners are not exposed to enough reading materials, both at school and in their homes. The learners' homes seem to be severely short of reading materials, and considering their economic status, they can only read when schools provide reading opportunities for them. Two subthemes emerged from this theme: things beyond the teachers' control and actions they take to mitigate these problems. Things beyond the teachers' control include limited availability of reading materials, lack of libraries, dysfunctional libraries, and low socioeconomic status. What they reported to do to mitigate the problems includes: making copies of print material, searching for reading materials elsewhere, asking learners to share and bring their own reading materials, and organising reading activities such as competitions.

The teachers and the principals were asked to give their opinion on the available reading resources at their schools. All the teachers and the principals, except Teacher 7, indicated that there were limited reading materials in their schools. Teacher 7 was of the view that his school

had enough reading materials for all the learners in the library. The teacher's view is contrary to his principal, who indicated that the school did not have enough reading materials. The teacher mentioned that although he encourages learners to borrow books from the library, the majority did not use the reading materials because the library was not conducive for reading as it was also being used as a staffroom.

The teachers mentioned various ways to compensate for limited reading materials in their schools. One of the ways is to collect materials from elsewhere and/or making copies for the learners. Although the materials that the teachers collected from outside school were not enough, they still regarded those as useful for their Grade 5 learners. The teachers also said that they created and downloaded reading materials for their learners. Another way of making books available was to request learners to bring some reading materials such as newspapers and magazines from their homes. However, they experienced that only a few learners managed to do this, which suggests that there may be no reading materials in their homes. If there were few books, the teachers encouraged learners to share the available reading materials. Schools also organised a reading competition once per school trimester to compensate for the shortage of reading materials.

I also tried to establish the teachers' perception of the availability of reading resources in their learners' homes. Five teachers did not know whether there were reading materials in the learners' homes because the learners did not bring reading materials from their homes. Two teachers indicated that the learners did not have reading materials in their homes because of their low levels of reading. For example, Teacher 4 alluded to the low socioeconomic status of the learners, stating that some of them came from very poor homes, that they lived on the street selling items or begging for food. I also observed a few learners from the schools spending their time after school in the streets of Katima Mulilo in their school uniform and appeared to be begging for food and money. The teacher indicated that "if the parents are not educated so they don't know the importance of reading or buying a book for a child to read at home". Generally, all the teachers seemed to perceive their learners' homes as not having reading materials.

5.5.5 Teachers' own reading habits

In the interview responses, it also emerged that the teachers themselves did not read much for pleasure. Generally, the analysis of the participants' responses showed two subthemes here:

reading was not part of the teachers' habits, and reading was not part of their professional development. Four teachers claimed that they read every day (more for information than for pleasure), two read sometimes, and one teacher indicated that she did not read for pleasure.

The teachers indicated that they read print and online texts every day. When asked about the kind of things they read they mentioned news, magazines, bible, and story books, and they generally read about life in general, success, and relationships. The teachers who claimed to be readers started reading in primary/secondly school, college, and when they became teachers. When they were asked why they became keen readers, they gave various reasons such as reading competitions, reading activities assigned by teachers, curiosity, college language courses requirements, and library responsibility. Only Teacher 5 acknowledged that she was not a keen reader and expressed herself that "I'm always busy, so I don't have enough time" to read.

Even though some teachers seemed to report good reading habits, the teachers generally seemed not to be keen readers. The teachers also did not regard reading as part of their professional development because they did not mention reading materials that can enhance their subject knowledge or reading pedagogical materials to improve the way they teach. They may perceive themselves as already competent in their subjects, or they do not perceive the immediate applicability of reading experience to their teaching profession (cf. Broemmel, Evans, Lester, Rigell, & Lochmiller, 2019). The majority of the teachers seemed to read much about things that they regard as relevant to their private lives, for example, success and relationships. These teachers need to read to meaningfully contribute to the solution for the learners' poor reading skills.

5.5.6 Shifting blame for learners' poor reading ability

Another theme that emerged from the teachers and principals' responses was about shifting responsibility for learners' poor reading ability or, colloquially, 'passing the buck'. The majority of the participants seemed to shift blame when probed on the cause of poor language proficiency and poor reading culture of their learners. This may be because there seems to be no common vision or goal in primary schools in terms of teachers collectively developing learners' reading ability.

The teachers and principals who indicated that their learners (or some of them) were poor readers were queried on the various causes of the poor reading ability. Six different reasons for poor reading were mentioned. Firstly, four of the teachers referred to the learners' previous classroom experiences (i.e. not taught well in previous grades or schools) as the cause of poor reading ability. For example, Teacher 2 referred to a lack of reading activities in Grade 4. As the teacher was not teaching Grade 4 learners, she seemed to blame the previous teachers for the learners' poor reading levels. At the end of the interview, I asked her whether she had anything to say that we did not talk about during the interview, the teacher made a request saying "maybe you can help us". This suggests that although the teachers did not take responsibility for the poor reading ability of her learners, she was aware that she needed help in teaching reading to her learners. The other example of shifting responsibility to the learners' background was apparent when one of the teachers blamed the learners' poor performance in the BWRT and ORF test to their previous schools where they attended or started Pre-Primary or Grade 1. However, the majority of the learners who performed poorly in the assessments indicated that they started at their current school. The poor reading ability was also attributed to cases where some children did not attend Pre-Primary to "learn sounds and vowels of English". However, even if they attend Pre-Primary, they may still not develop reading ability, as is the case with those learners who did attend Pre-Primary and still performed poorly in primary school.

Secondly, the teachers mentioned the learners' home environment as a contributing factor. As one of the teachers remarked; 'these learners can never improve because of where they come from'. Additionally, the teacher said their parents are not educated and cannot do anything in reading.

Thirdly, poor performance was attributed to the length of the reading comprehension paper. For example, one of the teachers mentioned that her learners might not have performed well in the reading comprehension test because the paper was too long for her learners and that the stories were too long for their level. However, the texts used in the test were appropriate for their grade level (§4.4.3 of Chapter 4). Grade 4 and 5 learners in Namibian write an end-of-year examination for reading and directed writing of 1 hour 30 minutes, comprising two or three narrative and information texts of approximately 250-300 words each (Ministry of Education, Arts and Culture, 2015a), similar to the test administered to the Grade 5 learners. Although Text C was longer than 300 words, it was easy to follow and had a lot of visuals. The

teachers seemed to be concerned that the poor performance of the learners would be blamed on them.

Fourthly, two of the principals attributed the poor reading ability to a lack of commitment from teachers in teaching reading. They indicated that some teachers seemed to have a negative attitude towards reading and they did not do much to cultivate a reading culture. The principals mentioned that teachers were supposed to be in control of the learners, but they were not giving learners enough reading activities and motivating them so that they could develop a reading culture and improve their reading skills. In contrast, the teachers at the schools indicated that they gave a lot of reading activities to the learners. The principals acknowledged exceptions as they indicated that some teachers engaged learners in reading whereas others did not do much. When asked what they normally do as the school principals to improve the learners' reading ability, one of them mentioned that he used to ask teachers to keep encouraging learners to read, identify learners who were poor readers and asked teachers to assist the learners together with the parents.

Another contributing factor mentioned by both teachers and the principals is the language policy. For example, Teacher 5 mentioned that her learners could not read and speak English well because in Lower Primary they were taught in their L1 (Silozi). The principals also blamed the language policy that prescribes that learners must be taught in their mother tongue from Grade 1-3. For example, the School 4 principal argued that learners get to Grade 4 with very limited knowledge of English and could not even follow instructions in English, which results in some teachers continuing to teach in the learners' L1 even in Grade 4 for them to understand the subjects better. It seems the principals may not have been aware of the large body of evidence showing the importance of establishing strong language and literacy skills in L1 in order to support ESL leaning. As stated in Chapter 1, the majority of learners in the Zambezi Region have home languages with no written form therefore their home languages are not taught in School (§1.5). These learners instead learn Silozi as their L1, with many not reading well in either their L1 or L2. The principal further stated that the learners appear to develop good English reading skills towards the end of their Upper Primary Phase in Grade 6 or 7. However, no evidence for this argument is available in the Namibian context. The National Standardised Achievement Tests results show that even at Grade 7 level Namibian learners still perform poorly in English (§1.2.2 of Chapter 1). Additionally, the assessment results for

SACMEQ 1998, 2005, and 2010 where Namibian Grade 6 learners participated showed that the learners performed poorly in reading comprehension.

Sixthly, and last, the poor reading ability was blamed on Lower Primary teachers who apply the language policy. For example, one of the principals blamed Lower Primary teachers for applying the language policy by teaching in Silozi instead of introducing learners to English. I also probed about what his teachers did to develop learners' reading ability. He stated that he did not pay much attention to it because he was a Mathematician, and that the school management gave teachers the mandate to ensure that reading is being taken care in class until learners are able to read well. This response suggests that the principal did not assume leadership with regard to literacy at his school. He acknowledged the school management's shortcoming in not cultivating a reading culture at the school and he pointed out that there was an urgent need for management to take action in this regard.

Generally, it seems the teachers and the principals were reluctant to take responsibility for their learners' poor language and reading proficiency. Only the teachers who had not been teaching the learners in the previous grade or those who felt that they were not responsible for the learners' low language levels described the learners' language level accurately. Principals blamed teachers and the curriculum, and Grade 5 teachers shifted the blame for poor reading ability onto the teachers in lower grades and the parents. Yet research suggests that learners can benefit from reading instructions if teachers are empowered to teach reading and take responsibility for their learners' performance (Almasi & Hart, 2011; O'Sullivan, 2002).

5.6 Teaching of reading comprehension strategies

One of the themes that emerged from the interview analysis was teachers' limited knowledge about reading and how to teach it. In response to Research Question 1b: *How do teachers teach reading comprehension strategies?* this section describes how teachers in the four schools tended to teach reading comprehension strategies in their classrooms.

Language teachers are expected to know what reading entails so that they can better identify the reading needs of their learners (Ogle & Lang, 2011) and teach accordingly. Teachers need to talk about different kinds of reading comprehension strategies and model these to learners, using think-alouds, how good readers apply the strategies (or the 'moves' they make when reading) in different texts (cf. Ogle & Lang, 2011). The teachers and principals interviewed

seemed to have a misconception of reading, or reduced reading to a decoding activity, and tended not to know how to assist learners develop reading comprehension skills.

The teachers were asked what good Grade 5 readers should be able to do while reading. They mentioned indicators such as not being shy, reading loudly and expressively, ability to read fluently, consider punctuation marks, good pronunciation and intonation, and accuracy in word identification. None of these teachers mentioned nor alluded to critical aspects of reading or comprehension such as literal and deeper comprehension, previewing, questioning, inferring, predicting, and monitoring own understanding, suggesting that they had a superficial notion of a good reader. By Grade 5, these learners should be able to read on their own, read silently and with comprehension.

Three of the seven teachers indicated that they had never heard of reading comprehension strategies therefore they were not probed further on how they teach the strategies. The other teachers mentioned strategies such as skimming and scanning, and vocabulary clarification, and one teacher alluded to eliciting background knowledge. When asked how they taught the strategies they mentioned three different ways. For skimming and scanning, the teachers used to make learners understand the question so that when they skim and scan they focus on the question demands. However, they seemed not to realise that skimming and scanning rely on good decoding skills and fluent reading, skills that their learners had not yet mastered. Regarding vocabulary strategy, they explained that before reading a paragraph learners were asked to identify new words and then the teacher explains the meanings of the new words before the learners read the text. The analysis of the interviews showed that the teachers seemed to only explain the meanings of new words rather than also teaching learners how to figure out meanings of the new words on their own. For eliciting background knowledge, one of the teachers mentioned that she tended to make the whole class discuss what they know about a new topic for other learners who are not familiar with the topic to get some expectations of what they were likely to meet in a text to be read. When probed further, it was apparent that, apart from the discussions about the new topic, it seemed the teacher did not really guide learners on how to activate prior knowledge. One of the teachers was not able to explain how she taught the strategies she mentioned, implying that maybe she did not even teach the strategies.

When the teachers were asked about the grades in which the reading comprehension strategy should be taught, they mentioned different grades such as Grade 0 (Pre-Primary), Grade 3 and 4. Their reason for teaching the strategies in earlier grades was for the learners to be able to read well and be familiar with the strategies before going to Grade 5. Regarding the frequency of teaching the reading comprehension strategies, the teachers mentioned once a week or in each lesson.

The teachers and the principals were also asked how they taught reading in general or how they improved learners' reading ability. Most of the teachers (n = 6) stated that they provided learners with a lot of reading activities, but none of them mentioned how they guide learners how to read. The teachers indicated that some of their learners improve their reading whereas others 'never' improve. These teachers may not have been aware that learners who are not proficient readers may not enjoy reading even if they are given interesting stories. These poor readers need assistance to develop reading ability for them to start reading to learn and enjoy what they read. Only one teacher (Teacher 3) seemed to have some ideas on how to teach reading as she mentioned that she provided reading materials and read to her learners to be their reading role model and asked them to do the same. Even so, her approach did not involve explicit teaching of reading strategies.

The principals mentioned four different ways in which they tried to improve the learners' reading ability. Firstly they seemed to adopt a motivational approach by encouraging teachers and learners to do their best despite limited teaching and learning materials. While encouragement is important, on its own it is not adequate. Secondly, children who did not make academic progress were not promoted to the next grade. However, this seemed not to have been working as the results of the tests showed that the oldest learners, who were probably grade repeaters, performed poorly even after repeating a grade. There was no indication of how repeaters were supported to overcome their reading or learning difficulties. Retention of learners in a grade has a negative effect on a learner's academic achievement in reading and other school subjects because in most cases they receive limited support and tend to develop negative self-image and attitudes towards school (Hattie, 2009). Research shows that retaining a learner for a year increases the learner's chance of dropping out, and holding the child back twice guarantees the chance of dropping out (Hattie, 2009).

Thirdly, the principals mentioned that they tried to develop learners' reading ability by engaging the Regional Office for the Ministry of Education, Arts and Culture to make requests for reading materials in order to empower teachers. The material requested were for reading periods (single period per week) which were assigned to all teachers, including content subject teachers. When one of the principals was asked whether content subject teachers were using the reading periods effectively, he responded that the periods were not used effectively because the teachers were not trained to teach reading yet they were given reading periods. During the reading period, learners engage in reading materials in which they are interested. When I queried whether learners were taught how to read during the reading period, the principals expressed mixed perspectives. Some said that there was nothing taught by the teachers, but that learners were only given enough time to read anything that interests them silently or aloud, whereas others expressed the view that all the teachers integrate reading in their subjects. Further probing showed that the principals understood reading as activities whereby learners read aloud words or sentences on the chalkboard or their books. The fourth and last way of improving reading ability of the learners was participating in a readathon programme which took place once a year. This programme was an initiative from the Ministry of Education, Arts and Culture, and all Namibian schools were required to participate.

Generally, the teachers and principals seemed to have a little understanding of what good reading involves as reflected in their responses. Beyond generalised statements, they did not assume strong literacy leadership roles nor did they seem to have a clear idea of how to create a reading culture at their schools. They did not talk about reading strategies or reading with understanding. Even though four of the seven teachers claimed to be familiar with the reading comprehension strategies, their responses showed that did not know much about the strategies.

5.7 The relevance of an intervention

In light of the results for the baseline study, this section examines the need to carry out a reading comprehension intervention in the four research schools, in response to Research Question 1c: *Is there a need for an intervention to improve Grade 5 learners' reading comprehension?*

The baseline study showed that, generally, the Grade 5 learners in the four schools face serious challenges pertaining to various aspects of reading, such as decoding and reading comprehension (both literal and inferential) problems. The slow decoding scores in the BWRT suggest that they are not familiar with reading, even high frequency words in English, which

indirectly suggests low levels of vocabulary knowledge too. Good decoding skills can be a pathway for the learners to develop better vocabulary levels and reading comprehension. With good instructional practices, L2 learners can perform at similar decoding levels to their English HL peers (cf. Lesaux, Rupp, & Siegel, 2007; Chiappe & Siegel, 1999). L2 learners' main challenges lie in vocabulary and reading comprehension. Even some of the learners who appeared to read relatively fast in the ORF test were not able to answer some comprehension questions on parts of the text that they had read. Altogether, the results suggested a need for a reading comprehension intervention.

Although the Grade 5 learners displayed a positive reading attitude, they seemed to receive little support in terms of reading development for them to transform their reading attitude into the motivational drive to read. Positive reading attitudes usually develop when learners are motivated to read (Applegate & Applegate, 2004) or when they can decode without difficulty (Clark & Poulton, 2011). Reading is too effortful if decoding takes up all one's time and cognitive energy. A positive reading attitude is enhanced through reading instruction and opportunities to read. Furthermore, it should be noted that a positive reading attitude does not necessarily translate into action (§2.7 of Chapter 2). The positive reading attitude displayed by the poor readers may be aspirational (i.e. how the learners would like to see themselves) rather than how they actually are. Considering the socioeconomic status of the learners, many of them read only in the classroom. Even when reading materials are available, their poor decoding skills may make reading an arduous activity. Therefore, they need direct instruction in decoding and reading comprehension to become better readers.

Even though some teachers were aware that their learners struggle to read, they seemed to have limited content knowledge and pedagogic content knowledge about reading and how to teach it effectively despite the curriculum expecting them to teach decoding, vocabulary, and comprehension strategies. The schools seem to experience the 'Peter effect' (i.e. one cannot give what one does not have), whereby teachers are unable to convey to learners what they are entrusted to teach (Applegate & Applegate, 2004). The school principals also seem to lack a sense of urgency for reading challenges and empowerment of teachers. As these teachers appeared to lack or have little knowledge of reading comprehension strategies and they also seemed unaware of the role of decoding in reading comprehension and ways to promote fluent reading, empowering them to teach learners effectively may help break the cycle of poor reading. An intervention was called for because the teachers apparently needed extra training

in how to teach reading and how to address both decoding and reading comprehension needs, which in turn could also change the attitudes of teachers and principals towards teaching reading. Additionally, the intervention would help to establish what works in the Namibian context and it could guide other interventions in reading in the Namibian context or other Southern African countries with a similar learning context.

5.8 Teaching and learning activities needed for an intervention

Research Question 1d was formulated as: *What are the characteristics of teaching and learning activities that could lead to the improvement of the situation found in context analysis?*

Based on the poor outcomes of the reading results, questionnaire, and interviews with teachers and principals, a broader intervention was needed in the schools than was originally planned, one that included decoding as well as reading comprehension. The interview results displayed teachers' limited knowledge about reading, and the challenges they experienced in guiding learners through reading activities to target different kinds of reading skills, as required by their school curriculum. Therefore, empowering teachers first was of paramount importance so that they could make their instructional practices more effective and so improve learner performance**.** This could be done through raising awareness of teaching reading, improving their content knowledge, pedagogic knowledge of reading, and providing them with teaching and learning activities. The learners needed to be informed what the intervention was all about and what they were expected to do.

Although this study originally intended to emphasize the teaching of reading comprehension strategies, the results showed that the learners needed assistance in enhancing their decoding as well as their reading comprehension skills. From the poor word recognition skills revealed in the baseline study, one may also infer that the learners have low levels of vocabulary knowledge; therefore there was also a critical need for teachers to systematically develop learners' vocabulary levels. Teaching only reading comprehension strategies to learners with poor decoding skills is less likely to be effective because the learners have not yet mastered the lower level reading skills (Castles et al. 2018). Therefore the intervention was adapted to include three components, namely fluency, vocabulary, and comprehension. This intervention needed a different name to reflect a slightly different focus, as was done by Pretorius (2014), where the Grade 4 baseline study revealed poor English and literacy levels. Initially, this intervention was intended to develop Grade 5 learners' reading comprehension levels via reading comprehension strategy instruction. Because of the poor reading levels displayed in

the baseline study, the new title for the intervention became: *The design and effects of a catch-up reading intervention for Grade 5 teachers and learners in Namibia*.

5.8.1 Intervention approach and practices

This section briefly describes the main features and underlying logic of the intervention. Some details in this section derive from the *Teachers' Guide* which was designed for use during the intervention.

- The adapted intervention had a total of 32 lessons of 40 minutes each, each of which I designed based on existing materials. There were six ORF lessons for improving accuracy and fluency in reading, six for vocabulary learning strategies, and 17 for reading comprehension strategies. Vocabulary learning was integrated into each lesson. The *word sharing*, *before reading*, and *after reading* parts of the lessons covered about five minutes each, and the *during reading* part of the lesson constituted the bulk of the lesson, covering about 25 minutes. The lessons were presented in a systematic way. When using systematic instruction, skills or strategies presented in each lesson or activity build upon previous taught aspects in a logical sequence. The lessons followed the gradual release model (*I do it*, *we do it together*, *you do it*), with explicit instruction, modelling and feedback. These lessons were integrated into the normal teaching timetable. I provided the teachers with the materials and support they needed to teach the lessons, including the *Teachers' Guide* with scripted lesson plans.

- Do scripted literacy instructions work? Although scripted literacy instructions are criticised for reducing teachers' autonomy and for counter productivity, such criticisms usually emanate from the context of developed countries with well-trained and resourceful teachers (Dresser, 2012). In contrast, studies in poor performing contexts show that scripted lesson plans with guidelines can work well for teachers with limited knowledge in teaching reading (Piper & Korda, 2011). The effectiveness of scripted lesson plans has not been tested in the Namibian context. Therefore, the effectiveness of the *Teachers' Guide* with scripted lesson plans in this study was determined based on how the teachers used the document and how they responded to the post-intervention interviews (§8.3 of Chapter 8).

- The baseline findings suggested that learners needed to be taught vocabulary strategies and reading comprehension strategies directly for them to engage more meaningfully with the texts they read. Six research-based reading comprehension strategies (Almasi and Hart, 2011) which are easy to teach were identified. The strategies include: using background knowledge to make connections, clarifying difficult words, identifying text structure, making inferences and prediction, formulating main ideas, and monitoring comprehension. A gradual transfer of use of the strategies to learners (Almasi & Hart, 2011) may be an effective way to teach and scaffold the strategies. The intervention also raises teachers' awareness of the role of fluency and vocabulary in reading comprehension, and of considering the learning context when they teach the strategies, in order to serve all the learners. They should consider how the learners best learn and make all the learners feel comfortable to participate in a safe classroom environment, even if they do not know the exact answers.

5.9 Conclusion

The baseline study was useful in describing the characteristics of the English reading context of the study schools. The baseline showed that the learners had very poor reading comprehension skills and that the learning context for the learners was not sufficient for building strong reading skills and that there was a need for an intervention to improve the reading levels of the learners. The instruments seemed to have produced valid and reliable results on which to base this study's intervention. The results for the tests seem to be accurate as reflected in the high alpha reliability coefficient (§5.3.1-5.3.2). Although the instruments seemed to have worked well, there appeared to be some socially desirable responses from the Learner Reading Questionnaire. The socially desirable responses could have been caused by the Dunning-Kruger effect, in which poor performers are unaware of their own incompetence and feel confident about performing tasks in domains where they are incompetent (Kruger & Dunning, 1999).

The results of the baseline study changed the initial intervention of which the focus was only on reading comprehension. The results suggested that an intervention to improve the learners' reading comprehension needed to focus on trying to enhance teachers' content and pedagogical knowledge about reading, and to include activities for developing learners' decoding skills so that they can cope better with reading comprehension instruction.

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CHAPTER 6
FORMATIVE MONITORING AND ANALYSIS

6.0 Introduction

Chapter 6 describes the second phase of this study, which is concerned with the design, development, and implementation of an intervention to support Grade 5 learners to improve their reading levels. Plomp (2007: 15) refers to this stage of the study as the prototyping phase in which there are a number of iterations, "each being a micro-cycle of research with formative evaluation as the most important research activity aimed at improving and refining the intervention". In other words, based on the outcomes of the literature review and context analysis, the researcher designs an intervention based on preliminary design guidelines, evaluates the existing intervention to establish whether there is a need for improvement, and then re-designs the intervention following a number of iterations or circles (Figure 1.4) until a satisfying intervention design is realised. In Educational Design Research "the number of design iterations varies considerably per project and the duration can take from a few months up to several years" (Stoffelsma, 2014: 57). For this particular study, a total number of three iterations were performed. The focus in this chapter is on the formative monitoring processes and less on the detailed description of activities in the intervention. The global design of the intervention is presented in section 6.2; for a complete overview of the detailed intervention the reader is referred to Appendix 5.

During this evaluation, four of the six quality criteria for formative assessment as proposed by Nieveen (2007) were used: *Consistency of the intervention*, *expected practicality*, *actual practicality*, and *expected effectiveness* (cf. §4.2 of Chapter 4). These quality criteria will be examined through four of the research questions (Research Question 2-5), as presented in Chapter 4 (§4.2).

6.1 Tentative design principles

Plomp (2007: 13) describes design principles as "how to do" guidelines that are used to "structure and support the design and development activities" within educational design research. The tentative design principles described here were informed by findings from the literature review and the context analysis to develop the intervention prototype. In other words,

the design principles are based on theoretical arguments and evidence from the context analysis. I developed tentative design principles that were followed for developing the prototypes (or successive versions of the intervention), as proposed by Plomp (2007). In educational design research these tentative design principles function as a starting point of the development of the prototypes. Only after the prototypes have gone "through several design cycles of analysis, design, evaluation and reflection, the final scientific yield from the research is captured in a set of final design principles" (Stoffelsma, 2014: 80).

1. Engaging learners in reading for enjoyment

Engaging learners in reading in this context means drawing learners into reading by making interesting reading materials at their grade level easily accessible and allowing them to select what they want to read. The reading activities here can be done in class or elsewhere. Although the learners in the context analysis claimed to enjoy reading, their poor performance in the tests did not reflect good reading habits. As reported in Chapter 5, many learners who participated in the context analysis study (31%) indicated that they had no reading materials in their homes (§5.4.3). The learners also had no school library (School 2) or their library was not functional or well stocked (School 4). Even though the teachers overrated their learners' reading levels during the interviews, when the baseline study results were revealed they indicated that they expected low results because the learners did not like reading and were reluctant to read even when they were given class activities.

Literature has shown that learners develop positive reading attitudes when they are exposed to reading materials (Clark & Poulton, 2011), motivated to read (Applegate & Applegate, 2004), and that those who read for enjoyment succeed in their schooling (cf. Mol & Bus, 2011). In addition to developing positive attitudes, print exposes learners to multiple words, supports incidental vocabulary learning and helps to improve their word reading fluency (Castles, Rastle & Nation, 2018). A reading intervention needs to make reading fun and entertaining in order to enhance reading motivation (Appendix 5). Therefore, the following two design principles were formulated:

> **Design principle 1: The reading intervention should allow learners to select at least some of the interesting reading material themselves (motivation).**

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Design principle 2: The reading intervention should provide a sufficient number of texts that are at the right level for Grade 5 learners (print exposure).

2. Access to relevant teaching and learning materials

This aspect refers to the availability of materials for teachers and learners during lesson presentations. As explained in Chapter 5, all participating schools had limited access to teaching and learning materials, which can have a negative effect on the development of reading skills. The interview results and the reading assessments suggested that the learners in the schools were not exposed much to reading materials and the schools had a severe shortage of teaching and learning resources. A learner cannot become a good reader without regular practice in reading. Therefore, children need easy access to books or texts and read every day in school to become avid readers. Funds are needed to provide schools with books. To get past this obstacle, the intervention needed to provide appropriate reading texts as part of the lesson plans. The Progress in International Reading Literacy Study (PIRLS) 2006, 2011 and 2016 cycles consistently show that access to books is a necessary condition for learners to read for enjoyment, and develops reading and reading comprehension skills. Therefore, the following design principle was included.

Design principle 3: The intervention needs to include access to relevant teaching and learning materials (access to print).

3. Reading fluency

The results of the baseline study showed that, generally, the learners were reading so slow (mean of only 58.6 WCPM) that it was difficult for them to focus attention on constructing meaning. Learners who read slowly tend not to comprehend what they read (National Reading Panel, 2000). According to research, English as a second language (ESL) learners reading below 70 WCPM face reading challenges in terms of word recognition and comprehension (Pretorius & Spaull, 2016). This relationship also holds when reading in other languages, although the fluency metrics may be different (Ardington et al., 2020). The baseline study found a robust highly significant positive correlation between ORF and reading comprehension (§5.3.3 of Chapter 5). Based on the findings, the second design principle was formulated as follows:

Design principle 4: The reading intervention needs to include activities for developing learners' ORF.

4. Vocabulary learning strategies

There were four reasons for including vocabulary learning in the intervention. The first reason emanates from learners' poor word recognition in the Burt Word Reading Test (BWRT). Secondly, the questionnaire results showed learners regarding vocabulary as a major aspect posing reading problems for them (Figure 5.1 of Chapter 5). Thirdly, the learners were not exposed to enough reading materials both at school and in their homes for them to increase their vocabulary size by acquiring vocabulary incidentally. Lastly, research in both English as a first language (L1) and ESL has indicated that there is a relationship between vocabulary and reading comprehension (Stæhr, 2008; National Reading Panel, 2000). Based on these findings, the following design principle was formulated:

Design principle 5: The reading intervention needs to include vocabulary learning strategies (i.e. identifying and using word-parts and context clues).

5. Reading comprehension strategies

Because of the weak mean score (of 24.6%) in the reading comprehension test (§5.3.2 of Chapter 5) it was important to include a design guideline that targets the development of learners' reading comprehension strategies. The poor reading score partly suggested that the learners needed instruction to apply reading comprehension strategies to support their text comprehension. The need for reading comprehension strategies is also supported by the finding that the learners who participated in the baseline study did not report applying reading comprehension strategies much when reading. As discussed in Chapter 3 (§3.2), poor readers (and average readers) require instruction in reading comprehension strategies to improve their text comprehension (Almasi & Hart, 2011; Klapwijk & van der Walt, 2011). A total of four research-based reading comprehension strategies were selected because of their possible effectiveness and their appropriateness for the duration of the intervention. Teaching reading comprehension strategies explicitly helps learners recognise and apply ways of thinking that skilled readers use to understand texts (Shanahan et al., 2010). Therefore, the following design principle was included:

Design principle 6: The reading intervention needs to include the following reading comprehension strategies: activating prior knowledge, making predictions and inferences, comprehension monitoring, and using text structures.

6. Improve teacher content knowledge of reading and its components

The results of the baseline study showed that the teachers had limited content knowledge about reading and how to teach it effectively (§5.5 of Chapter 5). Research has shown that teachers can only teach reading effectively when they are empowered with knowledge and skills in reading (cf. O'Sullivan, 2002; National Reading Panel, 2000). For learners to benefit from reading instructions, teachers carrying out the intervention must be well trained to teach reading to the learners. Based on these findings, the following design principle was included in order to support the Grade 5 teachers to deepen their content knowledge of reading and how to teach reading.

Design principle 7: The reading intervention needs to include a teachers' guide to improve teachers' content knowledge of reading and its components.

7. Sample lesson plans

For teachers with limited knowledge in teaching reading, a guide with scripted lesson plans and guidelines is a good starting point (Piper & Korda, 2011). These sample lessons can enhance the teaching of the reading aspects and can help the teachers to be familiar with the structure for presenting reading lessons. Therefore, the following design principle was included.

Design principle 8: The reading intervention guide needs to include sample lesson plans for teachers.

From initial design principles to the first prototype

As previously explained, the current study is a modest interventionist study with a limited number of iterations. The initial design guidelines were selected by the researcher based on the outcomes of the literature review and context analysis. Although the consistency of the initial design guidelines, for example through an expert appraisal, was not determined, it is expected that the literature review and context analysis provide a sufficient basis for the selection of

these initial design principles. Based on the set of initial design principles, the researcher designed a *Teachers' Guide* for the intervention (see Appendix 5 for sample lessons).

The initial design principles described in this section were transformed into the first prototype or global design. Thereafter, several cycles of formative evaluation were conducted, as shown in the Figure 1.4 (Chapter 1). Table 6.1 shows the chronological overview of the research design for this study in terms cycles of evaluation stages.

Table 6.1 Chronological overview of formative evaluation

Period	Quality criterion	Development stage	Methods used	Evaluators
January/February 2019	Consistency (RQ2)	Design principles		
March-May 2019	Consistency and Expected practicality (RQ2, RQ3)	Global design	Expert appraisal of the prototypes. Walkthrough (workshop) with teachers.	Experts in reading Teachers implementing the intervention
June-October 2019 July 2019	Actual practicality (RQ4)	Partly detailed intervention	Field test. Micro-evaluation of six lessons for Teacher 3 and three lessons for Teacher 7.	Researcher
June/July 2019	Expected effectiveness (RQ5)	Partly detailed intervention	Classroom observations. Informal conversations with teachers. Interviews with learners.	Researcher
October/November 2019 December 2019	Actual effectiveness (RQ6)	Complete intervention	Experiment: Pre-intervention (January/February 2019) and post-intervention (October/November 2019). Interviews with teachers.	Researcher

Adapted from: Stoffelsma (2014: 173)

The important activities which were pertinent to the formative evaluation of the intervention are described below:

- Micro-evaluation: Two teachers tried out the designed intervention in the actual classroom situation and were observed and interviewed by the researcher to evaluate the practicality of the intervention

- Interviews: Teachers and learners were interviewed during and after the intervention.

- Informal conversations: The researcher held conversations with teachers during and after the intervention

- Field test: The researcher observed the partially detailed intervention being tested in the actual classroom context (cf. Stoffelsma, 2014).

The intervention for this study comprised four developmental stages (i.e. initial design principles, Global design, Partly detailed intervention and Complete intervention) out of which three were evaluated. The global design and partly detailed intervention were evaluated through formative assessment and the complete intervention was evaluated through a summative assessment.

6.2 Initial design

The initial design of the intervention included 32 lessons which were broken up into fluency, vocabulary learning, and reading comprehension strategies (Appendix 5).

Although some of the learners who were assessed during the context analysis seemed to need some form of instruction in phonics, only three aspects of reading (i.e. ORF, vocabulary, and comprehension) were included in the intervention design. According to the National Reading Panel (2000), an intervention for struggling readers should focus on all or one of the following reading components: Phonemic awareness, phonics, fluency, vocabulary, and comprehension. Because this intervention involves older learners (Grade 5) for whom reading is a learning tool (they read to learn), it focused only on the last three components. The first two components are important in the early grades (Grades 1-3) when learners are still learning to read. The initial idea was to implement only a reading comprehension strategies intervention, but the content analysis showed a strong need for ORF and vocabulary building strategies. The next section will answer whether or not the intervention was logically designed.

6.3 Consistency of the initial design (first iteration)

This section reports on the second quality criterion (i.e. *consistency*) that guided the design of the intervention and answers Research Question 2: ***Is the intervention logically designed?***

An expert appraisal was used to answer this question.

Research Question 2a was formulated as: *Which aspects of teaching reading are important to include in the design?*

The literature review (§3.2 of Chapter 3) has revealed that the following aspects of teaching reading are important to include in an intervention: fluency, vocabulary, and comprehension. These aspects were all included in the design (Appendix 5). The design emphasizes the decoding and vocabulary aspects a bit more than comprehension strategies because they support the development of reading comprehension (§2.8 of Chapter 2). After the learners had practised ORF (or become relatively fluent readers) and learned enough vocabulary to comprehend texts, they needed to be taught reading comprehension strategies because at this stage it becomes much easier for them to learn the strategies.

6.3.1 Integrating the intervention into the Upper Primary syllabus

In order to determine whether the reading aspects that were included in the design (§6.2) would fit into the content of the Upper Primary curriculum, question 2b was formulated as follows: *Does an intervention that emphasises the teaching of reading and reading comprehension strategies fit within the existing Upper Primary syllabus?*

The *English Second Language Syllabus (Grades 4 – 7) 2015* covers the teaching of ORF to some extent. It states that Upper Primary learners should be able to read for enjoyment; although the term fluency is not explicitly used in the syllabus, learners are expected to read aloud with correct pronunciation, use good voice projection, and use appropriate pauses to show understanding of a text; and read aloud with appropriate expression and intonation. The syllabus also covers vocabulary and reading comprehension strategies, as described in section 3.1 of Chapter 3. All these aspects described in this subsection and sections $5.3 - 5.5$ of Chapter 5 show that the intervention fits well within the existing Upper Primary curriculum. In other words, the content of the *Teachers' Guide* for the intervention was consistent with the syllabus content. However, the designed intervention in the *Teachers' Guide* gives the aspects more substance by presenting what each strategy entails and how to teach the strategies effectively.

After the first version of the *Teachers' Guide* had been drafted, the guide was sent to experts (two research supervisors) to evaluate the initial design. There were no interviews conducted

with them nor a checklist used for assessing the guide. The two experts made a number of suggestions on the *Teachers' Guide* and how to strengthen the teachers' content knowledge. They commented on the need to improve the layout of the *Teachers' Guide* and change the sequence of some lessons / activities. In terms of content, they suggested that more examples to support understanding of the content and more texts / activities for teaching and learning be provided.

The experts also commented on the reading components (i.e. ORF, vocabulary, and reading comprehension). Regarding fluency, they suggested that the *Teachers' Guide* include activities for teachers to assess their learners' ORF. They also suggested that activities be included that would help learners take ownership of reading – teachers to help learners set their own reading goals and encourage them to read every day both at school and home. In terms of vocabulary, they suggested that in addition to vocabulary building strategies, the teachers should help learners take ownership of vocabulary learning. Each learner should have a word buddy (i.e. a friend with whom to learn / share new words) and the learners need to share new words they encounter with the whole class during the first five minutes of the lesson to raise word awareness and enhance their vocabulary learning. On reading comprehension strategies, they suggested a bit of a change on the presentation sequence of some strategies according to their complexity.

The experts also provided suggestions for the teacher workshop which was going to be held before the intervention. Because of time constraints and the need to discuss each intervention aspect immediately before it is presented in class, only mini-workshops (and meetings) were held with two intervention and two support teachers (For further details regarding the role of the support teachers see §6.3.2). Short meetings were held at least once each week to guide the teachers (§7.4). The experts suggested that, during the workshop, the researcher should ensure that the teachers understand the contents by giving them multiple opportunities to talk about the strategies and practice how to teach the lessons with each other. The comments of the experts enhanced the design of the *Teachers' Guide* in terms of content and technical quality. Based on their comments, adjustments were made to the intervention in terms of content and layout. This was the first (small) iteration.

The guide was later also given to the teachers participating in the intervention. The evaluation of the *Teachers' Guide* focused on content and technical quality (§6.4). The teachers were

asked about uniformity of the guide in comparison to the syllabus content and they indicated that it was the same content as in the syllabus.

6.3.2 Addressing reading problems (RQ 2c)

This paragraph answers Research Question 2: *Will the intervention address the reading problems revealed in the context analysis?* The results of the context analysis (Chapter 5) showed that the participating learners were reading well below their grade level and that the intervention should include activities that can improve the learners' ORF, vocabulary, and reading comprehension strategies. In order to secure the consistency of the intervention, (i.e. answer RQ2) a checklist of the initial intervention design is presented in Table 6.2.

Table 6.2 Initial intervention design checklist

Target	Example activities	Amount of time
Reading for enjoyment (motivation)	*Learners tell their favourite stories; teacher reads a funny story fluently and expressively*	1 lesson, 40 minutes
Setting ORF goals (helping learners take ownership and responsibility for their reading development)	*Learners and teacher talk about (and demonstrate) qualities of good readers and how one becomes a good reader; learners set own oral reading goals using ORF chart.*	1 lesson, 40 minutes
Developing awareness of fiction and non-fiction texts	*Teacher explains differences between fiction and non-fiction texts; learners categorise words/phrases into fiction, shared section, and non-fiction.*	1 lesson, 40 minutes
Increasing ORF	*Teacher models fluent reading* (i.e. *reading with accuracy, speed, and intonation); learners read loudly and expressively as done by their teacher*	2x per week, 40 minutes (3 weeks) = 6 lessons
Building vocabulary	*Teacher models how to figure out meanings of new words; learners use word-parts and context clues strategies to learn new words*	2x per week, 40 minutes (3 weeks) = 6 lessons
Reading comprehension strategies	*Teacher models how to make inferences; learners use available clues and prior knowledge to make inferences.*	2x (or 1x) per week, 40 minutes (12 weeks) = 17 lessons

Table 6.2 shows which reading targets were addressed through which activities and the (estimated) time to be devoted to each activity during the intervention.

For learners to break the cycle of poor reading there is not only a need for a systematic intervention that addresses the identified problems, but also incorporates professional development for the teachers. An effective reading intervention requires training of teachers, providing clear instructional guidelines, and monitoring how the intervention is carried out (cf. Graham & Kelly, 2018). Therefore, the intervention also supported Grade 5 teachers to deepen their content knowledge of reading and how to teach reading effectively. This was done through teacher training.

Table 6.3 indicates the number of teachers who participated and the estimated training hours. Only the two teachers implementing the intervention participated fully in the meetings/mini-workshops. The two support teachers' role was to collaborate (or assist) with the intervention teachers on matters related to the intervention such as planning lessons together, class-visiting each other, and sharing challenges and successes of the intervention. These support teachers were selected because they were teaching English to Grade 5 classes that were not part of the A – B stream of classes selected for the intervention. One of the support teachers attended only the first meeting and was not able to continue with the rest because of an illness, and the other one did not attend all the meetings because of other commitments.

Table 6.3 Training for the intervention

Target	number of teachers	Amount of training time
Introduction to the *Teachers' Guide*	4	1 hour 30 minutes (1session)
Components of the intervention	3	1 hour (1 session)
Instructional principles and focus areas	3	1 hour 30 minutes (2 sessions)
Introduction lessons	2	2 hours (2 sessions)
ORF lessons	2	1 hour 30 minutes (3 sessions)
Vocabulary strategies lessons	2	2 hours (2 sessions)
Reading comprehension strategies	2	5 hours 30 minutes (6 sessions)

This intervention was deemed to be logical and consistent because its content and structure was informed by the literature review, supported by the pre-intervention assessment results and the content of the Grade 5 syllabus, and most importantly the intervention was aligned with the suggestions of experts in the field. The training of the teachers also seemed sufficient for them to understand the content of different aspects included in the *Teachers' Guide*.

6.4 Expected practicality of the initial design (second iteration)

The next step was to address the expected practicality of the designed intervention. Expected practicality was assessed by providing the participating teachers with a copy of the preliminary intervention design before the workshop and they were asked to give their comments and suggestions. The expected practicality was addressed by the following research question:

Research Question 3: *Is the intervention expected to be usable at Grade 5 level?*

By usable is meant that the intervention can be applied (or used) effectively as designed because it is clear and practical. This research question was broken down into three components:

Research Question 3a was: *Is the Teachers' Guide sufficiently clear to the users?*

During the workshop, the teachers were asked in a group session whether the content and guidelines in the guide were clear. On the technical aspects, they did not make any comments. Because the teachers appeared reluctant to read the *Teachers' Guide* on their own, I read through the study guide together with the teachers. They discussed its content, and the teachers practised how to present the lessons in the *Teachers' Guide*. During the workshop, the teachers spotted a few misprints, which were then corrected. All these activities showed that the teachers had a preliminary understanding of the guide. Although they seemed to understand it, they still needed some support in knowing how to implement it.

Research Question 3b was formulated as: *Is the number and level of activities acceptable to teachers?*

The teachers were particularly asked to indicate the kind of hurdles they foresaw using the *Teachers' Guide*. They gave positive remarks about the usefulness of the *Teachers' Guide*. The teachers only suggested the inclusion of teaching and learning resources as they were experiencing a severe shortage of reading materials. However, these teaching and learning resources were already built into the guide. They indicated that the learning activities were the same as the ones in the English syllabus; the difference lay in the manner of presenting the lessons.

Research Question 3c was formulated as: *Can the intervention fit within the existing teaching timetable?*

In all schools, there was at least one single English lesson each school day for 40 minutes for Grade 5. A few of the designed lessons appeared much longer and the content was reduced to

fit into the duration of 40 minutes. The teachers' feedback resulted in the second (small) iteration.

6.5 Actual practicality of the initial design (third iteration)

The teachers started implementing the intervention in June 2019, and the actual practicality of this intervention was evaluated through classroom observations (observing lesson presentations and learners' responses) and interviews with learners and teachers. The evaluation was done during the middle of July when normal teaching classes for Term 2 had ended; six weeks after the intervention had started. During this time, the teacher for the selected intervention classes in School 2 had taught 13 out of 32 lessons whereas the teacher in School 4 was a bit behind and had only presented the nine lessons for the ORF. The actual practicality addressed Research Question 4: ***Is the intervention usable at Grade 5 level?*** Assessing the notion of usability was broken up into five subsections.

6.5.1 Level of content

To address the usability of the level of the intervention content for the learners and teachers, Research Question 4a was formulated as: *Is the level of the content too difficult or too easy for the learners and teachers?*

The classroom observation (§6.6.1) by the researcher whereby only notes were taken showed that the content was at the right level for the learners. The learners appeared to enjoy the lessons (because of the excitement expressed and the level of participation) and they were able to do the activities given to them during class time. Semi-structured group interviews (§6.5.4) with a few selected learners (four in School 2 and four in School 4) supported the findings from classroom observations. Generally, the learners expressed pleasure for the fluency lessons. They also indicated that the content was well presented to them and that their teachers clarified parts that they did not understand during class activities.

For the two teachers, the classroom observations showed that they were enthusiastic and confident in presenting the lessons, particularly on building ORF. However, the teacher in School 2 appeared to be struggling a bit in teaching the first lesson for vocabulary building strategies. The teacher indicated that even though she had already taught learners about affixes before the intervention, she was not yet comfortable with the suggested lessons. She indicated that she needed more practice on how to present the lessons. Therefore, more time was allocated to help her present the lessons on vocabulary building. Even though the teacher

initially struggled to present the first lesson, she had been given opportunities to build up content knowledge for the set of lessons during the workshop. The challenges she experienced for presenting the first lesson was attributed to lack of adequate lesson preparation. The teacher admitted that after the workshop she did not make preparations prior to presenting the first lesson. This underscores the importance for prior planning and organisation before presenting a lesson, and the need for emphasising this in the workshop training.

6.5.2 Availability of instructional time

Research Question 4b was formulated as: *Can the teachers cover all the given topics within the given time of the classes?*

During the workshop, the teachers indicated that they were able to cover all the 32 reading lessons within a school trimester. Since the content of the intervention was in the Upper Primary syllabus, the intervention was integrated into the normal teaching schedule. By the time the intervention started, the teachers had already presented some of the content included in the intervention. However, the content was initially not presented as suggested in the *Teachers' Guide*. In other words, initially, the teachers assessed reading by giving their learners comprehension tests instead of teaching reading strategies (§7.1 of Chapter 7). Teacher 3 in School 2 indicated that she still had a lot of content to cover from the syllabus to prepare the learners for the end of the term assessments. The teacher was used to rushing through the syllabus content and then later revising it with the learners before they write examination. She felt that with the intervention, much time was spend on each reading strategy and would not allow her time to revise at the end of the term and attend to struggling learners. The teacher also realised that she needed to teach as suggested in the *Teachers' Guide*, rather than trying to 'cut corners'. Therefore the school management granted her permission to have extra lessons in the afternoons to attend to learners with learning difficulties. In School 4, the intervention teacher indicated that there was plenty of time for him to cover all the 32 lessons. The intervention lessons were presented during the normal classes.

The intervention was initially planned to cover all the 32 lessons in Term 2 of the school, but because of some delays (e.g. teachers attending extracurricular activities or teachers being on leave) it was not possible to cover all the lessons in a single term. This suggests that in reality more time was needed to cover all these lessons.

For some lessons, the teachers could not cover the content within the 40-minute periods because they spent more time than anticipated presenting some parts of the lesson, or because learners needed more time to finish class activities and so some lessons had to be completed in the next period. Generally, the instructional time was adequate, but the intervention period needed to be extended to accommodate unscheduled interruptions. The changes in extending the intervention suggest the need to limit the number of lessons per week to accommodate teachers' workload and unanticipated interruptions in teaching and learning.

6.5.3 Availability of time for homework

As learners were expected to be given homework during the intervention, the researcher used the first few weeks to examine whether the learners were actually doing their homework. This was addressed by Research Question 4c: *Do learners have sufficient time to do their homework?*

Generally, the classroom observations, conversations with teachers, and interviews with learners suggested that not all learners did the assigned activities at home. It seemed that there was no homework culture at the schools. When the teachers checked the learners' books at the beginning of the lesson for homework, it appeared that many of them did not do the homework and some of them only started to write the homework activities at the start of the lesson. The learners gave various excuses to their teachers for not doing their homework. This was particularly observed in School 2. The teachers in School 2 indicated that the majority of their learners did not do their homework, probably because they were not used to a culture of homework or their home environment was not favourable to do school activities. In contrast, the teacher in School 4 indicated that the majority of his learners always do their homework.

During the interviews with the learners, some of them (especially boys) indicated that they sometimes did not do their homework because they played a lot at home and forget the assigned activities. The majority of the learners interviewed indicated that they had time to do their homework.

Based on a seemingly limited homework culture, the intervention was adjusted in such a way that learners were directed to do some of the homework activities during schools hours. Moreover, they were invited to return to school in the afternoon to do the homework activities. However, there were still a few learners who did not come back for the activities.

6.5.4 Availability of teaching and learning resources

Research Question 4d was formulated as: *Are the teaching and learning materials for the intervention sufficiently available?*

Both the researcher's observations and interviews with learners and their teachers showed that the schools had limited reading materials; School 2 was severely affected. School 2 did not have a library whereas School 4 had a library but the reading materials were not enough for all the learners. The teachers appeared to rely only on the texts in the *Teachers' Guide* and did not provide additional texts despite the *Teachers' Guide* suggesting that the teachers can use learners' books and/or attached materials. The learners who were interviewed indicated that they had enough reading materials; they indicated that their teachers normally give them stories to read in class and at home. When they were asked to name the titles of the texts or stories given to them, the learners in School 2 mentioned only the texts in the *Teachers' Guide*. In School 4, the learners mentioned library materials in addition to the materials in the *Teachers' Guide*.

Some of the learners interviewed in both schools indicated that they sometimes went the Community Library in town to borrow books because they have developed an interest in reading since their teachers started teaching them how to read fluently. One of the learners in School 2 appealed to the researcher to talk to the school principal to do something to build a library at the school so that they can borrow more reading materials.

The responses of teachers in School 2 supported the researcher's observations. They indicated that they did not have sufficient learning and teaching materials apart from the ones provided in the *Teachers' Guide*. In School 4, the teacher indicated that the school library had reading materials, but not enough for all the learners. Based on these findings, the researcher and the teachers decided to make a collection of teaching and learning resources to be used during the intervention as well as after. The teachers designed a box where collected stories and information texts were kept for the learners to read.

6.5.5 Fidelity to the programme

Research Question 4e was formulated as: *Is there fidelity to the reading intervention programme?* Fidelity is defined as the extent to which an intervention is implemented as designed or intended (Folsom, Schmitz & Reed, 2018; O'Donnell, 2008). In this study, fidelity

was assessed through classroom observations (i.e. observing how lessons were presented and learners' response) and interviews with learners and the teachers.

Fidelity is important for three reasons. Firstly, it helps the researcher to establish whether the intervention is being carried out as intended or whether the implementers (or teachers) are not deviating from the design. Secondly, fidelity improves effectiveness of an intervention because the researcher can ensure that the teachers are guided to maintain the aspects that make the intervention effective (cf. Power, Blom-Hoffman, Clarke & Manz, 2005). Thirdly, it helps the researcher to link the outcomes of the intervention to the instructional practice (Reed, Cummings, Schaper, & Biancarosa, 2014).

Folsom et al. (2018) explain the distinction between two categories of fidelity that are important in this study: structural fidelity and procedural fidelity. Structural fidelity assesses whether the teachers have followed the designed intervention by presenting each lesson according to the suggested duration (40 minutes), number of sessions (32 lessons), and duration of the intervention (two school terms). Procedural fidelity is concerned with the way in which the teachers implement the intervention using processes and techniques suggested in the design. Additionally, procedural fidelity assesses the delivery quality and learner engagement or responsiveness during lesson presentations. According to Folsom et al. (2018) procedural fidelity can be addressed through questions such: "What was the nature of delivery and teacher/learner interactions?" "Did the teacher provide instructions in the manner expected?" Did the learners follow the directions and complete the activities as expected?"

Generally, the teachers presented the lessons as indicated in the *Teachers' Guide*. Based on the observed lessons, the teachers followed the gradual release model of responsibility (*I do it, we do it together; you do i*t). This was supported by some of the learners' responses during the interviews who indicated that their teachers first read to them and later asked them to read as he/she did. It was also observed that the teachers seemed committed to carrying out the intervention. For example, they created Word Walls where learners pasted their new words at the beginning of each lesson, encouraged and provided learners with texts to read for pleasure, and provided additional assistance to reluctant readers in class and after school hours. It should be noted that four teachers were selected to participate in the intervention (two from each school). Only one teacher from each school (Teacher 3 & Teacher 7) taught the intervention classes; others were supporting teachers.

Even though the teachers tried to follow the guidelines in the *Teachers' Guide*, there were a few challenges that needed attention. Firstly, Teacher 3 in School 2 appeared to forget to present some aspects of the first lesson on vocabulary strategies. After the lesson, the teacher indicated that she was a bit uncomfortable teaching the vocabulary building lessons. One of the reasons was probably because she had not prepared properly for the lesson. The other reason is related to the teachers' preparation during the workshop for the set of lessons on vocabulary strategies. It was not possible to meet all the teachers at the same time. The modelling part was not done effectively as one of the teachers (the support teacher) in School 2 left earlier, leaving only the researcher observing the intervention teacher modelling one of the lessons.

Based on the findings, a checklist (covering both content and procedural issues) was designed to increase the intervention fidelity. The checklist was completed by the teachers after each lesson to assess whether they presented the lesson as suggested in the *Teachers' Guide*. This manner of self-assessment was meant to prevent or reduce diversion from scripted lesson plans. Some modifications that teachers make when presenting intervention lessons (e.g. omitting content or adding details to a scripted lesson plan) can be detrimental to the quality of the lesson (cf. Piper, Sitabkhan, Mejia & Betts, 2018).

Based on observations, the researcher also decided to make an adjustment to the initial design by providing more coaching to the teachers before and after the lesson to increase fidelity of the intervention. Coaching is a strategy used to provide teachers with ongoing support they need to improve their reading instruction (cf. Pflepsen, 2018). Instead of a once-off training or workshop, coaching provides teachers with professional growth as they are continuously observed and provided with the emotional and instructional support they need. The ultimate goal of coaching is to enhance teachers' instructional practices in order to achieve the desired learning outcomes (Alsofrom, 2018). Coaching builds on Guskey's (1986) model of teacher change, which asserts that once teachers receive professional development, they can change their classroom practices, which then leads to change in learners' learning outcomes, and consequently changes the teachers' beliefs and attitudes (Guskey, 2002).

In sum, an adjustment to the initial design was made in terms of workload (extending the intervention period), homework (during school hours), and the coaching of the teachers to

increase fidelity to the intervention. Combined with the expected effectiveness below, this was the third small iteration.

6.6 Expected effectiveness (third iteration)

The expected effectiveness of the intervention refers to whether "the intervention is expected to result in the desired outcomes" (Nieveen, 2007: 94). The expected effectiveness was investigated by using classroom observations, informal conversations with teachers, interviews with learners, and interviews with teachers. This quality criterion was addressed through Research Question 5: *Is the intervention expected to result in improved reading comprehension of Grade 5 learners?*

This was broken down into five research subquestions.

6.6.1 Learners' reading contributions

Research Question 5a was formulated as: *Does the intervention have a positive effect on learners' reading contributions in class?*

It should be noted that answering this research question has its limitation since there was no pre-post comparison of how learners were engaged. In total, six lessons were observed for Teacher 3 (School 2) and three for Teacher 7 (School 4). Both classroom observations and conversations with teachers showed that the learners were enthusiastic and actively engaged in reading. Although there were a few learners who appeared reluctant to participate in class activities, many of the learners raised their hands to answer questions and volunteered to read texts when asked by their teachers. Generally, learners in School 4 appeared more willing to read voluntarily in class than those in school 2. Teacher 3 (School 2) regularly involved reluctant learners in reading activities and they later appeared to develop more interest in the lessons. According to Teacher 3, all her learners were interested in the reading lessons, but some of them did not want to read aloud in class because of their poor reading skills. The researcher observed some learners in the classroom trying to help their peers with how to read certain words and motivating them to read. One of the learners told his peer who was reluctant to read when asked by the teacher: "Just read. It's not difficult. I will help you".

6.6.2 Teachers' classroom practice

To evaluate the teaching practice, Research Question 5b was formulated as: *Is there a change in the teachers' classroom practices*?

The lesson observation showed that the teachers did follow the guidelines in the *Teachers'
Guide*. They appeared enthusiastic, followed the gradual release model (*I do it*, *we do it
together*, *you do it*) and involved even reluctant learners in their lessons. I also observed that
their level of confidence in teaching reading increased with each lesson observed. Additionally,
teachers appeared to understand the need to model each strategy to their learners as both
teachers used to tell their learners before modelling to pay attention so that they can show them
how to use the strategies before they were asked to practise. At the beginning of each lesson,
Teacher 2 informed her learners that she would show them how something is done, work with
them, and then let them do it on their own. This shows a shift in teaching focus from 'doing
reading' to 'teaching reading', using a scaffolded instructional approach (research-based). The
teachers started drawing attention to the development of skills and strategies, why they are
important and how they can be applied. As Teacher 7 remarked "We have not been teaching
reading. This intervention helped me to know *how* to teach reading". The teachers were clearly
happy with the new teaching approach as their learners also seemed to respond positively.

The enthusiasm for using the new teaching approach displayed by the teachers could be
attributed to the *Teachers' Guide*, support in terms of training and coaching, and teaching
materials. As in Guskey's (2002) model of teacher change, teachers' teaching practice changed
due to professional development, and the change in teaching practice can consequently lead to
changes in teachers' beliefs and attitudes when there are perceived positive results for the
change.

There were differences between the teachers in carrying out the intervention or classroom
practise and in uptake of content. Although both teachers followed the guidelines, Teacher 3
from School 2 displayed a lot of posters in her classroom and had a Magic Word Wall where
learners posted new words at the beginning of each day. Teacher 7 from School 4 did not seem
to set aside much time to make his classroom as colourful and 'print-rich', as Teacher 3.
Teacher 7 also had a much higher rate of classroom absenteeism due to ill health, sports
activities and extracurricular activities. Fewer lessons were observed for his classes because he
could sometimes not be found at the school for the scheduled classroom observation. For the
lessons that were observed, Teacher 7 did follow the suggested guidelines.

6.6.3 Learners' attitude towards reading

Research Question 5c was formulated as: *Is there a change of attitude noticeable amongst learners with regard to academic reading?*

Based on evidence gathered through classroom observations and post-observation conversations with teachers, the learners in both schools, including struggling readers, seemed to have developed a positive attitude towards reading. Teachers reported that learners made use of available intervention reading materials and that additional copies had to be made. Despite the availability of additional reading materials, some learners preferred re-reading stories in class probably because of familiarity with vocabulary in the texts. Better readers on the other hand appeared to read various texts, including their school textbooks.

Learners in School 2 appeared to have enjoyed the ORF lessons and were regularly asking their teacher when they would read again. Additionally, they appeared to enjoy sharing new words and pasting them on the Magic Word Wall. The post-observation conversations with the teachers revealed that the learners were developing an interest in reading since the beginning of the intervention. It was also reported by the teachers that more learners started bringing reading materials from their homes to the classroom for reading. As Teacher 7 remarked, "one of my learners was even telling me that 'Teacher, since we started reading I see that we are learning a lot of things'." This is an indication that the learners had developed more positive reading attitudes.

6.6.4 Teachers' perceptions about teaching reading

The teachers' perceptions regarding reading instruction was assessed through conversations with them during school visits. Research Question 5d was formulated as: *What are the teachers' perceptions about teaching comprehension explicitly as suggested in the Teachers' Guide?*

The teachers seemed to have developed a more positive attitude towards teaching reading, as suggested in the *Teachers' Guide*. Both teachers indicated that they would continue using the *Teachers' Guide* in the future because they had realised that it was helpful in improving their own teaching, and their learners' academic performance. Through training, coaching, and reading the *Teachers' Guide*, they realised that previously they had not been teaching reading effectively and that teaching reading involves a lot of strategies (see Chapter 7, §7.1). The

teachers, especially in School 2, asked the researcher to assist with extra reading materials for their learners to read for pleasure. Interviews and discussions with the teachers showed that they believed that teaching reading explicitly could help their learners improve their reading skills.

6.6.5 Teachers' perceptions about the uptake from their learners

Research Question 5e was formulated as: *What are the teachers' feelings about the uptake from their learners?*

Before the intervention the teachers believed that some of their learners could not learn to read. As Teacher 3 remarked at the beginning of the intervention, "we are wasting time with some of these learners. They can never improve". This perception is typical of teachers with little hope for the success of their learners. As Guskey (2002, 384) argues, "teachers who have been consistently unsuccessful in helping students from educationally disadvantaged backgrounds to attain a high standard of learning, for example, are likely to believe these students are incapable of academic excellence".

As the intervention progressed, the teachers started realising that their learners could become interested in the reading lessons and that there were signs of improvement in ORF and participation in class. The teachers indicated that the majority of their learners were participating in their lessons and seemed to develop their reading skills. Teacher 3 re-arranged the groupings of her learners and combined weak readers with good readers in groups, for the poor readers to benefit from good readers. After this seating arrangement, the teacher reported that the weak readers were getting more engaged in lessons and seemed to benefit from group and pair work. Generally, the teachers felt that the learners were doing activities as required and benefited from the teaching instruction.

The ongoing discussions with teachers and learners and classroom observations contributed to a better design of the intervention for a particular Namibian context. The design was enhanced through assessing the four quality criteria (*consistency*, *expected practicality*, *actual practicality*, and *expected effectiveness*) for formative evaluation. The design of this intervention was adjusted several times based on feedback from experts and teachers, classroom observations, and interviews with learners and teachers, leading to three iterations.

The following are the methods through which the design of the intervention was evaluated and the main adjustments made to the design:

- Experts' comments: Adjustments made to the content and layout of the *Teachers' Guide* (first iteration)

- Teachers' feedback: Reduced content of the lesson plans to fit into the 40-minute duration of lessons (second iteration)

- Classroom observations and interviews: Extended intervention period, homework changed to be done during school hours, and intensified coaching (third iteration)

The outcomes of the intervention helped to determine characteristics of an intervention that could lead to an improved reading comprehension of Grade 5 learners in Namibia.

6.7 Conclusion

This chapter presented how Phase 2 (i.e. the design, development and implementation phase) of this study was carried out. The aim of this intervention was to empower teachers with knowledge about reading and effective strategies for teaching reading, with the ultimate goal of improving Grade 5 learners' reading comprehension. Based on the discussions in this chapter, it appears that the major factors influencing the implementation of the intervention were the teachers and the availability of teaching and learning resources. Teachers should be willing and have time to carry out an intervention as designed. In this study, the teaching and learning resources such as the *Teachers' Guide* and a collection of additional reading materials may have contributed to the teachers' enthusiasm. The next chapter will provide a summative evaluation of the whole study whereby the actual effectiveness of the study will be evaluated.

CHAPTER 7

A SUMMATIVE EVALUATION OF THE INTERVENTION

7.0 Introduction

Chapter 7 evaluates the *actual effectiveness* of the reading intervention for this study, which was carried out in two intervention schools for two terms from June – October 2019. As stated in Chapter 5 and 6, this reading intervention for Grade 5 learners focused on improving English as a second language (ESL) learners' oral reading fluency (ORF), vocabulary, and reading comprehension. The results for the pre- and post-tests for both the intervention and control groups are examined to establish whether there is real improvement resulting from the intervention. The interviews with teachers yielded qualitative data whereas learners' reading assessments yielded quantitative data.

The summative evaluation is about change in teaching as well as improved learner outcomes. The objective of this chapter is twofold. First, it explores whether the intervention had an impact on the teachers in the intervention schools in terms of changed classroom practices and teaching reading. Moreover, it tests whether the learners' reading comprehension and decoding skills improved as a result of the intervention. Research Question 6 was formulated as follows:
 Did the reading comprehension intervention result in the desired outcomes?

The following two specific research questions are addressed in this chapter:
> 6a. *How did the reading comprehension intervention affect teachers' attitudes and practices towards the teaching of reading comprehension strategies to Grade 5 learners?*
> 6b. *How did the reading comprehension intervention affect Grade 5 learners' reading comprehension levels?*

Semi-structured individual interviews with two teachers in the intervention schools, conducted by the researcher, were used to find out how the teachers perceived and experienced the intervention.

7.1 Qualitative data presentation: Interviews with teachers

The intervention teachers were interviewed at the beginning of December 2019 at their schools. One of the aims of this study was to change the teachers' behaviour towards reading instructional practices. The theory that influenced this perspective is the Integrative Model of Behaviour Prediction (§1.1.4 of Chapter 1). Teacher empowerment is at the core of academic success because it helps them to teach in more effective ways (Hattie, 2015a). In this section I present the recorded and transcribed post-intervention interview results (Appendix 6) with two intervention teachers who were purposefully selected to be part of the intervention because they were teaching English to the Grade 5 A – B stream of classes. The two teachers (a male & female) were selected out of the seven teachers for the post-intervention interviews because they received training/coaching for teaching reading and they implemented the reading intervention. As explained in Chapter 6 (§6.3.2), the support teachers did not participate in most activities, therefore they were not included in the post-intervention interviews. The intervention teachers presented only 20 lessons out of the 32 designed lessons. Semi-structured interviews were used so that teachers could provide additional information if needed, and for the researcher to probe some details. When the teachers were interviewed, the learner data had not yet been analysed; therefore at that point the learners' results were not yet available. The interview responses were interpreted qualitatively using content analysis. The interview was first transcribed, and then several iterations of content analysis were done (§4.5.4). The responses to the questions posed during the interviews provided information from which the themes that are presented in Table 7.1 were derived. The findings are presented according to themes that emerged from the interviews with the teachers.

Table 7.1 Themes from post-intervention interview

Themes
Positive response to reading and lessons among learners
Learning and intervention challenges
Changing instructional practices
Positive feelings towards the intervention (teachers)

The qualitative component of this study sought to answer Research Question 6a: *How did the reading comprehension intervention affect teachers' attitudes towards the teaching of reading comprehension strategies to Grade 5 learners?*

The first theme that emerged was the **positive response to reading and lessons among learners**. This theme involves three aspects, namely increased learner participation, changes in attitudes towards reading, and learners enjoying the lessons. Regarding the first aspect, questions were posed to elicit information about learner participation in the intervention lessons. Both teachers portrayed their learners' participation positively. Teacher 3 [12]responded:

> *The learners were actively involved. They participated very well. Although time was really a challenge sometimes. They were excited for each and every lesson they were taught. Let me just say most of them they did participate, only a few were not participating. I would say those ones* [learners not participating] *are learners who are experiencing learning difficulties. But they were also trying to put more effort. All in all, everyone seemed willing to participate and they were all willing to participate.*

Teacher 7 responded:

> *Actually I would say most of them participated actively. Most of them were engaged. Even the few ones also followed suit.*

On the second aspect, both teachers indicated that they noticed some positive changes towards reading. Some of their remarks are as follows:

> Teacher 3*: What I noticed is that the learners improved much on focus and concentration. I don't know; maybe it's because the lessons were different compared to the ones that we normally have. Because each time they have a reading lesson, for instance, everyone seems to have time and energy to an extent that they even beg me to have a reading lesson instead of what was scheduled for that day.*

> Teacher 7: *I realised that during and after the intervention when I come in class I find that almost every learner, if not all of them, most of them, are busy taking newspapers and some different books. Some will even show me that "see the book, my mom bought the book. See the book my dad bought for me." Some would come to me and say I have*

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[12] A total of seven teachers participated in this study, but only two teachers who implemented the intervention were interviewed after the intervention and they have been referred to as Teacher 3 and Teacher 7 throughout this thesis. Teacher 3 was a female and Teacher 7 was a male.

to escort them to the library to borrow books because they are scared of the teachers who are there. Then I realised that these learners are developing the reading culture. I realised that this intervention is like it's really helping these learners.

These statements suggest that the intervention developed in learners a greater interest in reading. This interest in reading may have developed because of the ORF lessons (which may have improved their reading rates) coupled with pleasure reading that the learners were required to do every day.

The enjoyment aspect is supported by the teachers' responses that showed that the leaners enjoyed their reading lessons.

Teacher 3: They [learners] *did enjoy and they followed because I could see that even those that needed more help in reading their attitude changed. They became more willing to read. Some could take a passage from any story just to read it. But when you give them a different text to read you see that some are struggling, but the one that they have put much effort on* [the text they practised in class] *they won't struggle. For me it means they are trying to work out something when it comes to reading.*

Teacher 7: I would say they really followed and most of them enjoyed because there was a variety of texts. They used to read for enjoyment and in other texts they can learn some things, real life situations. So it's like they incorporated everything. They have come to love everything about what they used to read.

Teacher 3's remarks suggest that even poor readers' reading attitudes changed, as they enjoyed re-reading the texts with which they were familiar. This reading enjoyment comes with feelings of self-efficacy. The ORF activities may have helped them decode slightly better, which then gave them feeling of being able to manage reading better. The positive reader response is part of the socio-affective aspect of reading described in Chapter 2 (§2.1.2). The availability of various interesting texts also seems to have played a role in making reading enjoyable for the learners. Although Teacher 7's response reflects changed learner attitude towards reading, it is generalised and does not focus on specific aspects of the intervention. His lower fidelity to the programme due to absenteeism may mean that he was less in touch with nuanced changes in his learners compared to Teacher 3.

The next theme that surfaced during the interview was **learning and intervention challenges**. Three aspects emerged within this theme: Learning challenges, differentiated benefits, and intervention obstacles. Regarding learning challenges, this aspect emerged from the interviews with Teacher 3 who talked about learners with learning difficulties. I asked her to describe the sorts of learning difficulties that her learners experienced in her classroom. She responded as follows:

> *Reading difficulties is one of them. Some might have been in situations at home. Some situations at home are not allowing them to become active learners if* [as] *they are supposed to be, because of what they are going through at home.*

Although the teacher does not really answer the question about learning difficulties in the classroom, she recognises that external factors such as home environment can negatively affect learning in the classroom. She did not refer to the classroom or her teaching practice (or limited content knowledge of reading) as one of the factors making it difficult for struggling readers to develop better reading skills. Teacher 3 indicated that she helped learners with reading difficulties by changing the seating arrangements, and put struggling readers with better readers in the same group. This was done for them to become friends and for the better readers to assist the weak readers. Teacher 3 indicated that this seating arrangement helped struggling readers to put more effort in class activities. This arrangement suggests the teacher's willingness to try something different in her classroom.

Another aspect that emerged was about differentiated benefits, with some learners benefiting less from the intervention lessons than others. Although the teachers felt that the learners had developed positive reading attitudes, their learners' progress in reading required some probing. I was interested in the teachers' views regarding differences in the learners' uptake in the intervention. The teachers remarked as follows:

> Teacher 3: *I think the fact that already when we started there were learners that completely didn't know how to read. But as time progressed they started to learn a little bit. Maybe that is why there is such a small number of learners that just improved a little bit. That number that just improved a little bit is those learners that didn't know how to read. But those who performed* [improved much] *already knew how to read, but*

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the lessons have managed to give them that energy to be willing to read. But they still needed more time to do that to reach the right level.

Teacher 7: I would say they never had a strong base in reading. They are those learners that need more time to learn the strategies that are in the guide. If most of them were able to improve, why not them? Those are the kind of learners that are below average. They are the learners with very weak reading skills.

Both teachers seemed to understand that good readers benefit more from reading instructions than weak readers (cf. McCormick, 1995). Learners were trying their best to do the reading activities, including the struggling readers. However, the struggling readers still needed more time to catch up with their peers. Based on the understanding that poor readers need more time to catch up, the teachers indicated that during the next academic year they would start teaching earlier at the beginning of the academic year as outlined in the *Teachers' Guide* for all their learners to benefit from the lessons.

The last aspect of this theme that emerged during the interviews was about teachers facing obstacles in carrying out the intervention. Here I was concerned with the teachers' views about why they presented only 20 lessons for the intervention instead of 32 lessons despite the availability of teaching and learning time. Only Teacher 7's remarks contributed to this theme. However, observations and conversations with the teachers in the intervention schools showed that the limiting factors are similar in both intervention schools. For example, teachers had to attend workshops, do extracurricular activities, assess learners, go on leave, and adjust their teaching schedules due to the school-based examinations that started earlier in the third term than planned because the country's general elections took place at the end of November 2019. These limiting factors suggest that the 32 lessons should have been stretched over a longer period and this would have given more time for the large number of weak learners to catch up. Teacher 7 mentioned a couple of limiting factors to the intervention, for example:

Teacher 7: *It was administration work. Also time and a few activities of the school; you know these extracurricular activities. Let me say like urgent meetings, gatherings, and workshops. And I attended a lot of sports workshops, sports meetings and activities. I used to go out of the region. By doing so, time was limited.*

Time spent on teaching seems to be a challenge not only for the intervention, but also for daily teaching. The learners in Teacher 7's classes might have been losing out on a quite a lot of teaching time. When he was asked whether he thought the extracurricular activities affected his teaching negatively, he indicated they did only a little bit, affecting about 10% of his work. He further stated that he normally adjusts his scheme of work and makes sure that he covers 90% of his work. This might suggest that the teacher rushes though the lessons, which can negatively affect teaching quality. Although the teacher claimed to adjust his scheme of work, he did not seem to have done this for the intervention. The teacher's response also appears a bit defensive to minimise the potential cumulative damage for not being in class for a substantial number of days.

Another theme that arose was **changing instructional practices**. There were two aspects that emerged within this theme: improved instructional practices and explicitly teaching reading as done in the intervention. I tried to assess whether the intervention had changed the teachers' instructional practice for reading. The teachers responded as follows:

> Teacher 3: *I think it did because the way we teach reading here is absolutely different compared to what the intervention brought for us to be focusing on.*

> Teacher 7: *Actually the intervention even improved the quality of teaching that was going on this year. Since it started it improved most of the things; how reading should be taught. There is really an improvement. Maybe a paradigm shifts whereby learners were able to start understanding in a different way because of the intervention. It had positive impact on reading skills in the lessons.*

Both teachers seem to suggest that the intervention introduced them to a more effective teaching practice. They claimed that the intervention did not only change the way they teach but it also improved learning. The teachers also described how they used to teach reading before the intervention, for example:

> Teacher 3: *Previously, we would just call a learner to come in front and read a passage. If they can't read you help them. And that's all.*

Teacher 7: *Previously you would find that learners sometimes would just be given texts to read. They will just read but not guided. I would just tell them to read without guiding them; without following even strategies to comprehend. You find that that as if they didn't read the text. It's because of the way sometimes we give them just free reading without guiding them, without giving them strategies how to read, how to comprehend, how to use vocabulary, all that. There were a lot of things which were missing.*

The teachers' remarks about how they previously used to teach reading are similar. Their statements suggest that they acknowledged that previously they were not really teaching reading, but only assessing learners' reading skills which had not explicitly been taught. Although reflecting on their teaching practice is not sufficient to make a change, it may be an important first step in changing their behaviour.

The other aspect that emerged was the teacher adopting the teaching of reading as done in the intervention lessons. During the interviews with the two teachers, I tried to elicit information about whether the teachers would continue teaching as it was done during the intervention (or as indicated in the *Teachers' Guide*). The teachers' remarks helped to gauge their intentions and attitudes towards teaching reading and the intervention in general.

Teacher 3: *It's very much effective. I think I will continue to teaching the learners that way. I believe that if I start teaching the learners I will start from January next year. If I start in January next year, by the time they reach the end of first term everyone who will come to Grade 5 with reading difficulty will be fine with reading by that time.*

Teacher 7: *I intend to continue using the strategies in the guide because those are the ones I've realised that they can help learners have a better understanding. And the strategies can help them even in future or other grades. They can be able to master the skills or they can be able to understand everything else.*

Based on their comments, both teachers seem to have developed a positive attitude towards teaching reading as it was done during the intervention. Since the teachers were interviewed in December when normal teaching had stopped, Teacher 3 expressed the willingness to start using the *Teachers' Guide* in January when schools re-open for the new academic year. This change in attitude towards reading instruction supports Guskey's (1986) model of teacher

change described in Chapter 6 (§6.3.5). According to the model, teachers change when they receive support in instructional practices and perceive real improvement in their learners' performance. In February 2020, I made a follow up to find out whether the teachers were using the *Teachers' Guide* as they indicated. Both teachers stated that they had already taught some of the lessons in the *Teachers' Guide* for developing reading fluency, suggesting that they found the instructional practices useful. However, this claim was not supported with classroom observations.

The last theme was about teachers developing **positive feelings towards the intervention** in general. Some of the comments regarding their general feeling about the intervention contributed to this theme as follows:

> *Teacher 3: It was quite very wonderful and great for the learners. They enjoyed it* [the reading intervention]. *And I think that we are going to continue using it* [the *Teachers' Guide*] *for each group of learners that will be coming from Grade 4. Based on the feedback that I get from other teachers, they also liked it. They are also willing to use it, use the lessons. I shared it* [the *Teachers' Guide*] *with one teacher for Grade 6. I even explained some of the lessons, how she can teach the reading lessons, how she can act, and she has to get feedback whether the learners are enjoying and are willing to do some of the reading.*

> *Teacher 7: It is such a great benefit to our learners and an eye opener to us teachers. I came to feel pity for my colleagues who are in different schools because I know that they are in a wrong way of presenting this skill* [reading lessons]. *So it's like the intervention made me see how it can change a learner, especially when it's all about the whole learning process. So it's like I now know the way how to teach these skills, mostly reading skills. I will always share this in meetings, in our departmental meetings, as we always have meetings. Even in our mini-workshops or peer coaching. I will continue to use the activities that are there* [in the *Teachers' Guide*].

From the statements about the teachers' general view of the whole intervention, it seems three aspects are prominent: 1. The teachers perceived the intervention as very helpful to themselves as teachers and their learners; 2. They felt empowered to teach reading; and 3. The teachers intended to continue teaching as done during the intervention. These are three helpful steps in

changing their teaching practices. If sustained, the positive attitudes portrayed by the teachers, when combined with skills for teaching reading acquired during the intervention, can be translated into good teaching practice habits, and consequently improved learners' academic performance. However, sustainability of interventions is always a challenge because teachers may say things in the enthusiasm of the moment that they do not always follow through on. Follow-up post-intervention classroom visits and assessments of subsequent cohorts can establish to what extent the displayed change in instructional practices is sustained. In the next section I present the data for the scores of the learners in reading assessments during the pre- and post-intervention assessments.

7.2 Quantitative data presentation: Learners' performance

This section provides comparisons of how the control and the intervention schools performed in the pre- and post-intervention assessments. This helps to establish whether the intervention had an impact on the learners' performance. The research question for the quantitative data was formulated as follows: *6b. How did the reading comprehension intervention affect Grade 5 learners' reading comprehension levels?*

The decoding and reading comprehension results of 306 learners (§7.2.3) comprising 163 girls and 143 boys, with a mean age of 11.3, were analysed for the pre- and post-intervention assessments. There were two control schools (School 1 and 3) and two intervention schools (School 2 and 4).

7.2.1 Reliability analysis

I used Cronbach's alpha reliability test to establish whether the results were reliable. Table 7.2 shows the reliability coefficients for the Burt Word Reading Test (BWRT) and the reading comprehension test for both the pre- and post-intervention assessments. As explained in Chapter 4 (§4.6.1), the ORF is not in Table 7.2 because it is a timed test and the Cronbach reliability test cannot be applied to it.

Table 7.2 Cronbach's alpha Statistics for Pre- and post-intervention scores

Reading tests	Pre-intervention alpha	Post-intervention alpha
BWRT	.97	.96
Reading comprehension	.75	.82

The coefficient values show that the results for the tests are reliable. As in the context analysis, the reliability for the BWRT was excellent in both word recognition assessments. The Alpha value for the reading comprehension test was acceptable in the pre-intervention test and high in the post-intervention test.

7.2.2 Overall assessment results
The Kolmogorov-Smirnov test showed that data for the schools did not follow a normal distribution; therefore non-parametric tests were used for all the inferential statistical analysis. The results for the BWRT were: School 1 (D(df) = 85, $p < .05$; School 2 (D(df) = 87, $p < .05$; School 3 (D(df) = 62, $p > .05$; School 4 (D(df) = 69, $p < .05$. For ORF the results were: School 1 (D(df) = 85, $p < .05$; School 2 (D(df) 87, $p < .05$; School 3 (D(df) 62, $p > .05$; School 4 (D(df) = 69, $p > .05$. And for reading comprehension: School 1 (D(df) = 85, $p < .05$; School 2 (D(df) = 87, $p < .05$; School 3 (D(df) = 62, $p < .05$; School 4 (D(df) = 69, $p < .05$.

Table 7.3 shows descriptive statistics for the combined scores for the control (School 1 & 3) and intervention schools (School 2 & 4). The means (M) for word recognition are presented as words read correctly (WC), oral reading fluency in words correct per minute (WCPM), and reading comprehension in percentages (%). Detailed information about how the learners scored in each reading assessment is provided in subsections 7.2.3 – 7.2.5.

At the start of the intervention Levene's test of homogeneity was applied for the control and intervention schools on each of the three assessments to test for equality of variance. The results showed that the variances for the control and intervention groups were not equal for the word recognition ($F_{(1,304)} = 6.88$, $p = .009$) and ORF ($F_{(1,304)} = 5.37$, $p = .021$) in the pre-intervention assessment. The control schools had a slight advantage over the intervention schools. For reading comprehension, Levene's test showed equal variance between the pre-intervention groups ($F_{(1,304)} = .015$, $p = .902$).

Table 7.3 shows the number of learners, means, standard deviation (SD), standard error (SE), and confidence intervals (CI) indicating the lower (L) and upper (U) bound. The number of learners scoring zero for the assessment tasks is also indicated.

Table 7.3 Descriptive statistics for pre- and post- assessments (Means, SD, SE and CIL/U)

Test	Treatment	Pre-intervention, January/February 2019						Post-intervention, October/November 2019					
		n	M	SD	SE	CI L/U	Zero scores	n	M	SD	SE	CL L/U	Zero scores
Word recognition	Control	149	41.3	16.1	1.3	38.7 43.9	0	149	45.9	17.2	1.4	43.1 48.7	0
	Intervention	157	39.4	21.0	1.6	36.2 42.6	1	157	49.7	22.2	1.7	46.3 53.1	0
Oral reading fluency	Control	149	45.1	25.6	2.1	40.9 49.3	2	149	51.8	27.8	2.3	47.2 56.4	1
	Intervention	157	41.8	30.7	2.4	37.0 46.6	11	157	57.5	36.1	2.8	51.9 63.1	2
Reading comprehension	Control	149	18.5	11.2	0.9	16.7 20.3	0	149	24.5	13.9	1.1	22.3 26.7	0
	Intervention	157	18.2	11.0	0.8	16.4 20.0	1	157	26.5	15.2	1.2	24.1 28.9	0

Table 7.3 shows that the control schools had slightly better scores in all three pre-tests, while the intervention schools consistently performed better than the control schools in the post-intervention tests. The number of learners scoring zero for ORF in the intervention schools (11) reduced much in the posttests. Further details will be presented in the next subsections.

Spearman's rho was used to test the relationship between the decoding subtests, and between the decoding skills and comprehension skills.

Table 7.4 Spearman's rho correlations: Pre- and post-intervention

	Literal		Inferential		ORF		BWRT	
	pre	post	pre	post	pre	post	pre	post
RC total	.857**	.896**	.876**	.918*	.656**	.735**	.620**	.700**
Literal		-	.564**	.659**	.562**	.626**	.540**	.621**
Inferential		-		-	.627**	.710**	.592**	.663**
ORF		-		-		-	.893**	.886**

**All correlations are highly significant at the .001 level (2-tailed)

Table 7.4 shows that the correlations are highly significant, and that the different components of reading that were assessed show strong associations. As expected, Word reading and ORF strongly correlated, and word reading and ORF both show a strong relationship to reading comprehension, which increased in the posttests. The findings for the high significant correlations between the tests are very similar to those of the context analysis study (§5.3.3 of Chapter 5), suggesting that there is a close relationship between decoding tests (i.e. word recognition & ORF) and reading comprehension in this study. This relationship is further illustrated in Figure 7.1 which shows the standardised (Z-score) post-intervention reading scores.
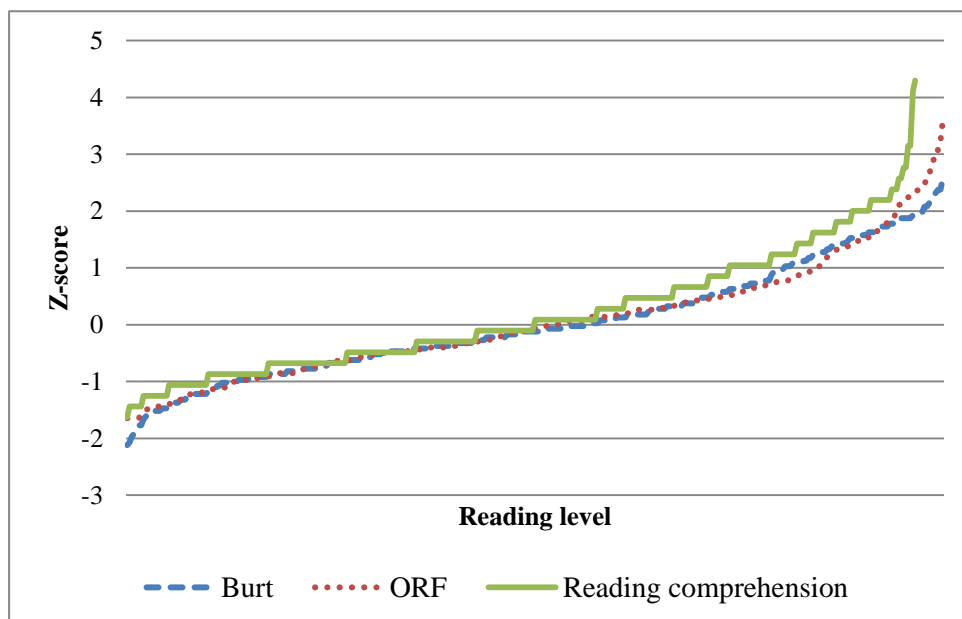
Figure 7.1 Trend in reading performance

Figure 7.1 shows that reading comprehension performance is associated with the level of decoding skills. At the end of the lines, each reading skill increases sharply, suggesting that a higher level of word recognition and reading fluency results in better comprehension levels.

7.2.3 Decoding: Word reading and oral reading fluency

A total of 335 leaners were tested on the BWRT and ORF for the pre-intervention assessment and 353 were tested for the post-intervention. Only 306 learners (149 for the control and 157 for the intervention group) who were assessed both times were included in the data analysis.

Word recognition

The descriptive statistics in Table 7.5 shows the overall means for the combined control and intervention schools in terms of the BWRT raw score out of 110 items.

Table 7.5 Overall Burt scores for the control and intervention schools

Treatment	Pre-intervention, January 2019			Post-intervention, October 2019				
	Mean	SD	Min. - Max.	Mean	SD	Min. Max.	Mean gains	Effect size: Cohen's d
Control (n=149)	41.3	16.1	9-84	45.9	17.2	15-91	4.6	0.27
Percentiles:								
25th	29			32			3	
50th	38			42			4	
75th	51			58			7	
Intervention(n=157)	39.4	21.0	1-90	49.7	22.2	7-98	10.3	0.47
Percentiles:								
25th	26			35			9	
50th	36			46			10	
75th	49			70			21	

Table 7.5 shows the intervention schools improved their word recognition with a mean point increase of 10.3 words, more than twice that of the control schools. Before the intervention, the control schools had a slight advantage, but after the intervention the intervention schools, at face value, performed better than the control schools. The percentiles show that the control and intervention schools' best performing cohorts at the 75th percentiles had slightly similar performance in words recognition at pre-intervention. However, the post-intervention scores show a wide gap between the best performing cohorts, suggesting that the best performing learners in the intervention schools benefited much from the reading instruction. The intervention also benefitted the weaker and average learners.

A Mann-Whitney test for independent samples results showed that the scores between the control and intervention groups were not statistically different for both the pre-intervention (U = 10853.500, p = .276) and post-intervention (U = 10229.000, p = .105). However, given that the intervention schools started form a slightly lower decoding base, the Wilcoxon matched pairs test was used to test for significant differences between the pre-intervention and post-intervention scores of the two groups. The results showed the pre- and post-intervention results for the control group were not statistically different (Z = -1.076, p = .282), but for the intervention group the post-intervention scores were statistically significant higher (Z = -2.104, p = .035), suggesting that the intervention had a positive effect on the learners' word recognition skills.

Further support for the impact of the intervention on word recognition is seen in the effect sizes of the two groups. The results may be considered to have a small effect size if d = 0.2, a medium effect if d = 0.4, and a large effect if d = 0.6 (Hattie, 2009). Table 7.5 shows the pre-post effect size of the Burt scores. Following this measure, the post-intervention results show a small effect size for the control group and a medium effect size for the intervention group.

Oral Reading fluency

Table 7.6 provides descriptive statistics for the outcomes measure of the ORF test.

Table 7.6 Overall ORF for the control and intervention groups

Treatment	Pre-intervention, January 2019			Post-intervention, October 2019				
	Mean	SD	Min. - Max.	Mean	SD	Min. Max.	Mean gains	Effect size: Cohen's d
Control (n=149) Percentiles:	45.1	25.6	0-118	51.8	27.8	0-149	6.7	0.25
25th	25			32			7	
50th	41			47			6	
75th	60			67			7	
Intervention (n=157) Percentiles:	41.8	30.7	0-135	57.5	36.1	0-165	15.7	0.46
25th	18			32			14	
50th	37			55			18	
75th	62			76			14	

Before the intervention the ORF means for the intervention schools were lower than for the control schools. From Table 7.6, it is evident that the intervention schools improved their reading speed remarkably (15.7 points on average) after the intervention whereas the control schools increased their reading speed by only 6.7 points, suggesting the success of the intervention. However, the control and the intervention schools were still making a similar number of errors in the post-intervention assessment (means of 9.3 and 9.0 respectively).

A Mann-Whitney test for independent samples was applied to test for significance differences between the scores for the control and the intervention schools. However, the ORF scores between the groups were not statistically different in both the pre-intervention and post-intervention tests. The intervention schools started from a much lower ORF base than the control schools, with 11 learners scoring zero in the ORF assessment at pre-test time. As in the Burt, the Wilcoxon matched pairs test results showed the posttest results were significantly higher than the pre-test results for the intervention group ($Z = -2.012$, $p = .044$), but not for the control group ($Z = -.970$, $p = .332$). Since only the intervention schools improved significantly on the ORF, the intervention seems to have brought about improved results.

Despite learning instruction provided in schools for the whole academic year, some of the learners were still not able to read even at the end of the year in Grade 5. In the pre-intervention assessment, two learners in the control schools and 11 learners in the intervention schools were not able to read at all. Interestingly, in the posttest the intervention schools reduced the number of learners who could not read to two. This suggests that struggling readers in the intervention schools had reading opportunities and assistance that helped them improve their reading skills.

7.2.4 Reading comprehension

All in all, 347 learners were tested for the pre-intervention and 341 for the post-intervention assessment. Table 7.7 provides the overall scores in percentages, including literal and inferential comprehension scores for the control and intervention groups in the reading comprehension test.

Table 7.7 Overall reading comprehension scores for the control and intervention schools

Treatment	Pre-intervention, February 2019			Post-intervention, November 2019				
	Mean %	SD	Min. - Max.	Mean %	SD	Min. - Max. %	Mean % gains	Effect size: Cohen's d
Control								
Literal	25.0	17.5	0-75	32.8	22.4	0-100	7.8	0.38
Inferential	15.8	9.7	0-46	20.6	11.8	0-58	4.8	0.44
Total score	18.5	11.2	3-55	24.5	13.9	3-66	6	0.47
Percentiles:								
25th	10.5			13.1				
50th	15.7			21.0				
75th	23.6			31.5				
Intervention								
Literal	25.6	18.0	0-83	36.4	21.6	0-83	10.8	0.54
inferential	14.8	9.5	0-46	21.9	14.2	0-81	7.1	0.58
Total score	18.2	11.0	0-53	26.5	15.2	3-82	8.3	0.62
Percentiles:								
25th	10.5			15.8				
50th	15.7			23.6				
75th	23.6			36.8				

Table 7.7 shows that the two groups' scores matched fairly evenly at the pre-test, but in the post-test the intervention group improved their reading comprehension (mean of 8.3 %) slightly more than the control group (mean of 6 %). A Mann-Whitney test for independent samples showed no statistically significant differences between the control and intervention groups at pre-intervention and post-intervention times. The matched pairs Wilcoxon test showed significant differences between pre- and posttest results for both control and intervention group (Z = -2.174, p = .030 and Z = -2.896, p = .004 respectively). The intervention group showed a larger effect size (d = 0.62) than the control schools (0.47).

7.2.5 The effect of schools, age, and gender on decoding and reading comprehension

This subsection presents learners' performance in terms of schools, age, and gender on word reading, ORF, and reading comprehension. The analysis of the subgroups is aimed at establishing whether these variables affected reading performance.

7.2.5.1 The effect of schools

Table 7.8 provides details about the performance of the learners on the Burt, ORF, and reading comprehension (RC) at level of individual schools.

Table 7.8 Overall School trend: Burt, ORF, and reading comprehension scores

Assessment and treatment	Sch.	Pre-intervention, January 2019				Post-intervention, October 2019				% gains
		n	Mean %	SD	Points difference from the Control	n	Mean %	SD	Points difference from Control	
Burt										
	1	87	44.2	17.3		87	48.1	17.0		3.9
Control	3	62	37.1	13.4		62	42.8	17.2		5.7
	Total		41.3	16.1			45.9	17.2		4.6
Intervention	2	88	34.6	20.5		88	45.6	21.9		11.0
	4	69	45.4	20.1		69	55.0	21.6		9.6
	Total		39.4	21.0	-1.9		49.7	22.2	3.8	10.3
ORF										
	1	87	47.9	26.9		87	54.3	29.7		6.4
Control	3	62	41.0	23.2		62	48.4	24.8		7.4
	Total		45.1	25.1			51.8	27.7		6.7
Intervention	2	88	34.5	28.3		88	51.3	35.5		16.8
	4	69	51.2	31.3		69	65.2	35.7		14
	Total		41.8	30.0	-3.3		57.5	35.5	5.7	15.7
RC										
	1	87	21.3	11.9		87	27.8	14.7		6.5
Control	3	62	14.5	8.7		62	19.9	11.5		5.4
	Total		18.5	11.2			24.5	13.9		6
Intervention	2	88	15.2	9.8		88	24.1	14.7		8.9
	4	69	22.0	11.3		69	29.5	15.3		7.5
	Total		18.2	11.0	-0.3		26.5	15.2	2	8.3

Word recognition

Table 7.8 shows that both intervention schools (School 2 & 4) improved greatly at face value by 11 and 9.6 mean points. The control schools appear to have improved a little with 3.9 and 5.7 mean points.

To test for significant differences between all the four study schools, an independent samples Kruskal-Wallis test was applied. The test results, an independent samples Kruskal-Wallis test showed that there were significant differences between the study schools for both the pre-intervention (X^2 (3, N = 305) = 6.501, p = .000) and post-intervention (X^2 (3, N = 302) = 4.772, p = .003). Therefore, a Kruskal-Wallis one-way ANOVA (k samples) post hoc test was conducted to test pairwise comparisons of schools. For the pre-intervention, the results showed that significant differences emerged between School 1 and School 2 (p = .004) and School 2

and 4 ($p = .002$) suggesting that School 2 (intervention) with the lowest mean was outperformed by School 1 (Control) and School 4 (intervention). For the post-intervention, a control school did not outperform an intervention school. The results showed that significant differences emerged between School 4 and 2 ($p = .019$) and School 4 and 3 ($p = .003$).

Figure 7.2 shows the growth of the learners from the four schools in word reading from the pre-intervention to post-intervention.
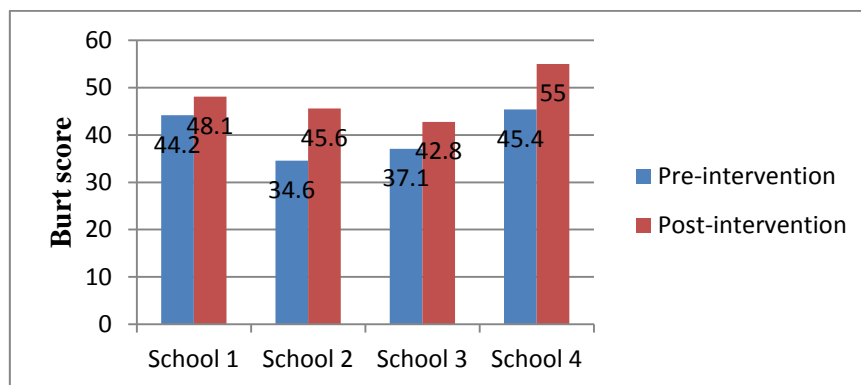
Figure 7.2 Pre- and post-intervention word recognition per school

Oral reading fluency

Table 7.8 shows that School 2 (intervention) had the lowest mean score in the pre-intervention test, but surprisingly it showed the most improvement in the ORF (16.8 mean points increase). School 1 (control) and School 4 (intervention) had a better reading rate before the intervention than the learners from the other two schools. The interventions improved their reading speed more than twice that of the control schools. Both control schools showed only a small improvement on reading speed (6.4 & 7.4 WCPM) whereas each of the intervention schools had a large mean increase of over 14 WCPM, suggesting success for the intervention.

An independent samples Kruskal-Wallis test was applied to test for significant differences between the scores of the four schools. The results showed that there were significant differences between the schools for both the pre-intervention (X^2 (3, $N = 305$) = 5.806, $p = .001$) and the post-intervention tests (X^2 (3, $N = 302$) = 3.595, $p = .014$). The Kruskal-Wallis one-way ANOVA (k samples) post hoc test was then conducted to test pairwise comparisons of the four schools. The results for the pre-intervention study showed that significant differences emerged between School 2 ($M = 34$, $SD = 28.3$) and School 1 ($M = 47.9$, $SD = 26.9$;

p = .008), and School 2 and 4 (*M* = 51.2, *SD*: 31.3; *p* = .001). For the post-intervention results, a significant difference emerged only between School 3 (*M* = 48.4, *SD* = 24.8) and School 4 (*M* = 65.2, *SD* = 35.7; *p* = .017), indicating that school 4 (an intervention school) outperformed the control school.

Figure 7.3 shows that learners from the control schools did not improve much in comparison to the intervention schools.
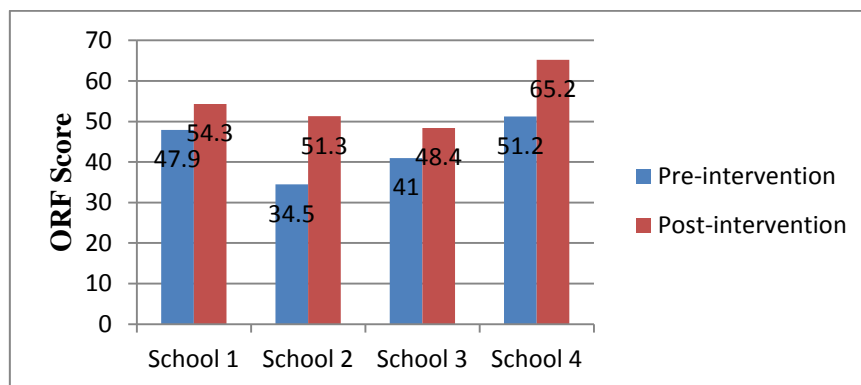
Figure 7.3 Pre- and post-intervention ORF per school

Reading comprehension

Unlike the ORF and the BWRT results, smaller improvements occur in reading comprehension. Descriptive results in Table 7.8 show that each of the intervention schools improved slightly more than the control schools. Interestingly, intervention School 2 with a lower reading comprehension than School 1 and 4 in the pre-intervention test had the highest mean percentage gains (8.9) after the intervention, suggesting that the learners in School 2 had benefitted from the intervention.

An independent samples Kruskal-Wallis test showed significant differences between the schools for both the pre-intervention (X^2 (3, *N* = 305) = 10.187, *p* = .000) and the post-intervention test (X^2 (3, *N* = 302) = 5.883, *p* = .001). A Kruskal-Wallis one-way ANOVA (k samples) post hoc test showed that significant differences emerged between School 1 and School 2 (*p* = .001), School 1 and 3 (*p* = .001), and also between School 4 and School 2 (*p* = .001), and School 4 and 3 (*p* = 000). For the post-intervention, significant results emerged between School 3 and School 1 (*p* = .007), and School 3 and 4 (*p* = .001).

As in word recognition and ORF, Table 7.4 shows that learners from School 2 started off from a similar comprehension level as learners from School 3, but improved much better in the post-intervention assessment.
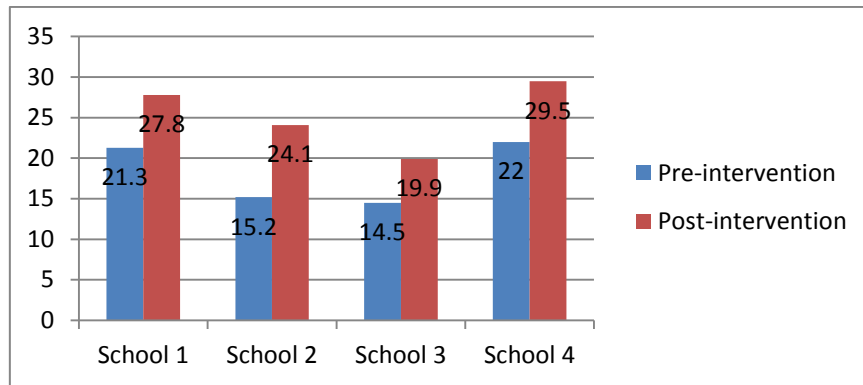
Figure 7.4 Pre- and post-intervention reading comprehension per school

Generally, in terms of ranking, School 2 was the weakest school in the pre-intervention assessments, but not in the post-intervention and School 4 was the strongest school in both the pre-and post-intervention assessments.

7.2.5.2 The effect of age

Table 7.9 provides details about the performance of the learners on the Burt, ORF, and reading comprehension in terms of age groups.

Word recognition

The results show that the grade age level groups (10 and 11-year-olds) performed better than the older learners in the Burt. The 10-year-olds consistently performed better than other age groups at face value, and these youngest learners show the highest improvement (8.2 points) in terms of word recognition points after the intervention. Table 7.9 shows that the oldest learners had poor word recognition and improved only slightly, by 4.5 points, suggesting that they benefited less from schooling. These are the children who often repeat grades and have some learning difficulties. Generally, it seems the performance on the Burt is influenced by age, with the youngest age group performing better and the older age groups performing poorly.

Table 7.9 Age group effect: Burt, ORF, and reading comprehension scores

Assessment and age group	Pre-intervention, January 2019			Post-intervention, October 2019			% gains
	n	Mean	SD	n	Mean	SD	
Burt							
10	175	44.4	18.7	175	52.6	19.5	8.2
11	89	37.5	16.3	89	44.8	18.0	7.3
12	29	28.0	17.5	29	34.4	18.1	6.4
13-16	13	31.1	21.4	13	35.6	21.7	4.5
10-11	264	41.0	17.5	264	48.7	19.2	7.7
12-16	42	29.5	17.9	42	35.0	18.4	5.5
ORF							
10	175	49.7	29.0	175	62.1	33.3	12.4
11	89	38.5	24.2	89	48.2	27.8	9.7
12	29	25.0	25.0	29	35.1	27.7	10.1
13-16	13	33.3	27.6	13	42.6	31.3	9.3
10-11	264	44.1	26.3	264	55.1	31.7	11
12-16	42	29.1	24.4	42	38.8	27.8	9.7
RC							
10	175	20.6	12.1	175	29.3	15.3	8.7
11	89	15.9	8.7	89	21.7	11.9	5.8
12	29	12.5	7.2	29	17.7	11.4	5.2
13-16	13	17.0	9.9	13	18.0	11.6	1
10-11	264	18.3	11.0	264	25.5	14.4	7.2
12-16	42	14.8	7.9	42	17.9	11.4	3.1

An independent samples Kruskal-Wallis test was applied to test for significant differences between age groups. The results showed that there were significant differences between the age groups in both the pre- and the post-intervention tests (X^2 (3, N = 305) = 9.316, p = .000 and X^2 (3, N = 302) = 10.814, p = .000 respectively). The Kruskal-Wallis one-way ANOVA (k samples) post hoc test was then conducted to test pairwise comparisons of age groups. For the pre-intervention results, the test showed that significant differences emerged between the 10-year-olds and the other three age groups. The results were: 10-year-olds and 11-year-olds (p = .022); 10-year-olds and 12-year-olds (p = .000); and 10-year-olds and 13 to 16-year-olds (p = .026). For the post-intervention, significant differences also emerged between the same age groups. The results were: 10-year-olds and 11-year-olds (p = .013); 10-year-olds and 12-year-olds (p = .000); and 10-year-olds and 13 to 16-year-olds (p = .013).

The scores of the four age groups were further categorised and analysed according to two age groups, namely grade appropriate learners (10 and 11-year-olds) and older learners (12-16 years old). The Mann-Whitney test for independent samples showed that there were significant differences between the Burt scores of the two age groups both in the pre- and posttest: (U =

3424.000, $p = .000$ and $U = 3745.500$, $p = .000$ respectively), suggesting a superior performance of the appropriate grade age learners.

Oral reading fluency

Table 7.9 show that the 10-year-olds scored higher and improved most (12.4 points on average) than other age groups. An independent samples Kruskal-Wallis test showed that there were significant differences between the age groups for both the pre-intervention (X^2 (3, $N = 305$) = 9.055, $p = .000$) and the post-intervention tests results (X^2 (3, $N = 302$) = 8.950, $p = .000$). To test pairwise comparisons of age groups, the Kruskal-Wallis one-way ANOVA (k samples) post hoc test was then conducted. The pre-intervention results showed that significant differences emerged between the 10-year-olds and the 11-year-olds ($p = .011$) and 10- and 12-year-olds ($p = .000$). The post-intervention results showed that the 10-year-olds outperformed the same age groups (11 and 12-year-olds). The post hoc test results were: 10-year-olds and 11-year-olds ($p = .005$) and 10-year-olds and 12-year-olds ($p = .000$).

As in the Burt, the Mann-Whitney test showed the appropriate grade age group (10 and 11-year-olds) outperformed the older learners both in the pre- and posttest: ($U = 3775.500$, $p = .000$ and $U = 4326.500$, $p = .000$ respectively).

Reading comprehension

Table 7.9 shows that at face value, the younger learners at 10 years and 11 years performed better than other age groups in the post-intervention test, and have relatively higher percentage points increased (8.7 & 5.8 respectively). The youngest age group at 10 years consistently performed better than other age groups in both the pre-intervention and post-intervention tests. Although the oldest age group (13 to 16-year-olds) had the second highest score (17.0%) after the 10-year-olds in the pre-intervention, they only improved by 1%. This stagnation for the oldest age group suggests that they have a learning problem and not much attention is given to them to improve their reading comprehension.

An independent samples Kruskal-Wallis test was applied to test for significant differences between the age groups in reading comprehension. As in the Burt and ORF tests, the Kruskal-Wallis test results showed that there were significant differences between the four age groups for both the pre-intervention (X^2 (3, $N = 305$) = 7.174, $p = .000$) and the post-intervention test (X^2 (3, $N = 302$) = 10.508, $p = .000$). A post hoc test for the Kruskal-Wallis one-way ANOVA

(k samples) was then conducted and the results showed that the significant differences in the pre-intervention test emerged only between the 10-year-olds and the 11-year-olds ($p = .004$) and 12-year-olds ($p = .001$), suggesting that the youngest age group outperformed the older learners, except the 13 to 16-year-olds. For the post-intervention results, significant differences emerged between the 10-year-olds and all the other age groups. The results were: 10-year-olds and 11-year-olds ($p = .000$); 10-year-olds and 12-year-olds ($p = .000$); and 10-year-olds and 13 to 16-year-olds ($p = .033$).

The Mann-Whitney test for independent samples showed that significant differences in reading comprehension emerged between the appropriate grade age learners and the older learners in both the pre- ($U = 5350.500$, $p = .001$) and post-intervention assessment ($U = 4113.000$, $p = .001$). Overall, the age appropriate learners performed remarkably in all the assessments compared to the older learners.

7.2.5.3 The effect of gender

Table 7.10 provides details about the performance of the learners on the three assessments in terms of gender. The descriptive results in Table 7.10 show that girls consistently perform better than boys in both the pre-intervention and post-intervention assessments, at face value.

Table 7.10 Gender effect: Burt, ORF, and reading comprehension scores

Assessment and gender	Pre-intervention, January 2019			Post-intervention, October 2019			% gains
	n	Mean	SD	n	Mean	SD	
Burt							
Females	163	42.0	18.7	163	49.4	20.2	7.4
Males	143	38.3	18.7	143	46.2	19.6	7.9
ORF							
Females	163	48.4	30.6	163	59.6	35.7	11.2
Males	143	37.7	34.3	143	49.1	27.4	11.4
RC							
Females	163	19.7	11.8	163	26.9	15.7	7.2
Males	143	16.7	9.9	143	23.8	13.1	7.1

Word recognition

A Mann-Whitney test for independent samples was applied to test for gender differences. The results showed that there were no significant differences between the word recognition scores for girls and boys in both the pre-intervention and post-intervention test. The Wilcoxon test

results showed the pre- and post-intervention results were not statistically different from each other for both girls ($Z = -1.584$, $p = .113$) and boys ($Z = -1.593$, $p = .111$).

Oral reading fluency

A Mann-Whitney test for independent samples showed significant gender differences in ORF scores in both the pre- and posttest (pre-intervention: $U = 9464.000$, $p = .005$; post-intervention: $U = 9697.500$, $p = .023$), indicating that girls scored significantly higher than boys across the schools. Generally, girls read more fluently than boys.

Reading comprehension

Although girls performed slightly better than boys, the Mann-Whitney test for independent samples only showed a significant difference in reading comprehension between girls and boys in the pre-intervention test: ($U = 10115.000$, $p = .045$), but not at posttest time.

7.3 Performance on baseline, pre- and posttest

Table 7.11 shows the performance of the schools at baseline time in relation to pre- posttest time assessments.

Table 7.11 School performance comparisons: Baseline, pre- and post-intervention

Assessment and school	Baseline study, September/October 2018			Pre-intervention, January 2019			Post-intervention, October 2019		
	n	Mean	SD	n	Mean	SD	n	Mean	SD
Burt									
School 1	104	52.6	18.9	87	44.2	17.3	87	48.1	17.0
School 2	100	44.3	18.4	88	34.6	20.5	88	45.6	21.9
School 3	81	50.4	19.9	62	37.1	13.4	62	42.8	17.2
School 4	80	61.6	18.8	69	45.4	20.1	69	55.0	21.6
ORF									
School 1	98	56.8	27.6	87	47.9	26.9	87	54.3	29.7
School 2	89	54.6	35.1	88	34.5	28.3	88	51.3	35.5
School 3	63	47.4	26.8	62	41.0	23.2	62	48.4	24.8
School 4	73	75.7	32.5	69	51.2	31.3	69	65.2	35.7
RC									
School 1	103	25.8	14.2	87	21.3	11.9	87	27.8	14.7
School 2	92	22.7	14.2	88	15.2	9.8	88	24.1	14.7
School 3	79	17.0	10.5	62	14.5	8.7	62	19.9	11.5
School 4	74	33.5	14.4	69	22.0	11.3	69	29.5	15.3

The performance across the three sets of data points shows that School 4 is clearly the strongest, but its pre-post cohort was quite a bit weaker than its baseline cohort. The two intervention

teachers (Teacher 3 and 7) indicated that their 2018 cohort was better in performance than the one for 2019, supporting the view that the pre-post cohort was weaker. School 1 is also quite a strong school. School 2 and 3 were weaker than the other two schools, but School 2 seemed to make more gains in reading during the posttest than School 3. Based on the reading growth of the intervention schools as compared to the control schools, School 4's lead would probably have had not been as strong if it had not been in the intervention. Teachers in stronger schools (Schools 4 and 1) may not necessarily deliver reliably stronger growth if not empowered with content and pedagogical knowledge. Although this was a small case study, the intervention suggests that teachers can bring about gains in reading in weaker schools (School 2) as well as stronger schools (School 4).

7.4 Discussion of the findings

I will start discussing the quantitative findings to examine how the intervention impacted the treatment groups, including variability in reading in terms of individual schools, age groups, and gender. This will give an overview of what reading growth looks like in 'business as usual' schools (no intervention) and in intervention schools. Thereafter, I will look at the qualitative data according to the themes that emerged from the interviews to show what happened in the classrooms in terms of instructional practice. Finally, I will examine what factors in the intervention for this study helped to make it successful.

7.4.1 Quantitative data findings

Effects of the intervention: Control and intervention groups

The intervention group showed a statistically significant improvement in all the post-intervention assessments, suggesting that the outcome resulted from the intervention. Although there were improvements in decoding and reading comprehension in both groups, 'business as usual' schools consistently showed less growth than the intervention schools.

The intervention group increased their word recognition more than twice that of the control. In the pre-intervention assessment, the intervention group had lower word recognition than the control group. However, this changed in the post-intervention assessment where the intervention showed a medium effect size compared to the smaller effect size of the control group.

A similar pattern of performance emerged in the ORF results where the intervention group started with lower fluency scores and improved their reading rate more than twice that of the control group. Moreover, the intervention group showed statistically significant improvement, whereas the control group did not. However, the reading rate for both treatment groups was still low to support reading comprehension even after the intervention. The control group (51.1) and the intervention group (57.5) were reading slowly similar to Grade 2 HL readers at the 50th percentile (cf. Hasbrouck and Tindal, 2006). It should be noted that being an ESL reader does not necessarily mean being a slow reader. With explicit and systematic reading instruction, ESL learners can perform at the same level as their L1 peers. For example, studies on Latino readers in the US who received explicit and systematic reading instruction show that, on average, Grade 3 ESL learners can read 75 WCPM (Al Otaiba, Petscher, Williams, Pappamihiel, Dyrlund, & Connor, 2009) and Grade 4 learners can read 119 WCPM (Jimerson, Hong, Stage, & Gerber, 2013).

In a study by Draper and Spaull (2015) that analysed the NEEDU results, the authors correlated the reading comprehension scores for Grade 5 rural South African school learners with the learners' ORF scores and argue that WCPM between 90 and 100 is acceptable for Grade 5 ESL learners in the South African context. Pretorius and Spaull's (2016) study also analysed the same NEEDU results and found 70 WCPM as a threshold for reading comprehension for rural school learners in the South African context, whereas in HL studies 90 WCPM was established as the reading threshold. A fluency benchmark has not yet been established in the African context in general and Namibian context in particular, although Pretorius and Spaull's (2016) findings indicated that ESL learners reading below 70 WCPM struggle to comprehend what they read. As no tentative benchmark for ORF in ESL has yet been established, the existing ORF test can be suitable in the Namibian context; provided that the results are benchmarked to studies done in similar context (cf. Pretorius & Spaull; Graham & Kelly, 2018).

Although the post-intervention ORF means for both the control group (51.1) and for the intervention group (57.5) were still low for reading comprehension in ESL, the best performing cohort for the intervention group at the 75th percentile were reading at 76 WCPM. Following Pretorius and Spaull's (2016) findings that 70 WCPM as the threshold for reading comprehension for ESL learners in rural South African schools, this best performing cohort had a better chance to comprehend texts at their grade level. Although the reading rate for the learners in this study was still low for reading comprehension, Graham and Kelly (2018) state

that an intervention is considered successful if it can improve learners' ORF. This is because the development of ORF can lead to the development of the more advanced literacy skills of reading comprehension.

In the reading comprehension test, the treatment group had slightly uniform reading comprehension scores in the pre-intervention, but in the post-intervention test the intervention group had a better reading comprehension score with an effect size larger than the control group on the mean point increase. Both treatment groups improved their reading comprehension scores, but with larger effect sizes within the intervention schools. This growth in reading also happened for both literal and inferential reading comprehension, with a larger effect size for the intervention group.

Despite improvement, both groups still had low comprehension levels (below 27%) in the post-intervention assessment. This supports the idea that reading comprehension skills take a long time to develop. This is because reading comprehension depends on the development and interaction of aspects such as decoding and oral language comprehension, and complex process influencing each of these aspects (Kim, Boyle, Zuilkowski, & Nakamura, 2016). The low scores in reading comprehension suggest that the intervention needed to last longer for the learners to develop decoding skills and reading comprehension strategies. The low post-intervention reading scores may also suggest that not much time was devoted to improve the learners' reading comprehension levels. As Abadzi (2017) put it, attempts to improve reading in poor countries yield poor results because of chronic obstacles such as absenteeism, time wastage, and limited reading materials. The teachers implementing the intervention for this study only presented 20 lessons instead of the 32 lessons designed in the *Teachers' Guide*. Of the 17 lessons that focused on reading comprehension in the *Teachers' Guide*, only seven were taught.

Although the intervention was generally implemented as designed, fidelity towards the intervention was reduced in terms of the number of lessons that had to be presented. Teachers reported obstacles in presenting the lessons such as extracurricular activities, workshops, meetings, and teaching time reduced due to general elections. Based on the improvement rate for the intervention group, one can argue that had all the 32 lessons be presented; the intervention group might have outperformed the control group in all the post-intervention assessments.

Effects of the intervention on subgroups

The performance of the subgroups can help to explain where the strengths and weaknesses in ability lie. Variability in scores in terms the subgroups for this study can also be helpful in formulating recommendations pertaining to improving reading scores for all the learners. In this subsection the scores in the reading assessments will be discussed in terms of schools, age groups, and gender. All the four schools were fairly represented in terms of numbers for each age group and gender.

School performance

In the Burt, both of the intervention schools 2 and 4 increased their word recognition significantly, but not the control schools. The intervention schools seemed to have benefited from reading instructional practices because they increased their word recognition about twice that of the control schools.

In the ORF, the intervention schools improved significantly and had 16.8 and 14 mean points increase in the post-intervention test as compared to the pre-intervention test. This improvement is more than twice that of the control schools. In the pre-intervention test results, School 2 (intervention) scored more poorly than all other schools and the school's score was statistically significantly lower than the scores for the better performing schools (School 1 & 4), but in the final assessment it was only outperformed by the other intervention school. Although School 2 was the weakest in the pre-intervention assessments, it improved with the largest effect size compared to other schools. As in the word recognition test, the ORF scores for School 1 (control) and School 4 (intervention) were slightly uniform in the initial test, but in the final test the intervention school performed slightly better. School 4 (intervention) started off as the best and remained the best in the posttest, and School 2 achieved the second best growth.

Although the intervention schools showed good improvement in their reading rate, they still needed a faster reading speed for a better comprehension of texts as there is a relationship between ORF and reading comprehension (Pretorius and Lephalala, 2011; National Reading Panel, 2000). Strong correlations found between the three reading assessments (BWRT, ORF and reading comprehension) support other research that show the relationship between decoding and reading comprehension (Castles, Rastle, & Nation, 2018; Draper & Spaull, 2015;

Pretorius & Lephalala, 2011). These Grade 5 learners need to develop ORF level that is sufficient to support reading comprehension as they are required to read to learn.

Both intervention schools improved more than the control schools in reading comprehension. The mean percentages for all the schools in the post-intervention test results were below 30%, suggesting that all the schools performed poorly despite some significant improvements from the intervention schools. In all the three reading assessments, the combined intervention schools show a greater improvement than the control schools, with School 2 consistently showing the best improvement. School 2 started lower in each assessment and later caught up with the other schools and performed better than one of the control schools. School 4, the other intervention school, started relatively stronger in all the pre-intervention assessments and it was expected to increase its mean points more than the weaker intervention school. The better improvement of School 2 in reading comprehension can be attributed to the commitment of the teacher (Teacher 3). Teacher 3 appeared more enthusiastic and showed a higher level of fidelity to the programme. During the intervention, the teacher would call the researcher to explain how her class went, seek for advice for presenting some lessons, discuss challenges and successes in her class, request for extra reading materials from the researcher for her learners to read for pleasure, make her class colourful with intervention materials, asks her learners about what they read for pleasure when she meets them, and designed a Magic Word Wall for her classes. Teacher 3 seemed to have spent more time than Teacher 7 in helping her learners with reading. Learners for Teacher 7 (School 4) scored better than the learners for the other intervention schools in the post-intervention tests probably because School 4 learners were already better readers when the intervention started.

Age group performance
In all the tests, the 10-year-olds consistently outperformed the older learners in both the pre-intervention and the post-intervention tests. In the Burt test, the youngest age group increased their word recognition with about eight mean points whereas the oldest learners (13 to 16-year-olds) improved slightly with less than five mean points. A similar pattern emerged in the ORF test whereby the youngest age group improved most. This suggests the older learners had major reading problems and not much attention was given to them.

The stagnant performance of the oldest learners supports Share's (1995) self-teaching hypothesis (whereby learners apply existing decoding skills to acquire new knowledge in

reading) and Wang et al.'s (2019) decoding threshold hypothesis (whereby learners below the minimum decoding threshold do not make much progress in school). The decoding skills for the older learners were much lower than those of the age appropriate learners. These older learners struggle to read and might have repeated grades because of poor academic performance. Learners who are retained in grades without being provided with special interventions tend to continue performing poorly because they receive the same instructional practices that did not benefit them the previous year(s) (Hattie, 2009). The pre- and post-assessments assessments included learners who had also participated in the context analysis the previous school year. Although these learners were retained in Grade 5 to improve their performance, they still performed poorly on the Burt, ORF, and reading comprehension in both pre- and post-intervention assessments. These learners need special attention to cater for their learning needs otherwise they drop out of school. In the post-intervention interviews, the teachers indicated that those learners making little progress in reading did not know how to read or had weak reading skills at the beginning of the intervention. Learners who do not learn how to read before they reach Grade 4 tend to continue with their poor reading skills and they do not make much progress in school (cf. Hernandez, 2011). These learners can only improve their reading if teachers attend to their reading needs and devote much time to help them. Their reading problems should be identified in early grades and then be given necessary support earlier before Grade 4.

From observations during their word reading, it was clear that some of the learners had problems with letter-sound knowledge, and confused letters and their sounds, suggesting poor phonics instruction. It is surprising that at Grade 5 level there are some learners who still confuse some letters of the alphabets and fail to correspond letters with their sounds. This was observed in School 2 and the teacher sometimes had to come back to school after normal teaching hours to teach the learners phonics, as suggested in the *Teachers' Guide* that if teachers still have struggling readers in Grades 4 and 5, they should go back to the basics. Teacher 3 in School 2 found the suggestion in the *Teachers' Guide* helpful in her situation and decided to teach phonics to her learners in the afternoon.

If learners struggle to comprehend what they read even at a literal level, it is probably an indication that they cannot decode the text they are expected to read (Pretorius & Spaull, 2016). As indicated earlier, the ORF for the majority of the learners in this study was still not good enough even after the intervention for them to comprehend texts at their grade level. For

learners struggling to comprehend texts because of difficulties related to word recognition or fluency, it is difficult for them access instructional materials that are engaging and at their cognitive level (Snow, 2010). Although the intervention schools improved well, the learners still needed much assistance with word recognition, ORF, and reading comprehension. It should be noted that literacy development is an on-going process and it takes much longer to develop than the five months for this intervention.

Effects by gender

In the ORF (pre- and posttest) and reading comprehension (pre-test) assessments, girls performed significantly better than their male peers. The results showed that girls were reading faster with better comprehension, outperforming boys in ORF and reading comprehension. The findings in this study support the general view that girls are better readers than boys in lower grades (Mullis, Martin, Foy & Hooper, 2017; Shigwedha, Nakashole, Auala, Amakutuwa & Ailonga, 2017; Mullis, Martin, Foy & Drucker, 2012; Mullis, Martin, Kennedy, & Foy, 2007. The better performance of girls can be attributed to various factors such as affective factors and cognitive differences in gender. Generally, girls seem to be more motivated to read, and in the process of reading they acquire more knowledge. During a group interview with learners in the intervention schools (§6.3.3 of Chapter 6), some of the boys indicated that they forget to complete their homework because they play a lot at home, suggesting that boys in this study spend much of their time at home doing other activities than reading. These boys may lack motivation to read, do not receive additional support in reading, and probably have soccer stars as their role models as they focus more on playing soccer. I also observed that most of the learners who used to bring story books from their homes to the classroom in the intervention schools were girls. This observation suggests that girls followed the pleasure reading component of the intervention more than the boys did. The next section will look at the qualitative findings of this study.

7.4.2 Qualitative data findings

On the whole, there is a fit between what the teachers felt about the intervention and the improved performance of learners. Three themes that emerged from the interviews will be discussed in this section, namely *changing instructional practices*, *positive response to reading and lessons among learners*, and *positive feelings towards the intervention*. The themes will be discussed into two main categories: reading instructional practices and attitudes and response towards the reading intervention. In other words, I will look at how Namibian teachers have

been found to usually teach reading (business as usual), what the intervention required of them that was different from business as usual, and what factors helped them make required changes and those that might contribute to the sustainability of the changes.

Reading instructional practices

The interview results presented in section 7.1 show that the intervention teachers felt more empowered to teach reading to their Grade 5 learners. As Pretorius and Knoetze (2013: 29) put it, "changes in instructional practices are mediated by teachers' knowledge, beliefs and practices, as well as the support given to them". Change in teaching practices happens if an intervention includes three aspects of change, namely change in tasks, materials, and knowledge (Alsofrom, 2018). In this study all the three aspects were built into the design of the intervention. The intervention included new activities for learners and teachers, teaching and learning materials, and supported teachers with knowledge about reading and its effective teaching practices through the *Teachers' Guide* lesson plans and training/coaching. These changes and their positive results motivated the teachers to express the views to continue teaching as done in the intervention because they perceived the intervention as effective in terms of improving their learners' reading skills.

Before the intervention, teachers did not have much knowledge about reading and how to teach it, as evident in the context analysis results (Chapter 5) and the post-intervention interviews (§7.1). The two teachers interviewed after the intervention indicated that before the intervention they used to teach reading by only asking learners to read a text without teaching them any reading strategies. As Teacher 7 remarked, "I would just tell them to read without guiding them". What these teachers used to do was actually doing reading rather than teaching it. Teachers often tend to think that assessing reading is the same as teaching it (Pretorius & Murray, 2019). As a result, learners benefit little from their lessons and because of these unsuccessful attempts in trying to help their learners learn how to read, teachers may end up believing that their learners are not capable of succeeding in reading. As Alsofrom (2018: 4) put it, "it is not that teachers are not working hard enough, but, rather, they are working to the best of their ability within the constraints of what they know how to do". If teachers do not see positive results in attempting to help their learners, they can develop a negative attitude towards reading instructions, and consequently devote limited time to teaching reading. In this study, the positive results were encouraging to the teachers, and it is for this reason they mentioned

that they intend to start teaching the strategies in the *Teachers' Guide* earlier at the beginning of the next academic year.

Attitudes and response towards the reading intervention

Once teachers have tried a new teaching practice and find it effective, they tend to change their beliefs and attitudes (cf. Guskey, 1986 & 2002). This subsection focuses on teacher changes that can be attributed to the reading intervention. I will describe changes that occurred during the intervention and explain how they may have changed the teachers' attitudes.

There are a number of aspects among learners and teachers that developed during the intervention and contributed to a positive attitude that the teachers developed towards the intervention. The teachers reported that their learners, including those with low reading levels participated actively during the intervention lessons. Additionally, the teachers noticed that the intervention improved the quality of their teaching and learning outcomes. They observed that the learners liked their reading lessons and started developing a culture of reading every day. Learners also started to bring reading material to class to show their teachers because they were required to read every day and share their stories/texts with their classmates; the teachers commented that the reading intervention was developing a reading habit among their learners.

The reading intervention enabled a more positive attitude among teachers for the intervention schools. As Guskey (2002) puts it, real change in teachers' attitudes occurs only when there is evidence that their new classroom practices lead to improved learning outcomes. The positive attitude is necessary for the teachers to develop an intention to change their instructional practices (cf. Fishbein et al., 2003). Providing teachers with teaching and learning materials and explaining to them what to do may not necessarily change the teaching and learning outcomes (Pretorius & Knoetze, 2013). In this study, the teachers expressed an intention to continue applying the intervention strategies in future because of positive changes in learners' response and the learning outcomes. Their positive attitude to the intervention was also reflected in their reporting during the interviews that they shared their new teaching practices with other teachers who did not participate in the intervention in their schools, and those teachers reportedly found the activities in the *Teachers' Guide* useful.

The teachers felt that the intervention taught them how to teach reading; therefore the skills made them feel capable of carrying out the new reading instructional practices. Teachers cannot

teach reading effectively without a sound knowledge of what reading involves and the best practices for teaching it. With limited knowledge about reading and how to teach it, teachers cannot be expected to change the way they teach reading.

7.5 Intervention success

Although in the implementation of the intervention not all the lessons in the *Teachers' Guide* were covered due to various reasons, such as teacher absenteeism and extracurricular activities, the intervention was generally successful because the learners in the intervention group improved significantly in all their three post-intervention assessments compared to their pre-intervention results and this improvement had a higher size effect compared to the control group. The success of this intervention can be attributed to four factors: 1. *Teachers' Guide*; 2. Training/coaching; 3. Reading instruction done in class in an explicit manner, and; 4. Teacher commitment. All factors will be discussed in more detail below

The structured *Teachers' Guide* used in this study seems to have played a major role in improving teaching practice, leading to improved reading tests outcomes. Piper, Sitabkhan, Mejia and Betts (2018) found that literacy programmes that used a teachers' guide with scripted lesson plans, particularly those that are not overly scripted, have a significant impact on learning outcomes. The effectiveness of the *Teachers' Guide* in this study is evident in the teachers' interview responses as the expressed desire to continue using the *Teachers' Guide* and start presenting the lesson plans earlier at the beginning of the following year for all their learners to improve their reading levels. The teachers also indicated that they already shared (and will share) ideas in the guide with teachers for lower and upper grades, and they felt empowered by ideas in the guide. Although the *Teachers' Guide* with scripted lesson plans seems to have a positive impact on teachers and learners in this study, some researchers criticise scripted reading programmes for limiting teachers' creativity and reducing their autonomy (Dresser, 2012). However, a teachers' guide with scripted lesson plans works best for the teachers with limited skills for teaching reading (Piper & Korda, 2011), as in this study. As the teachers develop more knowledge about reading and instructional practices, they can reduce the use of scripted lesson plans.

Another aspect that may have contributed to the success of this intervention is teacher training/coaching. Through coaching, teachers receive necessary ongoing support for them to develop new knowledge and skills to improve their instructional practices, and ultimately

learners' achievement (Pflepsen, 2018). Even though no long workshop was held with the teachers, there were on-going short meetings aimed to introduce them to the content of the *Teachers' Guide*, guide them, and to give them an opportunity to practice how to teach the scripted lesson plans (§6.3.2 of Chapter 6). The meetings offered opportunities to build up a trusting relationship with the teachers so that they felt they could try something out of their 'comfort zone'. The teachers also received continuous support in terms of presenting the lessons, using teaching materials, and tackling some challenges they experience in their classrooms. The researcher discussed the lessons with the teachers before visiting their classes and gave them feedback based on classroom observations. The teachers were content with this ongoing support and indicated that they were lucky that I chose their schools to assist them in teaching reading to their learners.

The reading activities that were done in class (time on task) in an explicit manner (raising awareness, developing some skills and strategies that the learners may not have had before) might have also made a difference. Although there is no actual record of how much learners were reading out of school time, the pleasure reading component of the intervention (coupled with classroom reading activities) may also account for the differences in scores between the control and the intervention group. Learners who are engaged in reading tend to score better than those who are not engaged and do not spend more time reading (Pretorius & Murray, 2019). For learners to benefit much from reading they need to make it part of their socialisation activities and normative behaviour; they need to read both at home and at school for pleasure. Many of the learners in the intervention school appeared to enjoy their pleasure reading activities.

Finally, I also observed that teachers' commitment to the reading intervention may also have contributed to its outcomes. Based on the differences between the intervention teachers in implementing the intervention with fidelity and the reading outcomes, it is evident that the successful implementation of a reading intervention relies much on the teachers' willingness (or commitment) to carry out the intervention as designed. Learners in School 2 improved slightly better than the learners in the other intervention school partly because of the teacher' enthusiasm and the level of fidelity she demonstrated for the intervention.

7.6 Conclusion

The purpose for this chapter was twofold: Firstly, Chapter 7 was aimed at showing whether the intervention improved Grade 5 learners' performance in terms of decoding skills and reading comprehension. The improvement in learners' performance was established through comparisons between the pre-intervention and post-intervention test results. Secondly, it aimed at presenting and examining data investigating whether an intervention for reading has changed Grade 5 teachers' attitudes towards teaching reading and empowered them with effective reading instructional practices. This was achieved through interviews with teachers implementing the intervention.

As already discussed, the intervention was successful because the intervention schools improved remarkably more than the control schools in the assessments. Based on the analysis and discussion of the results, the better performance of the intervention schools can be linked the intervention. Although the grade appropriate age groups performed better than the older learners, each age group seemed to be fairly represented in each school; suggesting that the better performance of the schools cannot be attributed to age group representation. The schools are also well represented in terms of gender. Therefore, the test scores in this study indicate learning opportunities that the learners received during this intervention. The learners showed a significant growth in decoding and reading comprehension because of the reading aspects taught, how they taught them, and what the learners were able to access from the pleasure reading component of the intervention.

The findings of this study support the assertion that in teaching practice, "there is a difference between experienced teachers and expert teachers; and that some practices have a higher probability of being successful than others" (Hattie, 2015b: 2). Implementing new teaching practices with ongoing support (coaching) can lead to a meaningful change in terms of instructional practices and reading outcomes, as evident in this study. With these positive learning outcomes, teaching and learning in the intervention schools can change for better even after the intervention. As Guskey (2002: 384) puts it, "demonstrable results in terms of student learning outcomes" are fundamental to a long term change. Based on these finding, the intervention emphasising the teaching of vocabulary, ORF, and reading comprehension has the potential to improve Grade 5 learners' academic performance in the Namibian context.

CHAPTER 8
CONCLUSIONS AND RECOMMENDATIONS

8.0 Introduction

In this final chapter of the thesis, I restate the research aims and the approach followed in this study. Thereafter I provide a summary of the main findings by reviewing the research questions and their outcomes. The review of the findings leads to a discussion about the contributions of this study and pedagogic recommendations based on the findings, its limitations, and suggestions for further research related to reading interventions in similar contexts.

8.1 Review of the research aims and phases

The main goal of this study was to pilot the design and implementation of a reading intervention that could empower teachers with knowledge and strategies for teaching reading, with the ultimate goal of improving the low reading comprehension of intermediate phase learners in low income primary schools, specifically Grade 5. If the pilot intervention yielded promising results, it could serve as a template for a reading intervention on a larger scale.

The study was carried out in three phases: Phase 1 (Context and problem identification), Phase 2 (Design, development and implementation), and Phase 3 (Summative evaluation). The first step towards the goal of the study (Phase 1) was to investigate the teaching and learning context in Namibian schools in which a pilot study and a baseline study were conducted. The focus for the first step was to establish the teachers' knowledge about reading, how they teach reading, the availability of teaching and learning resources, and to determine the reading levels of Grade 5 learners to establish whether an intervention was indeed merited. In light of this information, the second step (Phase 2) was to develop, implement, and evaluate a context-based reading comprehension intervention appropriate for the Namibian educational context. Step three (Phase 3) involved the pre- and post-intervention assessments to evaluate the effectiveness of the intervention. A total of 740 participants (729 learners, seven teachers, and four school principals in four schools) participated in the main study involving the baseline study and the pre- and post-intervention assessments. In total, six research questions were addressed across the study phases (§8.2).

Within the framework of Educational Design Research, the study applied a modest interventionist approach, with a limited number of iterations. Six quality criteria for formative assessment as proposed by Nieveen (2007) were adopted to guide the study. These six quality criteria are: *relevance of the intervention*, *consistency of the intervention*, *expected practicality*, *actual practicality*, *expected effectiveness*, and *actual effectiveness*. To recap, the six quality criteria were investigated in different phases of the study, as reflected in Table 8.1 below).

Table 8.1 Phases of the study (Plomp, 2007)

Phase 1 Context and problem identification	Phase 2 Design, development and implementation	Phase 3 Evaluation
• Relevance	• Consistency • Expected practicality • Actual practicality • Expected effectiveness	• Actual effectiveness

- In the first phase, which involved a literature review and context analysis, the relevance criterion was investigated. At this point of the study, the reading comprehension challenges faced by Grade 5 learners and the reading instructional practices of teachers in Namibian schools were investigated to establish whether there was a need for an intervention. A baseline study, as part of the context analysis, was carried out to assess Grade 5 learners' reading levels and the teaching and learning contexts prior to carrying out the intervention. The data for the baseline study were collected through reading assessments (comprising BWRT, ORF, and reading comprehension tests), a Learner Questionnaire, and interviews with teachers. These research instruments were piloted before being used in the baseline study to establish and improve data validity and reliability (§4.5 of Chapter 4). The baseline study was helpful in determining the relevance of the intervention question in more detail. Informed by the findings from the literature review, a set of prototypes (Plomp, 2007) comprising activities for Grade 5 learners that would develop reading comprehension were developed.

- The second phase of this study involved the development of prototypes for teaching and learning activities to support the development of reading comprehension for Grade 5 learners. These prototypes were developed through formative evaluation in which five evaluative methods were used, namely self-evaluation, expert appraisal, walkthrough with teachers implementing the intervention, field test (or try-out), and micro-evaluation.

Informed by feedback from experts, participating teachers, and my own evaluations, the prototypes were refined three times by applying the quality criteria. In the second phase of the study, four quality criteria were investigated: consistency of the intervention, expected practicality, actual practicality, and expected effectiveness.

- The third phase was concerned with the summative evaluation of the intervention in which the actual effectiveness criterion was addressed. In this phase, teachers were interviewed and pre- and posttests were administered and the results analysed to evaluate the effectiveness of the reading intervention.

8.2 The research questions and main findings

This section restates the research questions and provides the key findings emanating from each research question. Six main research questions (each with sub-questions) were formulated to guide this enquiry process.

8.2.1 Phase 1: Characteristics of the learning context in Namibia

Phase 1 of the study (Chapter 5) had one research question (Research Question 1) with five sub-questions. Research Question (RQ) 1 was used to investigate the characteristics of learning contexts in the Namibian schools and was formulated as follows:

RQ1: What are the characteristics of the English reading levels and context of Grade 5 learners in Namibia?

Research Question 1 was further broken up into five sub-questions (RQ1a-d) which were addressed through a context analysis and literature review. The context analysis and literature review were done concurrently, with the literature review used to put the context analysis results into perspective. The five sub-questions are addressed below.

RQ1a: What kinds of reading comprehension challenges are displayed by Grade 5 learners?
Before the intervention, the learners were assessed using the Burt Word Reading Test (BWRT), Oral Reading Fluency (ORF) test, reading comprehension test, and the Learner Questionnaire. The results were analysed in terms of overall performance, school, age group and gender. The overall results of the BWRT, ORF test, and the reading comprehension test showed that the Grade 5 learners who were tested in the context analysis phase of this study generally had low reading proficiency. The learners had low word recognition with an average of 52 points out

of 110 words. The ORF test results showed that they were reading slowly (with an average of 58.6 WCPM) even for their ESL grade level, indicating a lack of reading proficiency to adequately support text comprehension. With appropriate reading instruction, these ESL learners can develop high levels of reading fluency in English as L1 learners (cf. Jimerson et al. 2013; Al Otaiba 2009). According to Pretorius and Spaull (2016), ESL learners should read at least 70 WCPM to be able to comprehend texts at their grade level. The low reading rate of the learners suggests that they had not yet developed automaticity in reading, whereby they recognise words accurately and immediately without much effort. Fast and accurate word identification matters in reading comprehension (cf. Draper & Spaull, 2015). The learners performed poorly in the reading comprehension test, scoring about 25% on average. The learners scored poorly even in literal reading comprehension questions which should be much easier for them than inferential comprehension question.

The Learner Questionnaire results showed that the learners claimed to have fairly good reading attitudes, reading habits, reading strategies, and access to reading materials. However, these claims did not correspond with their scores in the reading assessments, suggesting socially desirable responses or a misplaced understanding of the questionnaire items. Their reading background as reflected in their responses was low and not supportive of enhancing their reading skills.

In terms of school performance (four different schools), the baseline results showed that there were significant variations in word recognition, ORF, and reading comprehension scores between the schools. Despite significant differences between the schools, all the four schools' reading scores were very low, suggesting low literacy background for the learners. The Learners Questionnaire also showed that there were significant differences between schools in terms of students' reading attitudes, reading background, reading habits, and access to reading materials, which is consistent with their reading scores.

For age groups, the reading assessments results showed that the grade age learners (10 & 11-year-olds) outperformed older learners in all the assessments. Despite their superior performance, they still had low word recognition (mean of 55.9 out of 110 words), ORF (about 64 WCPM), and reading comprehension (mean of about 23%). The Learner Questionnaire showed that there were no significant differences between age groups in any of the questionnaire categories.

In terms of gender, the baseline assessments showed that girls outperformed boys in ORF, indicating that girls had a faster reading rate than boys. The better performance of girls was supported by the Learner Questionnaire results which showed that girls claimed to enjoy reading more than boys.

RQ 1b: *What do teachers and principals know about teaching reading comprehension?*
This question addressed issues related to instructional practices, perceptions and knowledge about reading to understand the teaching and learning context (§5.5 of Chapter 5). Data were obtained from interviews with seven teachers and four principals in all the four research schools. The interview results showed that the teachers and the principals had limited knowledge about teaching reading comprehension. Teachers who have knowledge and skills to teach reading are able to talk about different kinds of reading strategies and explain how they can be taught (Ogle & Lang, 2011). The majority of the teachers interviewed were not aware of reading comprehension strategies. Only one teacher alluded to the strategy of activating background knowledge, and two teachers mentioned scanning and skimming as the only reading comprehension strategies they knew. However, these teachers expressed limited knowledge about how to actually teach the strategies they mentioned.

The interviewed teachers and principals seemed to associate reading with reading aloud or word recognition (or identification) rather than comprehension. The teachers indicated that they teach reading by providing learners with a lot of reading materials for the learners to read on their own, rather than guiding them. The principals were also of the view that the learners should be provided with enough reading materials to improve their reading skills. However, since these learners had not yet developed adequate reading skills, it was difficult for them to read independently. The principals' view is contrary to the learners' claim that they have access to enough reading materials. The onus was on the learners to become readers for the principals and the teachers seemed to believe that reading comprehension can be improved mainly through giving learners a lot of reading activities. They did not mention developing the learners' decoding skills and teaching them reading comprehension strategies to understand what they read. These learners needed a more focused reading instruction, targeting specific skills and building them up. In general, this study found that the teachers tended to assess reading rather than teaching it because they did not have enough knowledge and skills about teaching reading.

In this context, it is difficult for learners to have the intention to read and for teachers to develop positive attitudes towards teaching reading. The interviews with teachers and the school principals revealed that they did not do much reading. The limited knowledge about reading seems to have contributed to a lack of a sense of urgency to make reading materials available and attend to learners' reading problems.

RQ1c: Is there a need for an intervention to improve Grade 5 learners' reading comprehension?

The results of the tests in the context analysis showed that the learners faced reading challenges such as word recognition, ORF, and reading comprehension (§5.7 of Chapter 5). The context analysis also indicated that the learners had limited reading materials both at school and home (this issue is addressed under RQ2). Their teachers also appeared to have limited knowledge about reading and comprehension and effective instructional reading practices. Considering the low socioeconomic status of the learners, they did not have broad learning opportunities apart from their classrooms. Therefore, a reading comprehension intervention that empowers teachers with knowledge about reading and skills to teach reading was necessary to improve the learners' reading levels. Teacher competence and effectiveness is a major determining factor for learners' academic success (Hattie, 2015a; Chong & Ho, 2009). There are many factors influencing school success, such as competence of teachers, school leadership, and characteristics of the educational system (Hattie, 2015a). In the current study, empowering teachers was selected as a key factor to influence school success because the findings showed teaching shortcomings among teachers and it was possible for me as a researcher to have some control over the teacher variable.

RQ1d: What are the characteristics of teaching and learning activities that could lead to an improvement of the situation found in the context analysis?

Although Grade 5 learners are expected to be taught reading comprehension strategies to read to learn, the results of the context analysis showed that they had not yet mastered the lower reading skills of decoding (§5.8 of Chapter 5). Their low decoding skills suggested that they needed assistance with word recognition and ORF in addition to being provided instruction in reading comprehension strategies (cf. Castles, Rastle & Nation, 2018). Because of their grade level and time constraints, the intervention thus also needed to incorporate a fluency component early in the intervention to develop reading automaticity, and then select a limited number of

reading comprehension strategies that would enhance reading comprehension within the intervention time frame. Vocabulary building was also necessary because the Learner Questionnaire and interviews with the teachers revealed that vocabulary was one of the major challenges that impeded their reading.

The literature review suggested that instruction in the three components of the intervention needed to be direct. Research shows that for struggling readers direct instruction is more effective than implicit teaching (Pretorius, 2014; Almasi & Hart, 2011). The literature review and context analysis also indicated that the intervention needed to include a reading for enjoyment component to supplement reading activities in class and for the learners to learn incidentally (§8.2.2). Through reading for enjoyment, learners are exposed to reading beyond the classroom and in the process develop reading skills, acquire general knowledge, and consequently become better readers.

8.2.2 Phase 2: The design of the intervention

In light of the context analysis, an intervention was designed that addressed the reading problems uncovered. Four quality criteria underpinned Phase 2 of this study (Chapter 6): the consistency, expected practicality, actual practicality, and expected effectiveness of the intervention quality criteria. The quality criteria were based on the design, development, and implementation of the intervention. The four quality criteria were aligned with RQ2-5 and their sub-questions:

Consistency of the intervention

The consistency quality criterion was addressed through Research Question 2 and sub-questions 2a-c below.

RQ2: Is the intervention logically designed?

In terms of the unique context, this research question meant to investigate whether the design included the activities that address the reading challenges and needs of the teachers and learners, and whether it could lead to the attainment of improved reading comprehension. At this point of the study, tentative design guidelines were drafted, leading to the development of a prototype (a *Teachers' Guide*) which was refined several times based on feedback from experts, teacher evaluation, observations, and self-reflections.

Research Question 2 comprised three sub-questions.

RQ2a: *Which aspects of teaching reading are important to include in the design?*

Combined with the results from the context analysis, the National Reading Panel (2000) was the main source of evidence for designing the intervention with its recommendation that a reading intervention for poor readers (in primary school and beyond) should focus on all or some of the following reading components: phonemic awareness, phonics, fluency, vocabulary, and comprehension. Because of the grade level of the learners, where they are expected to read to learn, the intervention focused on fluency, vocabulary, and comprehension (§6.2 of Chapter 6). These aspects were taught explicitly to maximise learning, through a gradual release model. Based on the findings from the context analysis (Chapter 5) and literature review (Chapter 2-3), the following seven aspects were included in the design of the intervention.

- Activities for the learners to appreciate reading and to read for enjoyment;
- Activities for developing ORF;
- Vocabulary learning strategies (i.e. using word-parts and context clues);
- A small, selected set of reading comprehension strategies (i.e. activating prior knowledge, making predictions & inferences, comprehension monitoring, & using text structures). Only four research-based strategies were included because of their effectiveness and the time constraints of the intervention.
- The need for a *Teachers' Guide*, with descriptions of selected reading aspects, their importance, and how to teach each aspect following a specific set of procedures;
- Scripted lesson plans for teachers because they were not skilled at teaching reading comprehension strategies;
- Access to relevant teaching and learning materials for teachers and learners.

RQ2b: Does an intervention that emphasises the teaching of reading and reading comprehension strategies fit within the existing Upper Primary syllabus?

This question was addressed by examining the *English Second Language Syllabus (Grades 4-7) 2015*. The Upper Primary syllabus covers all the teaching and learning activities that were selected to be included in the intervention, namely fluency, vocabulary, reading comprehension, and pleasure reading (§6.3.1 of Chapter 6). Since the intervention fitted into the Upper Primary syllabus, it could readily be integrated into the teachers' normal teaching schedule. This way, the intervention could not be perceived by teachers as extra work or additional content over and above what was mentioned in the syllabus. The intervention was

carried out for about four months (June-October 2019). A school term comprises about 12 weeks with at least five periods per week for English lessons. The activities in the intervention were similar to the ones in the syllabus, but they were presented differently.

RQ2c: Will the intervention address the reading problems revealed in the context analysis?
This intervention involved teacher training, coaching, and making teaching and learning resources available to address the learner and teacher needs (§6.3.2 of Chapter 6). Research showed that reading interventions that emphasise teacher training and providing ongoing support to them have the potential to succeed (Graham & Kelly, 2018). Additionally, the study incorporated a *Teachers' Guide* with scripted lesson plans, which has been found to be effective for teachers with limited competence in teaching reading (Alsofrom, 2018; Piper & Korda, 2011). Considering that interventions involving teacher training, coaching, and using teachers' guide worked in similar contexts elsewhere, there was a need to test whether it can work in the Namibian educational context.

Expected practicality
Research Question 3 is part of Phase 2 and it addressed the expected practicality of the study. Research Question 3 was formulated as:
RQ3: Is the intervention expected to be usable at Grade 5 level?

At this development stage of the intervention, a *Teachers' Guide* was developed. The *Teachers' Guide* included guidelines for teaching reading and also provides texts for teachers to use during the intervention as the schools had limited teaching and learning materials. Prior to using the guide, teachers were asked to comment on the level and clarity of content and guidelines, usefulness of the activities, and potential challenges for using the guide. Informed by feedback from teachers, a few adjustments were made to the teachers' guide.

There were three sub-questions for this research question.
RQ3a: *Is the Teachers' Guide sufficiently clear to the users?*
The teachers who participated in the intervention were asked to read and give their views regarding the guide (§6.4 of Chapter 6). The teachers were content with the guide and expected it to be effective for the reading intervention.

RQ3b: *Is the number and level of activities acceptable to teachers?*

The teachers were asked to indicate the challenges they foresaw using the Teachers' Guide, and to comment on the activities for the intervention (§6.4 of Chapter 6). They expressed their content with the activities as they were aligned to the syllabus.

RQ3c: *Can the intervention fit within the existing teaching timetable?*

The participating teachers indicated that some of the lessons covered too much content for their 40-minute lessons (§6.4 of Chapter 6). Therefore, the contents for some of the designed lessons were reduced to accommodate the durations of their classroom lessons (40 minutes).

Actual practicality of the designed intervention

Research Question 4 was concerned with the actual practicality of the designed intervention. The actual practicality of the intervention was also addressed in Phase 2 of this study using classroom observations and interviews with learners. Research Question 4 was formulated as:

RQ4: Is the intervention usable at Grade 5 level?

The actual practicality was addressed through a micro-evaluation where classroom observations were carried out and learners and teachers were interviewed to evaluate the practicality of the intervention. At this point of the study, the intervention had started (i.e. part of the material and strategies were tested in practice). Research Question 4 had five sub-questions.

RQ4a: *Is the level of the content too difficult or too easy for the learners and teachers?*

Observations and interviews with learners showed that the learners enjoyed the reading activities and were able to follow the teachers' instructions, suggesting that the activities were not too difficult for them (§6.5.1 of Chapter 6). The teachers were already familiar with the reading activities to some extent because they were in the Upper Primary syllabus. However, the instructional practices used in the intervention were new to them. Because of the support I provided to them in form of coaching and the descriptions in the *Teachers' Guide*, they were able to adapt to the new instructional practices for reading.

RQ4b: *Can the teachers cover all the given topics within the given time of the classes?*

Considering the teachers' teaching activities and that the intervention was integrated into the normal teaching schedule, it was possible for the teachers to cover all the 32 intervention lessons (§6.5.2 of Chapter 6). The teachers indicated that it was possible for them to cover the

lessons within the intervention period. My observations as a researcher also showed that the instructional time was adequate, but needed to be managed properly.

RQ4c: *Do learners have sufficient time to do their homework?*

Interviews with some learners and observations revealed that most of the learners could only do their reading activities in class, probably because they did not live in high literacy home environments (§6.5.3 of Chapter 6) and none of the schools had a strong culture of giving homework and holding learners accountable for their homework. Their teachers also supported the view that the learners did not have time to read at home. The teachers reported that only a few learners do their homework, and some would either do their homework early in the morning in class or not do it at all. This finding suggests that the schools did not cultivate a culture of literacy outside the classroom.

RQ4d: *Are the teaching and learning materials for the intervention sufficiently available?*

Since the schools did not have enough reading materials, I made a collection of reading materials for the learners (§6.5.4 of Chapter 6). The teachers were also provided with the resources they needed such as the *Teachers' Guide* and other necessary teaching and learning materials such texts. Observations and discussions with the teachers showed that they were content with the materials for the intervention.

RQ4e: *Is there fidelity to the reading intervention programme?*

Generally, the intervention lessons were presented as prescribed (§6.5.5 of Chapter 6). Although there were some shortcomings from the teachers such as omitting content in some lessons, teachers not making much follow up on learners' reading activities, I provided support to the teachers and they were able to follow suggestions in the *Teachers' Guide*. The teachers appeared to improve their instructional practices with time. However, the level of fidelity between the intervention teachers was different because Teacher 3 seemed more committed to the intervention than Teacher 7. Teacher 3 was able to monitor her learners' pleasure reading activities and included a Magic Word Wall in her classes, whereas Teacher 7 appeared not to have much time to monitor the learners' reading activities because of other commitments beyond the classroom.

Expected effectiveness

The expected effectiveness was the final part of Phase 2 of this study and it was addressed through Research Question 5, which had five sub-questions. Research Question 5 was formulated as:

RQ5: Is the intervention expected to result in improved reading comprehension of Grade 5 learners?

The data for Research Question 5 were collected through classroom observations, informal conversations with teachers, and interviews with learners and teachers. The results were examined in terms of the intervention strengths, shortcomings, and fidelity level in order to adjust the programme.

RQ5a: *Did the intervention have a positive effect on learners' reading contributions in class?*
The reading fluency lessons seemed to stimulate the learners and most of them developed an interest in the reading lessons (§6.6.1 of Chapter 6). The teachers reported that even learners who were previously reluctant to participate would volunteer to read in class. The learners were also observed helping and encouraging each other to read. However, there were a few learners who seemed reluctant to read, probably because reading was a difficult activity for them and they may have needed instruction at an even more basic level than the intervention provided (in the posttests, there were 2 learners who scored zero on ORF).

RQ5b: *Is there a change in the teachers' classroom practices*?
Based on the lessons observed and interactions with the teachers, the teachers were excited by the reading instructional practices introduced to them (§6.6.2 of Chapter 6). This excitement was particularly observed at the beginning of the intervention. They applied the gradual release model (*I do it*, *we do it together*, *you do it*) in all the observed lessons. Additionally, the teachers spoke about the instructional practice as effective for their learners and much easier for them to remember and apply. However, there is no evidence on whether the change was sustained beyond the intervention.

RQ5c: *Is there a change of attitude noticeable amongst learners with regard to academic reading?*
Observations, interviews with learners and reports from their teachers showed that the learners developed a positive reading attitude (§6.6.3 of Chapter 6). The learners borrowed copies from

a collection of reading materials, and some brought reading materials from their homes and reported in class what they read. Even struggling readers developed a positive reading attitude and the intention to read because they were observed and they reported enjoying re-reading stories practised in class. Some of the learners informed their teachers that they have realised that they learn a lot of things when they read.

RQ5d: *What are the teachers' perceptions about teaching comprehension explicitly as suggested in the Teachers' Guide?*

The teachers found the explicit teaching strategies helpful for them and their learners, and they appeared to enjoy the reading instructional practices suggested in the *Teachers' Guide* (§6.6.4 of Chapter 6). During the intervention, the teachers reported that they would continue using the *Teachers' Guide* even after the intervention so that they can teach effectively and help their learners in reading. This was supported by a follow up contact with the teachers who claimed to be using the activities in the *Teachers' Guide*.

RQ5e: *What are the teachers' feelings about the uptake from their learners?*

The teachers perceived the learners' uptake as successful (§6.6.5 of Chapter 6). Initially, the teachers were not certain about the impact the intervention would have on their learners. As the intervention progressed, they reported that their learners were responding positively in terms of increased participation, reading habits, and commitment to learning. This high level of uptake might have been influenced by the way the lessons were presented and the pleasure reading component that engaged the learners in reading.

8.2.3 Phase 3: Outcomes of the intervention

The *actual effectiveness* was addressed in Phase 3 of this study (Chapter 7). This phase of the study evaluated the whole intervention to establish whether it was successful (RQ6). To evaluate the effectiveness of the intervention, pre- and post-intervention assessments such as decoding tests, reading comprehension test, and teacher interviews were administered, with the baseline study providing some indirect evidence. I examined whether the intervention changed teachers' instructional practices and whether the learners in the intervention schools improved over those in the control schools in terms of decoding and reading comprehension scores. The summative evaluation of the study was done through a broad Research Question 6 and two specific sub-questions:

RQ6: Did the reading comprehension intervention result in the desired outcomes?

RQ6a: *How did the reading comprehension intervention affect teachers' attitudes and practices towards the teaching of reading comprehension strategies to Grade 5 learners?*

A number of changes that were observed in the post-intervention analysis are attributed to the intervention (§7.2 of Chapter 7). The post-intervention interviews with the two intervention teachers showed that they developed enthusiasm in teaching reading comprehension strategies. They expressed the wish to continue using the *Teachers' Guide* beyond the intervention because it improved the way they teach. The teachers' positive attitude can be attributed to three factors.

- Firstly, they perceived the intervention to have improved the way they teach, thus they felt empowered to teach reading to their Grade 5 learners.

- Secondly, their learners started reading for pleasure and responded positively to class activities.

- Thirdly, based on their informal observations of their learners, they felt that the intervention improved the reading levels of their learners.

The findings in this study regarding the change in the teachers' attitudes support the model of teacher change by Guskey (1986, 2002). Therefore, it can be assumed that Namibian teachers' teaching beliefs and attitude can change when they receive professional development, are introduced to new instructional practices, and see change in their learners' learning outcomes. In addition to the mini-workshop and coaching, scripted lesson plans could have been useful to develop content and pedagogical knowledge about reading for the intervention teachers. Although there were noticeable improvements in the performance of the learners in the intervention schools compared to the learners in the control schools, there were a few learners who seemed to not have benefited from the intervention, probably because they had a very low reading level. Considering that the Grade 5 learners had not developed adequate decoding skills, the intervention might have been a bit late for these learners. Early reading intervention in Grade 3 could have been beneficial for this group and reduce the likelihood of failing to develop adequate reading skills (cf. Hernandez, 2011).

RQ6b: *How did the reading comprehension intervention affect Grade 5 learners' reading comprehension levels?*

The effect of the intervention was evaluated in terms of the learners' performance in word recognition, ORF, and reading comprehension. The outcomes were examined in terms of treatment groups (control and intervention), individual schools, age groups, and gender.

Generally, the post-intervention results suggest that the performance of learners in the assessments may somewhat have been influenced by the treatment they received, and was also influenced to some extent by their age group, and gender.

- In the post-intervention assessments, the results showed that the intervention group improved significantly in all three assessments (i.e. word recognition, ORF, and reading comprehension), whereas the control group only showed significant improvement in reading comprehension. The intervention group improved (mean gain of 10.3 points) better than the control group (mean gain of 4.6 points) in word recognition. For the ORF, the same pattern emerged in which the intervention group improved more than the control group. In the pre-intervention assessment, the intervention group was reading slower than the control group. After the intervention, the intervention group read faster and improved their reading speed by 15.7 points on average whereas the control group improved by a mere 6.7 points. In the reading comprehension tests, the pre-intervention results showed that both groups had a uniform performance (18.5 & 18.2 mean points). In the post-intervention assessment the intervention group (mean of 26.5) improved their reading comprehension more than the control schools (24.5 mean points). Unlike in word recognition and ORF, both the control and the intervention group improved significantly in reading comprehension. The size effect for the intervention group in the post-intervention was $d = 0.62$ and for the control group was $d = 0.47$. The analysis of the results showed that there were some remarkable improvements from the intervention group from the bottom end to the top end compared to the control group. This study is fairly successful enough as a basis for an intervention at larger scale, with additional components (§8.5).

- Regarding individual schools, the analysis of the pre- and post-intervention scores for reading comprehension showed that both intervention schools (School 2 and 4) improved more than the control schools (School 1 & 3). The intervention schools improved by 8.9 and 7.5 mean percentage points, whereas the control schools improved by 6.5 and 5.4 mean percentage points. Although there was some growth in 'business as usual' schools, it is not

enough to get learners to where they need to be. Grade 5 learners in this study needed larger gains to get them further along the reading trajectory, especially with decoding.

 The improvement for the two intervention schools suggest a causal impact resulting from the intervention. School 2 started from a lower base and improved much better than the other schools, probably because the teacher applied a high level of fidelity in implementing the intervention.

Improving decoding is a quicker gain than improving reading comprehension (cf. Kim, Lee & Zuilkowski, 2020) and improving literal comprehension happens earlier than higher order reading comprehension (cf. Pretorius 2014). Both the control and intervention schools showed the smallest increase in the reading comprehension test compared to the decoding tests. This is probably because comprehension of texts depends on whether learners have reached a certain decoding threshold (Wang, Sabatini, O'Reilly, & Weeks, 2019; Pretorius and Spaull, 2016). The decoding threshold hypothesis suggests that learners with decoding skills below a certain threshold do not make much progress in reading comprehension (§2.8.4 of Chapter 2). Considering 70 WCPM as a possible decoding threshold (Pretorius § Spaull, 2016), learners in the current study had a very low mean of about 58 WCPM. Learners need good decoding skills and a fairly good comprehension level to build up a text based representation to which the situation model can be applied.

- The results were further analysed in terms of age group performance (part of RQ6b). It emerged that the grade age level group (10 and 11-year-olds) consistently outperformed older learners in the age groups of 12-year-olds and 13 to 16-year-olds in all the reading assessments. The better performance of the grade appropriate age group was also observed across the control and intervention groups. The grade level age group at 10 and 11 years (the typical age group for Grade 5 learners) performed better than all other age groups in both the pre- and post-intervention assessments. A similar pattern of the superior performance for the 10 and 11-year-olds was observed in the baseline study (§5.3 of Chapter 5). Considering that the 10 and 11-year-olds are at grade level age, their performance is not unexpected. The older age groups (12-year-olds and 13 to 16-year-olds) showed only a small improvement and performed poorer in the post-intervention assessments. These learners in the older age group might have had learning difficulties and probably had undergone grade retention (§5.6 of Chapter 5) which did not improve their

academic performance. Their reading problems should have been identified earlier, followed by research-based instructional practices appropriate for their learning context.

- The performance in terms of gender (part of RQ6b) showed gender differences were not strongly evident, except in ORF, probably because of the small sample. Overall, the girls consistently performed slightly better than the boys in word recognition, fluency, and reading comprehension in both the pre- and post-intervention tests. The results are similar to the findings of other studies showing that girls are better readers than boys (Van Broekhuizen & Spaull, 2017; Saito, 2011). The results suggest that there is a need to attend to boys' learning needs in schools. The next section will examine the implications of the findings for this study.

8.3 Implications for teacher training, instructional practices, and interventions

The findings of this study have contributions at two levels, namely classroom reading instructional practices and, consequently, teacher education, as will be discussed in the next sub-sections. It should be noted that implications for classroom instruction can affect teacher education at both pre- and in-service levels.

8.3.1 Reading instruction

Based on the conclusions drawn from this study and the literature review, reading instruction for learners should be done explicitly and supplemented with incidental word learning opportunities to build their vocabulary from Lower Primary and beyond.

By the end of Grade 3 learners should be reading texts at their grade level fluently so that they can start applying advanced reading comprehension strategies in Grade 4 when they expected to read to learn. In Upper Primary, instruction should focus on strengthening their decoding skills, developing vocabulary learning strategies and reading comprehension strategies. A wide range of reading comprehension strategies (such as activating prior knowledge, visualising, making inferences and predictions, practising comprehension monitoring, identifying main and supporting ideas, learning about text structure, and summarising texts) should be taught rather than simply skimming and scanning.

For explicit reading instruction, teachers should be encouraged to apply the gradual release model when teaching reading to increase the uptake from their learners.

Reading instruction should be supplemented with a systematic extensive reading programme from Lower Primary to Upper Primary to cultivate a reading culture. Schools can make a collection of interesting reading materials at different levels of language difficulty so that learners can choose what they want to read.

Classroom libraries can also play a critical role in supporting reading because the reading materials can be easily accessed by learners and they are easier to fund and manage. For this, the Ministry of Education, Arts and Culture would need to provide resources such as story books, magazines, comics, and newspapers to classroom libraries in both ESL and L1. Setting up classroom libraries would require teacher training in using and managing the resources for the extensive reading programme to achieve its goal.

Teachers in upper school grades tend not to provide reading instruction even when many of their learners struggle to read because they perceive it as an activity for lower grades teachers. As an interim solution, reading instruction such as teaching phonics should not be restricted to Lower Primary grades where learners are expected to learn how to read, but should be applied in all school levels to benefit struggling readers. To identify struggling readers, ESL and L1 teachers and heads of departments in upper primary schools need to assess new cohorts of learners at the beginning of the year. The identified struggling readers should be given targeted instruction for a term or the whole year, depending on their reading level.

Early reading instruction should be drastically improved in Lower Primary for teachers in Upper Primary to focus on teaching reading comprehension strategies because it is difficult to improve reading comprehension if learners cannot read fluently. The ongoing identification of learners at risk of academic success as indicated in the *National Promotion Policy Guide for Junior and Secondary School Phases* (Ministry of Education, Arts and Culture, 2018) should be strengthened in all grades and subjects. This requires teachers to be trained to identify struggling learners and then provide necessary reading support. However, if reading instructional practices are not effective, teachers may assume that the learners cannot benefit from normal classroom instruction; therefore teachers themselves need to be skilled at teaching reading.

The slow reading of Grade 5 learners suggests that there is no shared vision of what successful reading in ESL looks like in terms of decoding or reading comprehension. The syllabus mentions different language skills, but no specific reference to decoding (and what it comprises) and its role in reading comprehension. Had there been benchmarks in the earlier grades (Grades 0-3) to help teachers identify vulnerable readers and provide them with high quality instruction, these learners may not have reached Grade 5 with poor decoding skills.

The results in this study showed that learners' performance vary depending on school, age and gender. This finding supports Reardon, Valentino, and Shores's (2012) view that an answer to how well learners read must address variations in terms of, inter alia, age, gender, and socioeconomic background. These variations in reading as defined by age and gender suggest that educators need to provide special attention to the learning needs of older learners retained in grades and boys as they seem to perform below their peers. If learners are retained, their specific reading problems need to be identified and they need to be given explicit scaffolded instruction, specifically targeting different aspects of reading.

8.3.2 Teacher education

To enhance the quality of teaching and learning in Namibian schools, the findings of this study suggest that both pre-service and in-service language teachers need specific training and support targeting the teaching of reading.

Prospective teachers (or pre-service) language teachers for Lower and Upper Primary school learners need explicit training to develop a deeper knowledge of what reading entails (content knowledge) and be equipped with effective research-based instructional practices (pedagogic content knowledge). As Buckingham, Wheldall and Beaman-Wheldall (2013) suggest, every teacher training programme should allocate at least a semester subject on teaching content knowledge of reading (Phonemic awareness, phonics, fluency, vocabulary, and comprehension), and provide guidelines on how to teach and assess them (pedagogic content knowledge), so that they can identify children who are falling behind. For Lower Primary teacher training programme the focus should be on all the aspects of reading and for Upper Primary teachers, training can focus more on fluency, vocabulary, and reading comprehension. As the teaching of literacy in the first three years of schooling is core, the core aspects for teaching literacy should also be reflected in the syllabus for tertiary level teacher training. Although the curriculum at the teacher training institution where the researcher works includes

the need to teach decoding and reading comprehension, the syllabus content is too broad, and focusing on the five aspects of reading may not be practical in a single academic semester considering that there is a lot of other content to be covered in a module. However, the curriculum can be revised to give priority to the five aspects of reading. All other teacher training institutions in Namibia need to have modules about reading where the core reading aspects such as decoding and reading comprehension strategies receive adequate attention. The training should be practical in which trainee teachers are taught how to assess early reading so that shortcomings in literacy development can be identified early, and to make sure that decoding and fluency are developing well so that learners can comprehend their texts.

For in-service teachers, the Ministry of Education, Arts and Culture in Namibia should ensure that new teachers (or all in-service teachers) receive ongoing support in teaching reading for the first few years of teaching to reinforce the training they received from tertiary institutions. The current situation is that teachers whose learners perform well in examinations for English subject are asked to share their teaching strategies with other teachers at workshops or in their schools. Since there are no examinations for reading, it is difficult to identify good reading teachers. One of the teachers who participated in the intervention indicated to the researcher that she had never received in-service support in teaching reading since she became a teacher two years previously. These novice teachers need reading experts to serve as their coaches rather than attaching them to experienced teachers with limited knowledge about reading.

As in this study, some of the teachers have been entrusted to teach reading for many years, but they still could not demonstrate knowledge of reading comprehension strategies and how to teach them. This suggests that even in-service teachers who have taught for many years need to be provided with ongoing professional development. To help struggling readers to catch up, there would be a need for in-service teacher training workshop and on-going coaching. For teachers to improve their reading instructional practices and continue teaching using effective strategies, they would need ongoing training and support rather than once-off training workshop.

In-service teachers who have not yet developed enough knowledge about reading and its instructional practices, should be provided with a teachers' guide describing how to teach various reading aspects and also be prescribed a good textbook on reading and how to teach it. However, merely providing teachers with teaching resources and telling teachers what to do

with the resources will not necessarily change the existing teaching and learning context (Pretorius § Knoetze, 2013). These teachers need formal in-service training and professional development. As Kim, Boyle, Zuilkowski and Nakamura (2016: 51) put it, "rigorous training can change teachers' attitudes, knowledge and instructional practices, and improve learners' literacy achievements".

8.3.3 Reading interventions in schools

A larger team-based approach involving academic researchers, no-governmental organisations (NGOs), and the Ministry of Education, Arts and Culture is needed to implement and evaluate a reading comprehension intervention to enhance the quality of educational research projects. The Ministry of Education, Arts and culture need to be involved to monitor and support teachers participating in the intervention in order to reduce absenteeism. The ministry also needs to reduce the workload of the participating teachers to give them enough time to focus on the intervention. In this study, it appeared that extracurricular activities reduced the teachers' time spent on the intervention activities.

NGO's can play a critical role in funding research projects aimed at enhancing the quality of learning. The funds can be used for making teaching and learning materials available to teachers and learners in the intervention schools. They also need to be involved in all stages of the intervention to provide quality assurance by monitoring the activities of the research projects.

If necessary, researchers conducting small-scale individual interventions should take time off their normal job to attend to the intervention activities to increase fidelity of the intervention. Any educational research should address time on task to determine the amount of time spent on learning. Individual researchers can also train assistant data collectors who can administer tests to reduce the duration of assessing learners.

8.4 Limitations of the study

Although a lot of care and thought went into planning and implementing this study, it has limitations that need to be acknowledged. Firstly, it was a small scale study, so caution is needed when interpreting and applying the findings of the study. Although the sample of learners was by no means small, their performance may be reflective of Grade 5s in the area where data were collected, but not necessarily representative of other areas in Namibia. Very

few teachers (i.e. seven) were involved because it was a small pilot study to investigate the potential of implementing a reading intervention in Upper Primary in Namibia. The study also had a limited amount of iterations; therefore it was referred to as a modest Educational Design Research intervention.

Secondly, there was a challenge around the low reliability of the Learner Reading Questionnaire. The items were used despite the low reliability levels because they had already been validated in international assessments such as the Organisation for Economic Co-operation and Development (OECD) (2013) and the Progress in International Reading Literacy Study (PIRLS) 2011. The low reliability of the questionnaire might have resulted from several aspects. Firstly, since the Learner Reading questionnaire items were adapted from different sources, the items may not have been well interrelated to produce a high reliability index. Secondly, the learners might have had a different frame of reference because of their low literacy backgrounds, despite the researcher explaining the items to them. Thirdly, the learners might not have been interested in the activity since they were not assessed for marks, and as a result selected options for the items at random or that they felt were socially desirable.

The third limitation relates to challenges in qualitative research that rely on classroom observation. Some scheduled class visits did not take place because the teachers were either absent from school or had to attend to unscheduled school activities.

Many of the lessons presented were not observed, so it was not easy to ascertain the fidelity of the whole intervention programme even though the teachers assured me that they presented the lessons as suggested. A study of this nature needs a large team-based approach to design, implement and evaluate the intervention.

8.5 Recommendations for future research

Given the successes and shortcomings of this study, I make recommendations for the following aspects to be considered for further investigation:

- **Replication of this study**. This study could be replicated in other Namibian contexts and at a larger scale to validate its results and for more teachers and learners to potentially benefit from the intervention. The replicated study should include classroom observations for at least half of the presented lessons for a better understanding of teacher uptake and fidelity to the programme.

- **Establish the variable(s) with most impact on the results of the intervention**. Variations on the same reading intervention study should be carried out to examine which specific aspects of the intervention (e.g. using gradual release model, extensive reading aspect, scripted lesson plans, and amount of coaching) have more impact on improving the reading results. Some of these features (e.g. extensive reading or homework components) can be left out in some of the intervention schools to compare with the groups in which all the aspects are included. A study should be carried out in similar contexts, extending the number of intervention schools with different treatments.

- **Increase the duration of the intervention**. Although a one term intervention can have positive effects, the duration of the reading intervention should be extended to over a year or more to compare with shorter interventions. Shorter interventions of two school terms or less as the one in this study may not help to establish with confidence that the reading intervention works because learners develop some reading skills over a longer period of practising the skills.

- **Include the assessment of vocabulary.** It is also important to include vocabulary assessment to establish how the learners' vocabulary grows over time and its relationship to the development of the learners' decoding and reading comprehension skills.

- **Refine the questionnaire with children at primary school level.** As children are likely to misinterpret questionnaire items or lose interest in the activity, a questionnaire should be used cautiously. If it has to be applied, the researcher should use visual and graphical items where possible (e.g. pictures depicting different amounts of books in their homes), as done in the PIRLS assessments (NCES, 2016). The questionnaire should be tested extensively with different item combinations to establish its reliability.

- **Adapt the intervention for Grade 4 learners.** Considering that many learners did not perform well in reading, particularly the older learners, this intervention needs to be adapted so that it can be used earlier when learners start Upper Primary.

8.6 Final thoughts

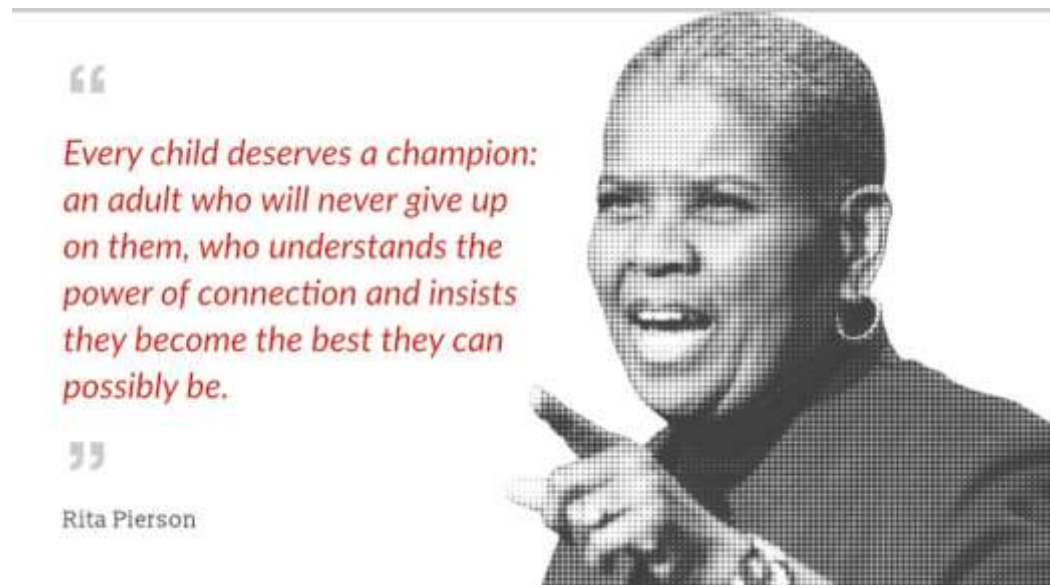All learners in Namibia, regardless of their socio-economic status, need to read well in the 21st century to develop skills that are needed to succeed in today's world (i.e. critical thinking, communication, collaboration, and creativity). With low literacy levels, learners may not develop more advanced skills needed to function in the 21st century and may thus remain trapped in a cycle of illiteracy and poverty.

Research across developing countries shows that interventions that aim to improve learners' reading comprehension skills tend to have limited impact or produce mixed results (Kim et al., 2016). The development of reading comprehension is affected by many aspects, including decoding skills, oral language comprehension, and other cognitive-linguistic skills. Many ESL learners in developing countries do not receive high quality decoding and reading comprehension instruction in schools and have limited access to reading materials that can facilitate the development of reading comprehension skills (cf. Kim et al., 2016). The current study offers some insight on the perspective that the development of reading comprehension skills can be achieved with high quality reading instruction.

Although the learners did not develop sufficient reading skills to fully comprehend texts at their grade level, the finding that the intervention schools significantly improved their word recognition and fluency more than the control schools suggests that the intervention was modestly successful. Reading comprehension interventions are likely to be more successful if learners' fluency levels are also improved. This study was a step forward to designing a framework for reading instructional practices that would improve learners' reading ability in the long term. The replication of this study (as it is, or with some modifications) in future will determine the effectiveness of reading interventions in similar contexts that seek to empower teachers and improve learners' reading outcomes by using a *Teachers' Guide*, coaching, and making teaching and learning resources easily accessible. The replication can try to establish the extent to which the *Teachers' Guide* increases teacher content knowledge about reading, how much coaching is needed (more than or less than what was provided in this study?), and the amount of resources needed for classroom purposes and for extra reading outside the classroom. This could also help to develop a change theory for Namibian teachers.

This study showed that the quality of teaching can be improved if teachers are provided with ongoing support in terms of available teaching and learning materials, training about how to use the materials, workshops to improve their content knowledge about reading and its instructional practices, and coaching. If teachers apply instructional practices that are not effective, the results of their learners may not improve even if they are committed to teaching. Teachers may be working hard, but if their methods are ineffective, the hard work does not pay off (Alsofrom, 2018). Therefore, there is a need to improve learners' reading ability by empowering teachers to apply instructional practices which work in their educational contexts.

Teachers need to know what works in their educational contexts and what is expected of them. To achieve this, they need to have relevant content knowledge and pedagogic knowledge about reading to avoid overrating or misjudging their own effectiveness as teachers and learners' performance. Teachers need to have a better idea of what successful reading looks like, and know about different aspects of reading comprehension and how to assess them.

Every child deserves a champion: an adult who will never give up on them, who understands the power of connection and insists they become the best they can possibly be.

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APPENDICES

Appendix 1: Ethical clearance letter

UNISA | university of south africa

DEPARTMENT OF LINGUISTICS AND MODERN LANGUAGES:
RESEARCH ETHICS REVIEW COMMITTEE

26 February 2018

Ref #: AL_BLL40_2018
Mr BL Liswaniso
Student #: 4265 8527

Dear Mr Liswaniso

Decision: Ethics Approval

Name: Mr BL Liswaniso
P.O. Box 814
Ngwese
Namibia

Cel: 081 212 7078

Supervisor: Prof EJ Pretorius

Co-supervisor: Dr L Stoffelsma

Proposal: The effects of a reading comprehension intervention on Upper Primary readers

Qualification: PhD (in Languages, Linguistics and Literature)

Thank you for the application for research ethics clearance, first received on 15 January 2018 by the Department of Linguistics and Modern Languages Research Ethics Review Committee (RERC), for the above-mentioned research, and subsequently revised. Since the research involves working with Grade 5 teachers and learners in Nambia, it falls within the medium risk category. Final approval is granted for the research undertaken for the duration of your doctoral studies.

For full approval: The application was reviewed in compliance with the Unisa Policy on Research Ethics by the Department of Linguistics and Modern Languages Research Ethics Review Committee on 26 February 2018.

The proposed research may now commence with the proviso that:

1) The researcher will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.

2) Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study, as well as changes in the methodology, should be communicated in writing to the Department of Linguistics and Modern Languages Research Ethics Review Committee Committee. An amended application could be requested if there are substantial changes from the existing proposal, especially if those changes affect any of the study-related risks for the research participants.

3) The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study.

Note:

The reference number (top right corner of this communiqué) should be clearly indicated on all forms of communication (e.g. Webmail, e-mail messages, letters) with the intended research participants, as well as with the Department of Linguistics and Modern Languages RERC.

On behalf of the departmental RERC, we wish you everything of the best with your research study. May it be a stimulating journey!

Kind regards

Prof EJ Pretorius
Chair: Department of Linguistics and Modern Languages RERC
Tel: (012) 429 6028
pretoej@unisa.ac.za

Appendix 2: Permission letters to collect data from schools

REPUBLIC OF NAMIBIA
ZAMBEZI REGIONAL COUNCIL
DIRECTORATE: EDUCATION, ARTS AND CULTURE

Tel: ~26466261902/964	Ngoma Road	Private Bag 5006
Fax: +26466253187	Govt Building	Katima Mulilo, Namibia
Enquiries: Adrenah Mukela	Our Ref:	Date: 12 December 2017

PO Box 814
Ngweze
Katima Mulilo
Namibia

Attention: Mr Belden Liswaniso

RE: PERMISSION TO COLLECT READING COMPREHENSION DATA INTERVENTION ON GRADE 5 IN SCHOOLS

Your letter to the office of the Regional Director: Zambezi Region date 05 December 2017 with the caption permission to collect reading comprehension data intervention on grade 5 in Schools within Zambezi Region was received.
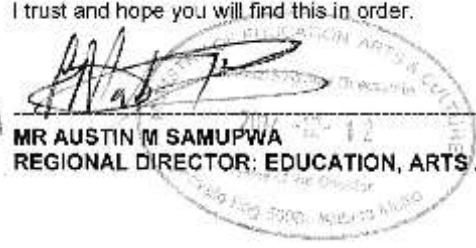
Kindly be informed that approval is granted to you to conduct a research as requested, but let me draw your attention to the following aspects **NOTE!**

   a) The granted approval should not disrupt the normal teaching and learning at those schools you intend visiting.
   b) You are therefore, requested to share your findings with the Ministry of Education, Arts and Culture.

By copy of this letter the Inspectors of Education concerned are notified accordingly of your presence to the school.

I trust and hope you will find this in order.

MR AUSTIN M SAMUPWA
REGIONAL DIRECTOR: EDUCATION, ARTS AND CULTURE

KATIMA MULILO COMBINED SCHOOL

Tel: 066-253017 – Fax: 066-253301 – P O Box 45 – KATIMA MULILO – Namibia

REF NO.: _____

ENQ.: *Mr P Mutabelezi*
081279 8324

2 8 FEB 2018
20 _____

Mr Belden Liswaniso
P O Box 814
NGWEZE
Namibia

Dear Sir

CONSENT FOR RESEARCH DATA COLLECTION: PILOT STUDY: YOURSELF

I acknowledge receipt of your letter dated 27 February 2018 with the caption CONSENT FOR RESEARCH DATA COLLECTION: PILOT STUDY.

Through this letter you are granted permission to carry out the pilot study at Katima Mulilo Combined School.

Thanking you for your kind attention

Yours faithfully

PETUHO MUTABELEZI
PRINCIPAL

MAVULUMA COMBINED SCHOOL

P/BAG 1009. NGWEZE , KATIMA MULILO
TEL/FAX : 066 253130. Email : mavulumaps@gmail.com

September 10, 2018

Dear Sir/madam

This is to certify that Mr Liswaniso Belden from the University of South Africa, Department of Linguistics and Modern Languages is allowed to conduct his research on condition that:

(i)   He may work together with the teachers concerned,
(ii)   All things done may be confidential as indicated in his research.

I will be very grateful if our conditions will be considered.

Yours faithfully

Francis Mukanwa
ACTING PRINCIPAL

Enquiries: Mr. SK Simataa | Cell: +264813186942 | July 11, 2018

Attention: Mr. Belden Liswaniso

RE: PERMISSION TO COLLECT READING COMPREHENSION DATA INTERVENTION ON GRADE 5 LEARNERS.

This bares reference to the above subject.

Your letter to the office of the principal dated 18 June 2011 requesting for permission to conduct a research on data collection on reading comprehension intervention on grade 5 learners at this school.

Kindly be informed that approval is granted for you to go ahead and do your research on data collection as requested. **NOTE!**

> ➤ *The granted approval should not disrupt the normal teaching and learning process during the data collection.*

I hope and trust that you will finds in order.

Mr. SK Simataa

[Acting Principal]

27 September 2018

To: Mr. Liswaniso Belden
            Unam: Katima Mulilo Campus
Through: The School Principal
From: Mr. Mushandikwe E
            Greenwell Matongo Primary School

Re: Permission to conduct a Doctoral Research on reading comprehension at Greenwell Matongo Primary School

Dear Sir

On behalf of the school, I write to communicate to you that your submission of request to collect DATA at our school has been granted as requested on our Grade 5 learners from 01 October 2018 to 31 October 2018 and 01 October 2019 to 31 October 2019 respectively.

Yours sincerely

Esau Mushandikwe
HEAD of DEPARTMENT

Brendan Simbwaye Primary School

Private Bag 1099
Katima Mulilo, Namibia

Tel: +264 66 253008   Fax: +264 66 253021

Enquiries: Mr. Kalonda M. M

29 June 2018

Attention: Mr. Belden Liswaniso

P.O. Box 814

Ngweze

Katima Mulilo

Dear Sir

PERMISSION TO COLLECT READING COMPREHENSION DATA IN GRADE 5

This letter bears reference. This is to certify that permission has been granted for you to collect reading comprehension data in grade 5 at the above-mentioned school in September/October and in July 2019.

The school is requesting that you share your findings of your data collection with the school as this will help to improve teaching and learning at this school.

We wish you the best in your studies.

Yours faithfully

Mrs. Mahoto G.L
Principal

Appendix 3: Assent Forms and Informed Consent Forms

Learner Assent Form

BACKGROUND INFORMATION

The title of this research is *The effects of a reading comprehension intervention on Upper Primary readers.* My name is Belden Liswaniso from the University of South Africa, Department of Linguistics and Modern Languages.

I am carrying out a reading comprehension intervention for Grade 5 learners. I am collecting data from Grade 5 learners to establish whether a reading comprehension intervention can improve the reading comprehension of the Upper Primary learners.

The research involves completing an Oral Reading Fluency test, the Burt Word Reading Test, the pre- and post-reading comprehension test, Learner Questionnaire, and interviews. The activities will be carried out for over four months during the second and third school trimester. Please feel free to ask questions now if you have any.

ASSENT STATEMENT

1. I understand that my participation is voluntary and that I may withdraw from the research at any time, without giving any reason.

2. I am aware of what my participation will involve.

3. I understand that there are no risks involved in the participation of this study.

4. All questions that I have about the research have been satisfactorily answered.

I agree to participate. (Tick in the box for YES or NO)   YES   NO

Participant's signature: _____

Participant's name (please print): _____

Date: _____

Teacher Consent Form

BACKGROUND INFORMATION

The title of this research is *The effects of a reading comprehension intervention on Upper Primary readers.* My name is Belden Liswaniso from the University of South Africa, Department of Linguistics and Modern Languages.

I am carrying out a reading comprehension intervention for Grade 5 learners. I am collecting data from teachers and Grade 5 learners to establish whether a reading comprehension intervention can improve the reading comprehension of the Upper Primary learners.

The research involves a workshop on teaching reading comprehension strategies, classroom observations and interviews. The reading comprehension intervention will be carried out for four months during the second and third school trimester. Please feel free to ask questions now if you have any.

CONSENT STATEMENT

1. I understand that my participation is voluntary and that I may withdraw from the research at any time, without giving any reason.

2. I am aware of what my participation will involve.

3. I understand that there are no risks involved in the participation of this study.

4. All questions that I have about the research have been satisfactorily answered.

I agree to participate. (Tick in the box for YES or NO) | YES | | NO |

Participant's signature: _____

Participant's name (please print): _____

Tick this box if you would like to receive a summary of the results by e-mail: [ ]

E-mail: _____ Date: _____

<p style="text-align:center">Principal Consent Form</p>

BACKGROUND INFORMATION

The title of this research is *The effects of a reading comprehension intervention on Upper Primary readers.* My name is Belden Liswaniso from the University of South Africa, Department of Linguistics and Modern Languages.

I am carrying out a reading comprehension intervention for Grade 5 learners. I am collecting data from teachers and Grade 5 learners to establish whether a reading comprehension intervention can improve the reading comprehension of the Upper Primary learners. **I also wish to hold a short interview with the school principal**.

The research involves a workshop on teaching reading comprehension strategies, classroom observations and interviews. The reading comprehension intervention will be carried out for four months during the second and third school trimester. Please feel free to ask questions now if you have any.

CONSENT STATEMENT

1. I understand that my participation is voluntary and that I may withdraw from the research at any time, without giving any reason.

2. I am aware of what my participation will involve.

3. I understand that there are no risks involved in the participation of this study.

4. All questions that I have about the research have been satisfactorily answered.

I agree to participate. (Tick in the box for YES or NO) | YES | | NO |

Participant's signature: _____

Participant's name (please print): _____

Tick this box if you would like to receive a summary of the results by e-mail: | |

 E-mail: _____ Date: _____

<div align="center">**Parental or guardian Consent Form**</div>

BACKGROUND INFORMATION

The title of this research is *The effects of a reading comprehension intervention on Upper Primary readers.* My name is Belden Liswaniso from the University of South Africa, Department of Linguistics and Modern Languages.

I am carrying out a reading comprehension intervention for Grade 5 learners. I am collecting data from Grade 5 learners to establish whether a reading comprehension intervention can improve the reading comprehension of the Upper Primary learners.

The research involves completing an Oral Reading Fluency test, the Burt Word Reading Test, the pre- and post-reading comprehension test, Learner Questionnaire, and interviews. The activities will be carried out for over four months during the second and third school trimester. Please feel free to ask questions if you have any.

CONSENT STATEMENT

1. I understand that the participation of my child is voluntary and that he/she may withdraw from the research at any time, without giving any reason.

2. I am aware of what the participation will involve.

3. I understand that there are no risks involved in the participation of this study.

4. All questions that I have about the research have been satisfactorily answered.

I agree for my child to participate. (Tick in the box for YES or NO)   YES   NO

Parent or guardian's signature: _____

Child's name (please print): _____

Date: _____

Appendix 4: Research instruments

The Burt Word Reading Test

to	is	up	he	At
for	my	sun	one	of
big	some	his	or	an
went	boys	that	girl	water
just	day	wet	pot	things
no	told	love	now	sad
nurse	carry	quickly	village	scramble
journey	terror	return	twisted	shelves
beware	explorer	known	projecting	tongue
serious	domineer	obtain	belief	lunchtime
emergency	events	steadiness	nourishment	fringe
formulate	scarcely	universal	commenced	overwhelmed
circumstances	destiny	urge	labourers	exhausted
trudging	refrigerator	melodrama	encyclopaedia	apprehend
motionless	ultimate	atmosphere	reputation	binocular
economy	theory	humanity	philosopher	contemptuous
autobiography	excessively	champagne	terminology	perambulating
efficiency	unique	perpetual	mercenary	glycerine
influential	atrocious	fatigue	exorbitant	physician
microscopical	contagion	renown	hypocritical	fallacious
phlegmatic	melancholy	palpable	eccentricity	constitutionally
alienate	phthisis	poignancy	ingratiating	subtlety

GRADE 5 ORAL READING FLUENCY TEST

Name of School: _____

Date of test: _____

Student name & surname: _____

Girl ☐   **Boy** ☐

Date of birth: _____

• •

A traditional story - How Leopard got his spots

Many years ago Leopard was a creature with no spots. His fur was an ordinary brown colour.	17
One day, he was lying in the shade of a thorn tree when Zebra walked past. Leopard looked	35
longingly at Zebra's black and white stripes. "I wish I had interesting patterns in my coat," he	52
said to Zebra.	55
Suddenly they heard a noise in the bushes nearby. They found Snake slithering under some dry	71
leaves. Surprised, they asked her why she was hiding away. "I am sad and lonely because I	88
have no friends," she said.	93
"I am scared of you because you have a poisonous bite," replied Zebra.	106
"You have never yet hurt me," said Leopard. "I will be your friend."	119
Snake was pleased and wanted to make her new friend happy. "I can make your fur beautiful,	136
but I need to bite you first," she said.	145
Leopard let Snake bite him. The next moment he tumbled down as if he were dead! But when	163
he awoke, what a change! His fur was covered in beautiful spots! And to this day, Snake and	181
Leopard remain the best of friends.	187
Total number of words read	
Total no of errors	
Total number of words read correctly	

GRADE 5 READING COMPREHENSION TEST

Please fill in the information below

Name and surname: _____

Name of school: _____

Date of test: _____

Girl ☐   **Boy** ☐

Date of birth: _____

Main language spoken at home: _____

Please do not turn the page over until you are told to do so.

You will have 1 hour 30 minutes to complete the test

There are 26 questions of 38 marks

Answer all the questions on the test paper

****

Text A

Please read the two passages below and then answer the questions that follow.

1. The San hunter-gatherers

The San were the first people to live in southern Africa. They were small hunter-gatherers who inhabited this region thousands of years ago. They hunted wild animals and gathered plants and insects to eat.

A digging stick was used to dig up roots and bulbs in the veld. They made the tool by chipping out a hole in a round stone and putting a stick through it at one end. This made the stick heavier for digging.

They led a nomadic way of life. In other words, they moved around from place to place, looking for food and animals to hunt. They lived in groups of twenty or so people. There could not be too many people in a group; otherwise there would not be enough food for everyone.

The San used bows and arrows as their hunting weapons. They hunted animals like small buck, springbuck, giraffes, ostriches and eland. An eland is a very large animal with a long pair of horns bent backwards over its neck. The hunters took poison from special plants to put on the tips of their arrows. This caused the animals to run slower and eventually fall down. Large animals such as giraffe and eland could be killed more easily in this way. The San used stone tools to cut up the animals they hunted. They often went hungry if they could not kill an animal on a hunting expedition.

When hunting animals, it is important to be very quiet. For this reason, the San used their hands to signal to each other what animal they had seen. The drawings below show some of the hand signals used by the San that are symbols for different animals.
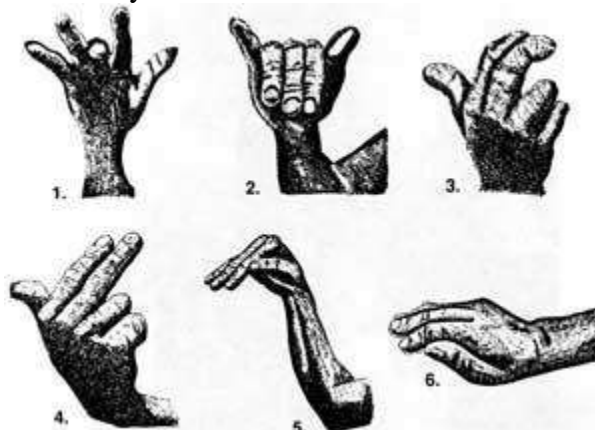
Questions 1 – 5 [7]

Please answer the questions below.

1. Which word in the first paragraph tells you that the San were not tall people? (1)
   _____

2. Circle the letter to the answer that you think is correct.

   If you *gather* wild plants this means that you (1)
   a. look after wild plants
   b. cook and eat wild plants
   c. look for and collect wild plants.

3. Why did the San put poison on the tips of their arrows? (2)
   _____
   _____
   _____

4. Why did the men not talk to each other when they went hunting? (2)
   _____
   _____
   _____

5. Look at this hand signal used by the San.
   Which animal do you think this hand signal shows? (1)
   a. Eland
   b. Giraffe
   c. Springbok.

Text B

2. A person from the past

My name is Qwaa. I live in a place where the sand is red and so dry that you can't hold it in one hand for long because it just trickles through your fingers.

My mother and my older sister spend the day in the veld looking for nice things to eat. They carry their digging sticks with them. I like it best when they bring back Tsamma melons or 'click' beetles to eat. These taste delicious!

My father goes hunting with other men, with bows and arrows. I am still too small to join the hunters. They put their arrows in a quiver over their shoulders, but they also carry extra arrows by sticking them in their hair! I think my father is an excellent hunter. One day he shot a giraffe with a poisoned arrow. For many days afterwards we had plenty of meat to eat and we shared it with all the other people in our group.

When the animals move in search of new grass, we move too. We go from waterhole to waterhole. Tsamma melons give us water too. We carry water with us in big ostrich shells. We can carry several shells of water in a woven grass basket. But there's trouble if you fall and break them!

We sleep in caves when we are near the rocky hills or mountains. If we are in the veld, we make huts with reed mats and sticks. In the evenings we tell stories and dance around the fire.

Questions 6 – 11 **[13]**

Please answer the questions below.

6. Circle the letter to the answer that you think is correct.

   Qwaa thinks that click beetles are "delicious" to eat. This means that … (1)
   a. they taste very good
   b. they taste very bad
   c. they taste very bitter.

7. Do you think Qwaa is a boy or a girl? (1) Answer *Boy* or *Girl* and then say why you think so. (2) (3)
   _____
   _____
   _____

8. Why does Qwaa say that "there is trouble" if you drop and break the egg shells carrying water? (2)
   _____
   _____
   _____
   _____

9. Circle the letter to the answer that you think is correct.

The San like to tell stories when .... (1)
a. they go hunting
b. they look for food in the veld
c. they sit round the fire at night.

10. Look at the picture below and then choose the correct word from the box. Write your answer on the line next to the labels a, b and c. (3)

| Quiver | eland | spear | bow | giraffe | arrow |

a. This is a _____

b. This is a _____

c. This is a _____
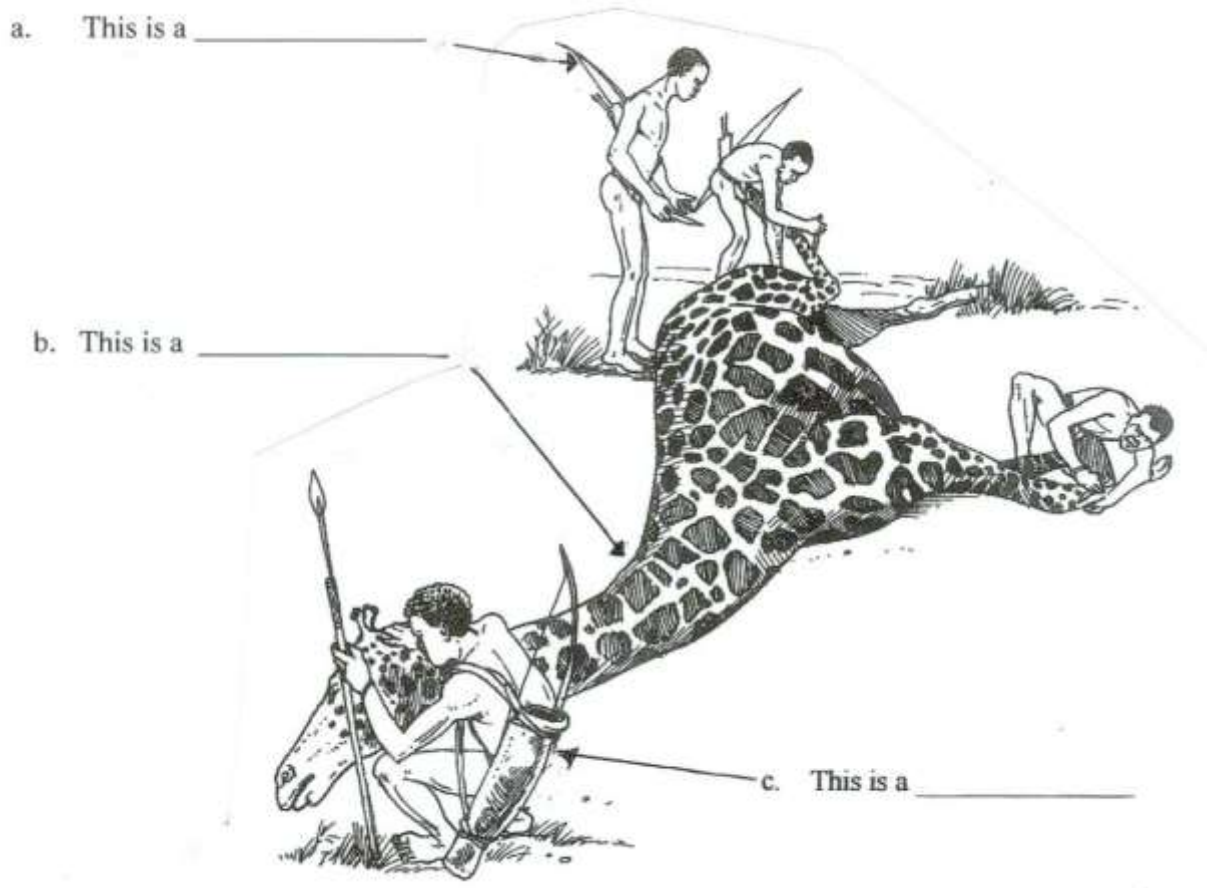
11. Do you think that the life of Qwaa and his family is difficult or easy? (1) Say why you think so. (2) (3)

_____
_____
_____
_____

Text C

Read the text below and answer the questions at that follow.

3. Searching for Food

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

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

Where to find ants, pill bugs, and worms

Ant trails are found in summer. At one end will be some food; at the other you should find the
entrance to a nest.

Ants

Pill bugs like damp, dark places. They can be found under logs, under piles of dead leaves, and in walls.

Pill bugs

Worms live under stones, in freshly dug soil or near compost heaps. They come to the surface at night.

Follow an Ant Trail

Ants live together in nests. When an ant finds some food it makes a trail for others to follow. To do this experiment you will need to find an ants' nest. You will also need the following materials: a sheet of paper, a small piece of apple, a handful of soil.
1. Put the piece of apple on the sheet of paper and lay the paper close to an ants' nest. Wait for some ants to find the apple. They should all follow the same trail.
2. Move the apple. Do the ants go straight to it?
3. Now sprinkle soil on the paper to cover the trail. The ants should scurry around for a while. Do they make a new trail?
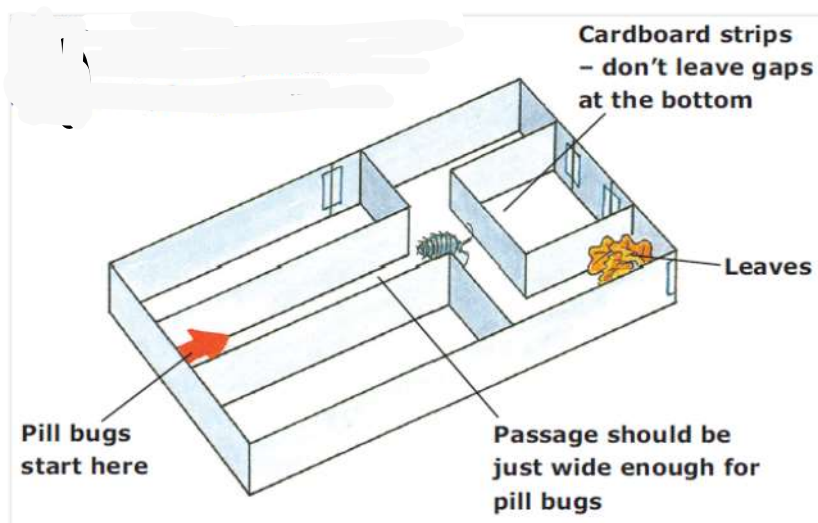

What happens?
Even after the food has moved, the ants still follow the old trail until the new one is laid.

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

Study Pile Bugs

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

Cardboard strips
– don't leave gaps
at the bottom

Leaves

Pill bugs
start here

Passage should be
just wide enough for
pill bugs

1. Use the lid to make three long stripes for making the passages in the picture.

2. Let your pill bugs walk along the passage one at a time. When they reach the end of the passage, some will turn left and some will turn right.

3. Put damp leaves in the right hand side of the box. Now let the pill bugs walk through the box again. Which way do they go?

What happens?
The pill bugs will turn to the right towards food.

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

Make a Wormery

Worms are hard to study because they don't like the light. As soon as they sense it, they wriggle away, trying to find a dark place again. To see how worms live and feed, make a wormery like the one shown here. Then find two or three worms to put in it. It is important to remember not to pull on the worms or you may hurt them. They are covered with bristles that grip the soil tightly.

You will need

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

Lid taped to box
Holes
Onion and Potato cubes
5 cm damp soil
1 cm sand between each layer
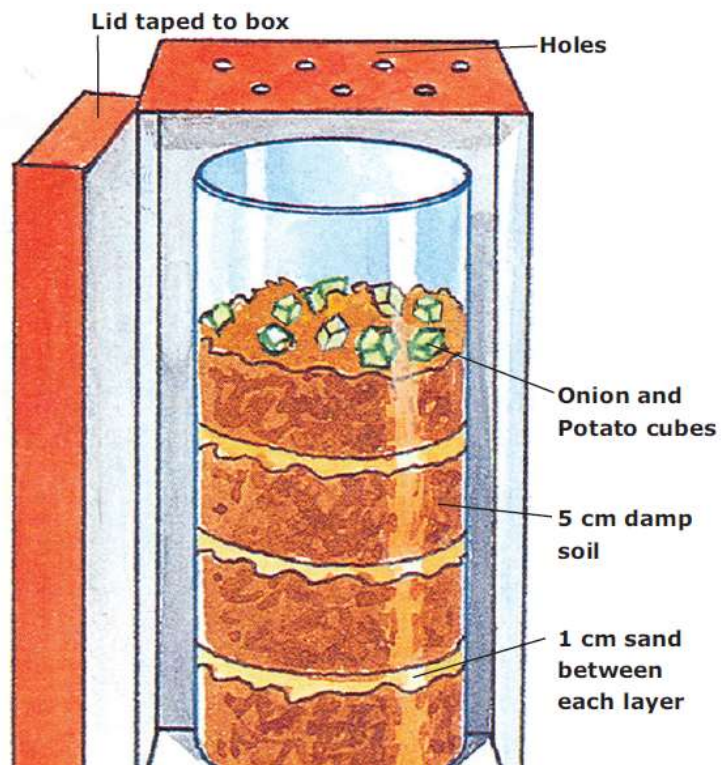
1. Tape one side of the shoe box lid to the box, so it opens like a door. Poke holes in the top of the box with the pen to let air and light into the wormery.
2. Cut the top off the bottle. Then fill it with loosely packed layers of soil and sand. Scatter potato and onion on the surface.
3. Gently drop in your worms, then stand the bottle in the box and close the door. Leave it outside in a cool, dry place for four days.
4. After four days, go back and look at the bottle. What is different about the sand and soil?

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

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

Why?
The worms mix the sand and soil coming to the surface to eat the food and then tunnelling underground to get away from the sunlight.

(From *Animal watching in the Usborne Big Book of Experiments* published in 1996 by Usborne Publishing Ltd., London. Copyright permission obtained)

Questions 12 – 26 **[18]**

For multiple choice questions, please circle the letter for the correct option.

12. What is the main purpose of the article? (1)
    a. to describe different projects you can do
    b. to give information about ant trails
    c. to show what small creatures look like
    d. to explain what worms eat

13. What is one thing you should do to take care of the creature? (1)
    a. search for them under rocks and stones
    b. find out all about them
    c. collect as many as you can
    d. put them back where you found them

Questions 14 – 16 are about the Ant Project

14. Why do you put the apple by the ants' nest? (1)
    a. to block the ants' trail
    b. so the ants will make a trail
    c. to confuse the ants
    d. so the ants will scurry around

15. Once an ant finds some food, how do the other ants from the nest find it too?　　(1)
    a. They watch the first ant and follow it.
    b. They run around until they find the food.
    c. They sense the scent left by the first ant.
    d. They smell the food on the piece of paper.

16. Why do the ants scurry around after you've sprinkled the soil?　　(1)
_____
_____
_____
_____

17. How do pill bugs find the food?　　(1)
    a. They walk down the passage.
    b. They sense food with their antennae.
    c. They follow the scent trail.
    d. They see the food in the dark.

18. Look at the picture for **Study Pill Bugs**. How does the picture help you to know what to do in the experiment?　　(2)
_____
_____
_____
_____
_____
_____
_____

19. Why do you need to let your pill bugs walk along the passage before putting the leaves in the box?　　(1)
    a. to see if they can learn the maze
    b. to see what they do when there is no food
    c. to see if the box is put together correctly
    d. to see which ones turn which way

20. In step 3 of the pill bugs project, what do you think will happen if you move the damp leaves to the left corner of the box?　　(1)
_____
_____
_____
_____

21. What is similar in the way ants and pill bugs find their food?　　(1)
_____
_____
_____
_____

22. Number the steps in the order you would follow to make a wormery. The first one has been done for you. (1)

_____ put the bottle in the shoebox

____1____ poke holes in the top of the shoebox

_____ drop in the worms

_____ add potato and onion

_____ fill the bottle with soil and sand

23. Explain why it is important to put layers of soil and sand in the bottle. (1)

_____
_____
_____
_____

24. Explain why putting the onion and potato on the surface of the soil is important to the wormery project. (2)

_____
_____
_____
_____
_____
_____
_____

25. Each project has **What happens** and **Why** in a separate box. What is the purpose of these boxes? (1)

a. to explain the steps of the project

b. to tell you what you need for the project

c. to tell you what to do when you have finished

d. to explain what you have seen

26. Which of the three projects did you find the most interesting? Use information from the text to explain your answer. (2)

_____
_____
_____
_____
_____
_____
_____

Total: [38]

Thank you for your participation!

Learner Reading Questionnaire

You are kindly requested to complete this questionnaire. Tick the relevant option(s) for each of the questionnaire items below:

Name   **and**   **surname:**
_____

Name   **of**   **school:**
_____

1. Girl ☐   **Boy** ☐

Date of birth:_____   **Age**:_____

2. Do you enjoy reading in English for pleasure? (story books, magazines, etc.)

Not at all	A little	Quite a lot	Very much
☐	☐	☐	☐

3. I understand all my school textbooks that are written in English when I read them.

Strongly disagree	Disagree	I'm not sure	Agree	Strongly agree
☐	☐	☐	☐	☐

4. I enjoy reading aloud during class time.

Strongly disagree	Disagree	I'm not sure	Agree	Strongly agree
☐	☐	☐	☐	☐

5. Reading for pleasure can improve my reading skills.

Strongly disagree	Disagree	I'm not sure	Agree	Strongly agree
☐	☐	☐	☐	☐

6. I like reading aloud in front of other leaners.

Strongly disagree	Disagree	I'm not sure	Agree	Strongly agree
☐	☐	☐	☐	☐

7. I feel happy when it is time to read my school textbooks.

Strongly disagree	Disagree	I'm not sure	Agree	Strongly agree
☐	☐	☐	☐	☐

8. Even if I am not learning a lot of English in school, I can still learn English through reading different materials such as books, magazines, and newspaper outside school hours.

Strongly disagree ☐   Disagree ☐   I'm not sure ☐   Agree ☐   Strongly agree ☐

9. I always feel nervous when my teacher asks me about what I read.

Strongly disagree ☐   Disagree ☐   I'm not sure ☐   Agree ☐   Strongly agree ☐

10. What kinds of problems do you typically have when you read? Tick as many boxes as necessary.

	I usually have problems in this area
There are lots of words that I don't know.	☐
The grammar is difficult	☐
It's not easy keeping track of the main idea or argument.	☐
I forget what I've read by the time I get to the bottom of the page.	☐
I have problems understanding diagrams and tables.	☐

11. Think of how well you and your classmates read English textbooks, and answer each item below.

	Strongly disagree	Disagree	I'm not sure	Agree	Strongly agree
In our class, there are lots of learners who struggle with their reading.	☐	☐	☐	☐	☐
In general, I am a slow reader.	☐	☐	☐	☐	☐
I read fast and understand most of what I read.	☐	☐	☐	☐	☐

12. I would rather watch TV than read an English story book

Strongly disagree ☐   Disagree ☐   I'm not sure ☐   Agree ☐   Strongly agree ☐

13. English school books have many difficult words.

Strongly disagree ☐   Disagree ☐   I'm not sure ☐   Agree ☐   Strongly agree ☐

14. Which of the following do you do when you read a school textbook? (Tick the relevant option for each item)

	I usually do this	I sometimes do this	I don't often do this	I never do this
First skim the book.	☐	☐	☐	☐
Take note of headings and subheadings.	☐	☐	☐	☐
Only read for short stretches at a time	☐	☐	☐	☐
Write notes in the margins of the textbook.	☐	☐	☐	☐
Underline parts that I think are important.	☐	☐	☐	☐
Look up words that I don't understand in a dictionary.	☐	☐	☐	☐
Look up words that I don't understand in a dictionary and then write their meanings in the textbook.	☐	☐	☐	☐
Ask myself questions about the information while I read.	☐	☐	☐	☐
Re-read sections when I don't understand what's going on.	☐	☐	☐	☐
Draw my own mind maps or flowcharts of the information about which I'm reading.	☐	☐	☐	☐
I ignore pictures, maps, charts or diagrams	☐	☐	☐	☐
Make notes while I read (in a notebook).	☐	☐	☐	☐

15. I enjoy reading for pleasure in English, but I do not have time for it.

Strongly disagree	Disagree	I'm not sure	Agree	Strongly agree
☐	☐	☐	☐	☐

16. I learn more things in general from watching TV than reading English story books.

Strongly disagree	Disagree	I'm not sure	Agree	Strongly agree
☐	☐	☐	☐	☐

17. There are a lot of interesting English story books in my school library.

| Strongly disagree ☐ | Disagree ☐ | I'm not sure ☐ | Agree ☐ | Strongly agree ☐ |

18. Even if I am not busy, I do not feel like reading English textbooks.

| Strongly disagree ☐ | Disagree ☐ | I'm not sure ☐ | Agree ☐ | Strongly agree ☐ |

19. I enjoy answering reading comprehension questions in English textbooks.

| Strongly disagree ☐ | Disagree ☐ | I'm not sure ☐ | Agree ☐ | Strongly agree ☐ |

20. How many books (more or less) are there in your home? (Do not count magazines, newspapers, or your school books)

| None ☐ | About 10 ☐ | More than 20 ☐ | More than 50 ☐ | More than 100 ☐ |

21. When did you last read a book in English for pleasure (i.e. for non-school purposes)?

| Never ☐ | More than a year ago ☐ | A year ago ☐ | A month ago ☐ | A week ago ☐ |

22. How often is a newspaper bought in your home?

Never ☐   Not often ☐   Sometimes ☐   Usually ☐

23. When I read, I guess what will happen next, at different places throughout the story.

Never ☐   Not often ☐   Sometimes ☐   Usually ☐

24. When I do not understand a word, I use the information I have already read to guess its meaning.

Never ☐   Not often ☐   Sometimes ☐   Usually ☐

25. When I read, I find it difficult to relate the story to my own life?

Never ☐   Not often ☐   Sometimes ☐   Usually ☐

Thank you!

Interview schemes

Teachers' interview: Pre-intervention

1. How well do your learners read?

2. How would you describe the vocabulary knowledge of your learners?

3. In what way do reading skills play a role in your classes (or the curriculum)?

4. How important is it to be a good reader in Grade 5? Please explain.

5. What do you think is your role as a teacher to motivate learners to read?

6. How do you motivate your learners to read?

7. What is your opinion about the available reading resources at this school?

8. What do you think a good Grade 5 reader should be able to do? In other words, what does a successful Grade 5 reader do while reading.

9. What do you know about the available reading resources in your learners' home environment?

10. Have you heard of reading comprehension strategies?

Yes ☐   No ☐

If yes, with which strategies are you familiar?

11. How do you teach the reading comprehension strategies?

12. In your opinion, in which grades do you think reading comprehension strategies can be taught?

13. When in the week/lesson do you teach reading comprehension strategies?

14. Are you familiar with this reading comprehension test that will be administered to your learners?

Yes ☐   No ☐

15. How do you expect your learners will score on this test?

16. How often do you read for pleasure?

17. What kind of things do you read?

18. When did you become a reader?

Principal's interview: Pre-intervention

1a. Are you satisfied with the general reading ability of your school learners?
Yes ☐   No ☐
1b. Why?

2. How would you describe the reading culture of learners at this school?

3. Are there enough reading materials for all the learners?

4. What do teachers do in their classrooms to promote a reading culture among learners?

5. What do you normally do to improve the reading ability of the learners?

Teachers' interview: Post intervention interviews

1. How did your learners participate in the intervention lessons?

2. Did all the learners participate actively in your lessons, or were there learners that appeared reluctant?

3. Do you think the intervention had an effect in the way you teach reading or did it change the way you teach reading?

4. How did you teach reading previously?

5. Did you notice any changes in attitudes toward reading among your learners? Explain what you observed.

6. What do you think about teaching reading the way as it was done during the intervention?

7. Do you think your learners were following your lessons or enjoyed the way you were teaching?

8. Generally, your learners improved much compared to learners in other schools. However, there are a few learners who seem to have improved just a little bit, whereas the majority improved greatly. What do you think is the cause of this?

9. Not all lessons were presented during the reading intervention. There were 32 lessons that should have been presented, but you only presented 20 lessons. What were the limiting factors that you experienced?

Appendix 5: Sample intervention lessons

Sequencing of intervention lessons

The 32 lessons designed for the intervention have been sequenced as follows:

Lesson 1: Reading for enjoyment

Lesson 2: Setting ORF goals

Lesson 3: Introduction and Fiction and non-fiction texts

Lessons 4 – 9: Oral reading fluency (six lessons)

      Lesson 4: Day 1 of ORF

      Lesson 5: Day 2 of ORF

      Lesson 6: Day 3 of ORF

      Lesson 7: Day 4 of ORF

      Lesson 8: Day 5 of ORF

      Lesson 9: Reporting on reading experiences of the three ORF texts

Lessons 10 – 15: Vocabulary strategies – word parts and context clues (six lessons)

      Lesson 10: Introduction to vocabulary learning

    Word-parts (three lessons):

      Lesson 11: Introduction to prefixes and suffixes

      Lesson 12: Using word-part clues

      Lesson 13: Using word-parts (pair-work)

    Context clues (two lessons):

      Lesson 14: Using contextual clues (modelling)

      Lesson 15: Using contextual clues (Guided practice)

Lessons 16 – 32: Reading Comprehension strategies (17 lessons)

    Activating prior knowledge (two lessons):

      Lesson 16: Activating prior knowledge (Modelling)

      Lesson 17: Activating prior knowledge (Modelling & practice)

      Lesson 18: Making predictions (Modelling & practice)

    Making inferences (two lessons)

      Lesson 19: introduction to making inferences

      Lesson 20: making inferences and predictions (Modelling & practice)

    Comprehension monitoring (two lessons)

      Lesson 21: Comprehension monitoring (Modelling)

      Lesson 22: Comprehension monitoring (Practice)

Text structure (10 lessons)

Lesson 23: Introduction to text structure

Lesson 24: Plot elements (modelling)

Lesson 25: Plot elements (modelling & practice)

Lesson 26: Sequencing (Modelling)

Lesson 27: Sequencing (Practice)

Lesson 28: Problem-solution (Modelling)

Lesson 29: Problem-solution (Practice)

Lesson 30: Cause-and-effect (Modelling & practice)

Lesson 31: Compare and contrast (Explanation & whole-class discussion)

Lesson 32: Compare and contrast (Practice)

INTRODUCTION TO READING (one lesson)

Aim: To motivate learners to develop interest in reading

Lesson 1: Reading for enjoyment

Objective: Learners will be able to listen to and read a story for appreciation and enjoyment.

Before-reading: Bring an interesting story to the classroom. You can use the story titled *Elephant and Friends* (see Appendix 4). The story teaches learners something new about the world. It teaches them about relationships/friendship (such values are often demonstrated for children through animal stories) and it is also funny. Tell the learners that you are going to read them a nice story. Explain why reading is useful to them. For example:

*Today I will read to you an interesting story titled **Elephant and Friends**. Why do we need to read?* Pose this question to the class – see what answers they come up with. Write their ideas up on the chalkboard. You need to engage their attention; this is a good way to get them involved.

Some reasons that may be given for reading:
- *Reading is fun. How? Some stories are exciting and make us laugh; We relax when we read; Reading is like watching a movie.*
- *It makes us happy. In what way? It makes us forget about our daily routines; Interesting stories / texts make us forget about our problems; It develops our*

imaginations and creativity, which may serve as inspiration for school activities and everything else.

- *We get a lot of information as we read. We get information about our school subjects, what is happening in the world, how to do certain activities; and how to succeed in school and life in general.*

- *We learn how to read and understand all our school subjects better.*

- *Reading also makes us understand each other and the world around us. How? As we read, we are exposed to various situations and human conditions; We learn that our situations and experiences are not unique; When we read stories, we can see how characters think, feel, and act – therefore we can also understand how real people think, feel and act; We understand the rule of life, which help us better adapt to society.*

- *Through reading we can travel the world. How? We are able to experience places without even travelling. We can learn about different people and cultures.*

You may also pose the following questions to the class: *Can we live in today's 21st century without being able to read? Why not?*

Ask the learners about their favourite stories and why they are their favourite. Thereafter show them some pictures about the story you will read to them (e.g. a picture of an elephant and a tiger) and ask them to predict what will happen in the story. (10 minutes)

During-reading: Read the story fluently and expressively (read with feeling, use different voices for each character, etc.) to exemplify good reading as described in section 3.3. As you read, briefly stop at any point to ask learners questions about what they think will follow in the story, and then continue reading. You can re-read the story together with learners taking roles of different characters (e.g. Learner 1 reads the line for the monkey, Learner 2 for the rabbit, Learner 3 for the frog, Learner 4 for the fox, Learner 5 for the bear, Learner 6 for the tiger, and all the learners for all the animals). (20 minutes)

After-reading: Ask a few learners (not only the clever ones) to tell what they enjoyed from the story. Learners may also work in groups to discuss how the story made them feel and each

group present their discussion to the whole class. Remind the learners about the importance of reading. (10 minutes).

In the following days, ask 2-3 learners, at the start of each school day, what they read the previous day and what it did for them (enjoy, laugh, interesting, something scary, new fact they didn't know, new idea to think about, new word they learnt?...)

HELPING LEARNERS SET READING GOALS (one lesson)

Aim: To help learners take ownership of and take more responsibility for their reading development

Lesson 2: Setting ORF goals

Objective: Learners will be able to set their own reading goals.

Before-setting: Remind the learners briefly about the importance of reading. Tell them that they will focus on the importance of becoming a *good/skilled* reader. What does this mean? Use an analogy and ask them questions:

> *What is a good soccer player? What does he do? Is he fast? Is he accurate? Is he fit? Why is it important for him to be fast, accurate, fit? How does he become that way?* Through practise! Ask them how practise helps.

One aspect of being a good reader is being able to read quite accurately and fast. The way we achieve this is to practise reading every day. Explain to the learners that in the next couple of weeks they will be doing activities that can make them fluent readers and develop their reading comprehension.

Thereafter, introduce the strategies that will be practised to improve their ORF and reading comprehension levels. You can make attractive posters for ORF and for the list of the strategies and paste them in the learners' classrooms for them to be familiar with the strategies (See Appendix 5 for an example of a poster that can be used). Let learners know that for them to benefit much from the activities they need to set their own reading goals.

Read the same paragraph (from the learners' textbooks or from elsewhere) to the class in three ways – (i) very slowly and laboriously, trying to decode some words, using a flat, monotonous voice. Nod your head on each word (ii) very fast but making lots of mistakes, sounding

somewhat incomprehensible, intonation not that of natural speech (iii) fluent, accurate reading, at a natural spoken language tempo, with appropriate pauses and good intonation and prosody. Ask them which one reflects good reading and why. (10 minutes)

During-setting: You want them all to read as in (iii). You will show them ways to do this (attention to accuracy, not reading too slowly, paying attention to punctuation, building up their vocabulary so that they can recognise words more quickly, etc.), but they must practise reading every day. They can measure their progress by setting their own ORF goals. Tell the learners that you will assess their ORF once a term to establish their progress. Help learners set their own ORF goals (indicating where they would like to be at the end of the term). Provide each learner with a copy of their own reading personal graphs, reading record, and a reading pledge (see Appendix 1 – 3) for them to complete and paste in their exercise books. Teachers must explain to the learners why each of the three forms is important and how it works. For example:

> *The ORF Chart helps you to keep track of your progress in reading by indicating your ORF score for each term. A weekly reading record helps you to get committed to reading because you are required to record the books or texts you have read each week. I will be checking how much you read each week and motivate you to keep on reading. Your reading pledge is a commitment for you to become a good reader this year by doing as much reading as possible. The reading pledge form allows you to tick what you want to commit yourself this year.*

You should not let learners to be too ambitious in setting their own ORF goals. It is good even if your learners can improve their reading score by a few words in a term (say for example, by anything between 4-10 words. Learners should complete each form after it has been read and explained to them. After completing the forms, they must paste them at the back of their English exercise books. (20 minutes)

After-setting: Learners talk about how each form will help them to become good readers. Thereafter, the teacher informs learners that they will need to use a note book to write new words every day, and form word Buddies and work in pairs, to share new words and test one another. Also tell the learners that they are going to have a special word walls (called Magic Word Walls) where each learner can paste new words they learn and share them with the whole class. Let learners know that sharing words with others make them clever. You can decide on

your own names for these special word walls (e.g. Word banks – because they make learners word rich; Clever Kids Word Kits, Knowledge Builders ...). Tell the learners that five minutes will be set aside each day for them to share their new words and paste them on the word wall. (10 minutes)

FICTION AND NON-FICTION (one lesson)

Aim: To develop awareness of fiction and non-fiction texts

Lesson 3: Introduction to fiction and non-fiction texts

Objective: Learners will be able to identify and contrast works of fiction and non-fiction.

Sharing new words: Ask a few learners (about 2-3 per day) to share a new word with their classmates – what does it look like (they must write it neatly on a flashcard), say it, explain what it means (write meaning on the back of the card), say where they found the new word (from TV, radio, a conversation, a book). Put the words on the Magic Word Wall where they stay for 2-3 days. At the start of each day you can take them off and check the learners' memory of the new words. Keep all the old word flashcards in a box and recycle them in the next term again to see who remembers them**. (**Five minutes)

Before-presentation: The lesson can start by asking learners to describe fiction work (other words are stories, narratives, stories about imaginary events) and then non-fiction work (other words are information/expository texts, newspapers, magazines, subject textbooks). Thereafter, introduce the topic and explain to the learners that they need to be aware of the differences between fiction and non-fiction for them to know what is real and not real, and how to approach each text. (Five minutes)

During-presentation: Explain the difference between fiction (imaginary events) and non-fiction work (real events). The whole class can be asked to list characteristics of fiction and non-fiction texts on the board. Thereafter, the teacher explains the difference between fiction and non-fiction texts using texts in leaners' books as examples. For example:

> *Fiction is creative writing or events that are not true. The story titled* **The Tortoise and the Hare** *in your English book is an example of fiction. In fiction we get characters, setting, problem/solution, and plot. Non-fiction refers to events that are true. The*

information about the environment in your Natural Science and Health Education textbook is an example of non-fiction. In groups of 5, can you think about other examples of fiction and non-fiction work? Explain why you think they are fiction or non-fiction.

After group discussion, learners report to the whole class on further examples of fiction and non-fiction work. (25 minutes)

After-presentation: Draw a Venn diagram on the chalk board. The whole class discusses what could go on the fiction section, shared section, and non-fiction section of the Venn diagram. The fiction section could include *setting*, *characters*, *plot*, *themes*, and *pictures*. The shared section could include aspects such as *title*, *texts*, *fun to read*, and *illustrations.* The non-fiction section could include *diagrams*, *headings*, *information*, *dialogue*, and *bold print*. For independent practice, learners could be given two texts for fiction and non-fiction and asked to fill in three sections of the Venn diagram with the characteristics of the texts at home. (Five minutes)

Appendix 6: Post-intervention interview transcription

Post intervention interviews: Researcher (R) and Teacher 3 (T3) – School 2

R: How do you see the participation of your learners during the intervention lessons?

T3: The learners were actively involved. They participated very well. Although time was really a challenge sometimes.

R: Aha

T3: They were excited for each and every lesson they were taught.

R: Did all the learners participate actively in your lessons, or were there a few that appeared reluctant?

T3: Let me just say most of them they did participate, only a few were not participating. I would say those ones are learners who are experiencing learning difficulties. But they were also trying to put more effort. All in all, everyone seemed willing to participate and they were all willing to participate.

R: You are referring to learners with learning difficulties. What sort of difficulties did you experience?

T3: Reading difficulties it one of them. Some might have been in situations at home. [R: Okay] Some situations at home are not allowing them to become active learners if they are supposed to be, because of what they are going through at home.

R: Did you try to do anything with those ones that are struggling?

T3: Yes, I did. I tried to do something. What I did was I had arranged a different seat arrangement. [R: Okay], I put learners who are struggling together with those that are not struggling just become friends to see if they can learn from them which it made them in put a little bit effort.

R: Okay. I remember that sitting arrangement. I think it helped a lot. Do you think the intervention had an effect in the way you teach reading or did it change the way you teach reading?

T3: I think it did because the way we teach reading here is absolutely different compared to what the intervention brought for us to be focusing on

R: How did you teach reading previously?

T3: Previously, we would just call a learner to come in front and read a passage. If they can't read you help them. And that's all.

R: Did you notice any changes in attitudes toward reading among your learners?

T3: Of course I did.

R: Can you briefly explain what you noticed?

T3: Okay. What I noticed is that the learners improved much on focus and concentration. I don't know; maybe it's because the lessons were different compared to the ones that we normally have. Because each time they have a reading lesson, for instance, everyone seems to have time and energy to an extent that they even beg me to have a reading lesson instead of what was scheduled for that day.

R: That's interesting. They used to ask you to have extra lessons for reading if you bring in a different aspect for the language, right?

T3: Yes. They would ask; when are we having a reading lesson? That shows that the lessons made them develop love for reading.

R: Okay. What do you think about teaching reading the way as it was done during the intervention?

T3: Yes. It's very much effective. I think I will continue to teaching the learners that way. I believe that if I start teaching the learners I will start from January next year. If I start in January next year by the time they reach the end of first term everyone who will come to Grade 5 with reading difficulty will be fine with reading by that time.

R: Do you think your learners were following your lessons or enjoyed the way you were teaching?

T3: They did enjoy and they followed because I could see that even those that needed more help in reading their attitude changed. They became more willing to read. Some could take a passage from any story just to write it. But when you give them a different text to read you see that some are struggling, but the one that they have put much effort on they won't struggle. For me it means they are trying to work out something when it comes to reading.

R: Do you mean they enjoyed re-reading texts that they practised in class?

T3: Yes

R: Okay, that's interesting. My last question is based on the results of your learners. Generally, your learners improved much compared to learners in other schools, but there was a bit of a challenge. A few learners seem to have improved just a little bit, whereas the majority improved greatly. What do you think is the cause of this?

T3: Okay, you know. I think the fact that already when we started there were learners that completely didn't know how to read. But as time progressed they started to learn a little bit. Maybe that is why there is such a small number of learners that just improved a little bit. [R: Aha] That number that just improved in little bit is those learners that didn't know how to read. But those who performed [*improved much*] already knew how to read, but the lessons have managed to give them that energy to be willing to read. They also started to compete to find a word each and every day to paste on the Magic Word Walls. That shows that they were working, they were doing something at home. They were trying to find new words. [R: Aha] They were putting much effort so that I could also see that they were busy improving. They were really willing. Not just willing, but willing to improve. But they still needed more time to do that to reach the right level.

R: Anything you would like to say about the intervention in general?

T3: It was quite very wonderful and great for the learners. They enjoyed it [*the reading intervention*]. And I think that we are going to continue using it [*Teacher's Guide*] for each group of learners that will be coming from Grade 4. We are going to be using it and other teachers that are willing will also be using it if they want. They can use the sections they want because I have been giving other teachers. Based on the feedback that I get from other teachers, they also liked it. They are also willing to use it, use the lessons.

R: For which grades are those teachers you share the Teacher's Guide with?

T3: I shared it with one teacher for Grade 6. I even explained some of the lessons, how she can teach the reading lessons, how she can act, and she has to get feedback whether the learners are enjoying and are willing to do some of the reading.

R: All right. Miss … Thank you very much.

T3: Thank you.

Post intervention interviews: R & T7 – School 4

R: Good morning Mr …

T7: Good morning sir.

R: I will ask you a few questions regarding how the intervention went, including successes for the intervention.

T7: Okay.

R: Did the learners participate actively during your intervention lessons?

T7: Yes sir. Very much.

R: Was it all the learners?

T7: Actually I would say most of them participated actively. Most of them were engaged. Even the few ones [*who did not participate actively at the beginning*] also followed suit.

R: Was there a high rate of absenteeism?

T7: No. The attendance was good.

R: Do you think the intervention had an effect in the way you teach reading, or did it change the way you teach reading?

T7: Okay. Actually the intervention even improved the quality of teaching that was going on this year. Since it started it improved most of the things; how reading should be taught. There is really an improvement. Maybe a paradigm shifts whereby learners were able to start understanding in a different way because of the intervention. It had positive impact on reading skills in the lessons.

R: How did you teach reading previously before the intervention?

T7: Previously you would find that learners sometimes would just be given texts to read. They will just read but not guided. I would just tell them to read without guiding them; without following even strategies to comprehend. At the end you wonder when they answer questions. You find that that as if they didn't read the text. Or you'll see that it never matches with their understanding. It's because of the way sometimes we give them just free reading without guiding them, without giving them strategies how to read, how to comprehend, how to use vocabulary, all that. There were a lot of things which were missing.

R: Do you intend to continue teaching using the strategies provided in the *Teachers' Guide* or using the lesson plans?

T7: Actually, intend to continue using the strategies in the guide because those are the ones I've realised that they can help learners have a better understanding. And the strategies can help them even in future or other grades. They can be able to master the skills or they can be able to understand everything else.

R: Did you notice any changes in attitude towards reading among your learners?

T7: Yes. I realised that during and after the intervention when I come in class I find that almost every learner, if not all of them, most of them, are busy taking newspapers and some different books. Some will even show me that "see the book, my mom bought the book. See the book my dad bought for me." Some would come to me and say I have to escort them to the library to borrow books because they are scared of the teachers who are there. Then I realised that these learners are developing the reading culture. I realised that this intervention is like it's really helping these learners.

R: Do you think your learners were following the lessons that you taught them, or did they enjoy the way you were teaching?

T7: Actually, I would say they really followed and the most of them enjoyed because there was a variety of texts. They used to read for enjoyment and in other texts they can learn some things, real life situations. So it's like they incorporated everything. They have come to love everything about what they used to read.

R: Your learners seem to have improved greatly in oral reading fluency and reading comprehension, but there were a few learners that seem not to have improved much. What could be the reasons behind that?

T7: Yeah. First and foremost I would say they never had a strong base in reading. They are those learners that need more time to learn the strategies that are in the guide. If most of them were able to improve, why not them? Those are the kind of learners that are below below average. They are the learners with very weak reading skills.

R: Not all lessons were presented during the reading intervention. There were 32 lessons that should have been presented, but you only presented 20 lessons. What were the limiting factors that you experienced? What made it difficult for you to present all the 32 lessons?

T7: Yeah. Actually, it was administration work. Also time and few activities of the school; you know these extracurricular activities. Let me say like urgent meetings, gatherings, and workshops. And I attended a lot of sports workshops, sports meetings and activities. I used to go out of the region. By doing so, time was limited.

R: Do you think those extracurricular activities affected your teaching negatively?

T7: Okay. Actually, I would say as a teacher I use strategic planning whereby I note what the Year Plan says. I have to adjust even my scheme of work. Mostly I would say it does not affect much negatively. When it's time to presenting the lesson at least I will make sure 90% of the work is done. The 10% [*of the work*] is the one that is affected because of that [*extracurricular activities*]. The effect is not much. So that's it.

R: What do you say about to the intervention in general?

T7: Okay. Yeah, actually it's … first of all I realised that this is a privilege that you have to come to our school. So it is such a great benefit to our learners and an eye opener to us teachers, especially we language teachers. So I came to feel pity for my colleagues who are in different schools because I know that they are in a wrong way of presenting this skill [*reading lessons*]. So it's like the intervention made me see how it can change a learner,

especially when it's all about the whole learning process. It puts a learner in the right frame of mind, in the right spot whereby a learner will know what she's doing. So it's like I now know the way how to teach these skills, mostly reading skills. The intervention really will have an impact, come next year. [R: Aha] I will always share this in meetings, in our departmental meetings, as we always have meetings. Even in our mini-workshops or peer coaching I will use these strategies. And we will continue to use the activities that are there [*in the Teacher's Guide*].

R: This is the end of our interview. Thank you very much for participating in this study.

T7: You are welcome. Thank you very much sir.

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