Examining oral reading fluency among rural Grade 5 English Second Language (ESL) learners in South Africa: An analysis of NEEDU 2013

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Abstract

The ability to read for meaning and pleasure is arguably the most important skill children learn in primary school. One integral component of learning to read is oral reading fluency (ORF), defined as the ability to read text quickly, accurately, and with meaningful expression. Although widely acknowledged in the literature as important, to date there have been no large-scale studies on ORF in English in South Africa, despite this being the language of learning and teaching for 80% of English Second Language (ESL) students from Grade 4 onwards. We analyse data provided by the National Education and Evaluation Development Unit (NEEDU) of South Africa, which tested 4 667 Grade 5 ESL students from 214 schools from rural areas in South Africa in 2013. This included ORF and comprehension measures for a subset of 1 772 students. We found that 41% of the sample were non-readers in English (<40 words correct per minute, or WCPM) and only 6% achieved comprehension scores above 60%. By calibrating comprehension levels and WCPM rates, we developed tentative benchmarks and argue that a range of 90-100 WCPM in English is acceptable for Grade 5 ESL students in South Africa. In addition, we outline policy priorities for remedying the reading crisis in the country.

Keywords: Oral reading fluency (ORF), English Second Language (ESL), South Africa, National Education and Evaluation Development Unit (NEEDU), words correct per minute (WCPM)

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The ability to read for meaning and pleasure is arguably the most important skill children learn in primary school. Since almost all future learning will depend on this fundamental understanding of the relation between print and spoken language, it is unsurprising that literacy, built upon a firm foundation of basic reading, is used as one of the primary measures of school efficacy. Apart from the obvious cognitive importance of learning to read, children who become novice readers within the first three years of primary school also have higher levels of socio-emotional well-being stemming from improved self-expression and communication as well as the self-confidence that comes from cracking this difficult code (Chapman, Tunmer & Prochnow 2000). Sadly, the opportunity of learning to read with fluency, accuracy, prosody and comprehension is one not afforded to the majority of South African children. Whether children are tested in their home language or in English, the conclusions are the same: the vast majority of South African children cannot read for meaning by the end of Grade 4 – even in their home language – and almost a third are still functionally illiterate in English by the end of Grade 6 (Spaull 2013).

The aim of the present study is to add to our understanding of the reading crisis in South Africa by focusing on the oral reading fluency (ORF) of Grade 5 English Second Language (ESL) learners in rural South Africa.[1] To date there have been no large-scale studies focusing on ORF in English, despite this being the language of learning and teaching (LOLT) for 90% of students from Grade 4 onwards. There are two principle research questions that animate this study:

1. What are the levels of ORF among Grade 5 ESL students in rural areas in South Africa?

2. Is it possible to identify tentative benchmarks or thresholds of ORF that correspond to acceptable levels of comprehension?

To answer these questions we used the data collected by the National Education Evaluation and Development Unit (NEEDU),[2] which in 2013 assessed a large sample of students, collecting data on ORF and comprehension for 1 776 Grade 5 ESL students from 214 rural schools in South Africa (NEEDU 2014b). As will become clear, there is an ongoing reading crisis in South African rural primary schools which, if not resolved, will become a binding constraint to future learning at higher grades.

After a brief overview of existing research on reading outcomes and large-scale reading interventions in South Africa, we turn to a discussion of the international literature on ORF. Thereafter we explain our methodology and provide background information on the sample and assessments that were used. This is followed by a descriptive analysis of the data, after which tentative benchmarks for ORF in English for ESL students in rural South African schools are developed. The final section provides some policy recommendations regarding reading and reading interventions in South Africa.

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1 For consistency we refer here to ESL (English Second Language) rather than ELL (English Language Learner). The American literature usually refers to students whose home language is not English as ELL while the South African literature usually refers to these students as ESL.

2 A school evaluation unit that is independent of the Department of Basic Education and reports directly to the Minister.

An overview of South African large-scale research on reading outcomes and large-scale reading interventions

South Africa is in the fortunate position of having considerable amounts of data on educational outcomes in different subjects and at different grades. By implementing local assessments and agreeing to participate in cross-national assessments, the Department of Basic Education has ensured that there exists a solid foundation of nationally representative data on which to make evidence-based policy. The results of these assessments are stable, consistent, reliable and sobering. As far as reading outcomes in the primary grades are concerned, the three most recent and reliable assessments are the pre-Progress in International Reading Literacy Study (prePIRLS Grade 4, 2011), the Southern and Eastern African Consortium for Monitoring Educational Quality (SACMEQ, Grade 6, 2007) and the National School Effectiveness Study (NSES, Grades 3, 4 and 5, 2007, 2008 and 2009).

The NSES study assessed a nationally-representative sample of schools in South Africa (excluding Gauteng Province) and found that the average Grade 3 student scored 20% on a Grade 3 test conducted in English (Taylor & Taylor 2013:47). Given that the LOLT of most Grade 3 students in South Africa is still an African language (the switch to English only happens in Grade 4), this is perhaps unsurprising. However, Spaull (2015:71) shows that, while better, the achievement of these students in their home language is still extremely low. Some students wrote both the Systemic Evaluation 2007 Grade 3, conducted in the LOLT of the school, and the NSES 2007 Grade 3 – the same test, administered one month later in English. Spaull shows that the matched sample scored 34% in the Systemic Evaluation, and 23% in the NSES. While this shows that there is clearly a cost to writing the test in an unfamiliar language (particularly given that students had not yet switched to English), it also dispels the myth that students are performing acceptably in an African language before the switch to English in Grade 4.

The two cross-national assessments that focus on primary-school literacy provide complementary evidence, given that prePIRLS was conducted in an African language in Grade 4 (whatever the LOLT of the school was in Grades 1-3), while SACMEQ assessed students in English and Afrikaans in Grade 6 after the language transition. Howie, Van Staden, Tshele et al (2012:47) show that 58% of Grade 4 students did not achieve the Intermediate International Benchmark and 29% did not achieve the Low International Benchmark. That is to say that 58% of students could not interpret obvious reasons and causes and give simple explanations or retrieve and reproduce explicitly stated actions, events and feelings. One can think of these students as those that cannot read for meaning in any true sense of the word. More disconcerting is the 29% of students that could not reach the most rudimentary level of reading: locating and retrieving an explicitly stated detail in a short and simple text. It would not be incorrect to classify these 29% of students as illiterate or non-readers in their home language.[3] The

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3   For the majority of students, the test was conducted in their home language. Only where a student's home language differed from the LOLT of the school in Grades 1-3 would this not be true.

SACMEQ study of 2007 tested a nationally representative sample of learners in English and Afrikaans (the LOLTs in South Africa in Grade 6). It was found that 27% of learners were functionally illiterate in English or Afrikaans in the sense that they could not read a short and simple text and extract meaning (Spaull 2013:439). Among the poorest 20% of schools this figure rose to 43% of learners being functionally illiterate.

The crisis in basic literacy in South Africa has not gone unacknowledged by the Department of Basic Education. Since the early 2000s there have been a number of national policies, strategies, campaigns and interventions in an attempt to address this (see NEEDU 2013; 2014a for overviews, as well as Motshekga 2014; RSA DBE 2008a; 2008b; 2008c; 2011; Piper, 2009; Hollingsworth, 2009, Meier, 2011 for specific interventions). Unfortunately, none of these interventions have been properly evaluated and thus it is not clear whether they have improved the reading outcomes of participants or not.

Literature review

Reading is a highly complex task phenomenon, comprising many cognitive-linguistic skills (Pretorius 2012). The importance of learning to read for meaning by the end of the third year of primary schooling is widely acknowledged and accepted throughout the local and international education literatures (Martin, Kennedy & Foy 2007). This is both to ensure future academic success at school, but also because this creates independent learners. As Good, Simmons and Smith (1998:45) expound:

> Professional educators and the public at large have long known that reading is an enabling process that spans academic disciplines and translates into meaningful personal, social, and economic outcomes for individuals. Reading is the fulcrum of academics, the pivotal process that stabilizes and leverages children's opportunities to success and become reflective, independent learners.

One of the essential components of competent reading is ORF, which is the speed at which written text is reproduced into spoken language (Adams 1990). In the literature ORF is generally regarded as the ability to read text quickly, accurately, and with meaningful expression (Valencia, Smith, Reece et al 2010; Fuchs, Fuchs, Hosp & Jenkins 2001; Rasinski & Hoffman 2003). This skill is believed to be critical to reading comprehension, and the speed at which print is translated into spoken language has been identified as a major component of reading proficiency (NICHHD 2000). When words cannot be read accurately and automatically, they must be analysed with conscious attention. If children use too much of their processing capacity trying to work out individual words, they are unlikely to successfully comprehend what they read (Hudson, Lane & Pullen 2005).

ORF can therefore be seen as a bridge between word recognition and reading comprehension. Problems in either oral fluency or reading comprehension will have a significant impact on learners' ability to learn as they move through the phases of schooling. This has also been confirmed with longitudinal research which found high correlations between reading performance in early primary grades and reading skills later in school (Good et al 1998; Juel 1988). Reading fluency has also been found to be

a significant variable in secondary students' reading and overall academic achievement (Rasinski, Padak, McKeon et al 2005).

ORF as a predictor of reading comprehension

At the most basic level, the Early Grade Reading Assessment (EGRA) is an oral reading assessment designed to measure the most basic foundation skills for literacy acquisition in the very early grades: recognizing letters of the alphabet, reading simple words, understanding simple sentences and paragraphs, and listening with comprehension. The EGRA tests – developed by RTI International[4] to orally assess basic literacy skills – have been used in over 40 countries (RTI International 2008; 2009). For students in higher grades, ORF is generally measured by having an assessor ask a student to read a passage out loud for a period of time, typically one minute. A student's score is calculated with the number of words read per minute (WPM) and/ or the number of words correct per minute (WCPM). In order to counter criticism that such an assessment does not validly measure comprehension, the passages are frequently accompanied by comprehension questions, as in the present study.

In their comprehensive review of numerous studies, Fuchs, Fuchs, Hosp & Jenkins (2001) provide converging evidence supporting ORF's validity as an indicator of reading comprehension. They conclude that: (1) ORF corresponds better with performance on commercial, standardized tests of reading comprehension than do more direct measures of reading comprehension; (2) text fluency (words read in context) compares positively to list fluency (words read in isolation) as an indicator of reading competence; and (3) ORF measured by reading aloud functions as a better correlate of reading comprehension than does silent reading fluency. In a recent study in South Africa (Pretorius 2012), a strong correlation was found between three measures of decoding skill and reading comprehension, with ORF emerging as a strong predictor of comprehension.

One explanation for the connection between fluency and comprehension comes from LaBerge and Samuels's (1974) theory of automaticity in reading (Rasinski et al 2005). According to this theory, readers who have not yet achieved reading fluency must consciously decode the words they have to read. This cognitive attention detracts from the more important task of comprehending the text. Poor reading fluency is thus directly linked to poor reading comprehension. As Fuchs et al (2001:242) explain:

> Unfortunately, as poor readers rely on the conscious-attention mechanism, they expend their capacity in prediction processes to aid word recognition. Little is left over for integrative comprehension processes, which happens for readers with strong word recognition skills, whereby new knowledge is constructed or new material is integrated into existing knowledge structures.

For some languages, the practice of using WCPM as a predictor of comprehension has been criticized. In a quantitative study of early grade reading in two European (English and Dutch) and two African languages (Sabaot and Pokomo), Graham and

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4   RTI is an independent, non-profit institute that provides research, development and technical services to governments and businesses around the world.

Van Ginkel (2014) analysed WCPM and comprehension scores of over 300 children in three countries and found that similar comprehension scores were associated with diverse WPM rates. This, they suggest, indicates that fluency measured as WCPM is not a reliable comparative measure of reading development since linguistic and orthographic features differ considerably between languages and are likely to influence the reading acquisition process.

Valencia and Buly's study (2004) raised concerns regarding the widespread use of WCPM measures and benchmarks to identify students at risk of reading difficulty. In their study, ORF data and standardized comprehension test scores were analysed for students in Grades 2, 4 and 6 in two Pacific Northwest school districts in the United States (US) that had diverse student populations. One third of the student group spoke English as a second language. The results indicated that assessments designed to include multiple indicators of ORF provided a finer-grained understanding of ORF and fluency assessment and a stronger predictor of general comprehension. Comparisons across grade levels also revealed developmental differences in the relation between ORF and comprehension, and in the relative contributions of oral fluency indicators to comprehension. When commonly used benchmarks were applied to WCPM scores to identify students at risk of reading difficulty, both false positives and false negatives were found.

Valencia and Buly (2004) argue for a much more comprehensive assessment in order to understand the specific needs of different children. Their approach was to conduct individual reading assessments, working one-on-one with the children for approximately two hours over several days to gather information about their reading abilities. They administered a series of assessments that targeted key components of reading ability: word identification, meaning (comprehension and vocabulary) and fluency (rate and expression). Their research suggests that weak readers may not be weak in all three areas, and that there could be as many as six different profiles of readers, all needing different remedial attention. This approach may represent the 'gold standard' of reading assessment but the reality in most countries, and particularly in South Africa, is that this sort of assessment is unlikely to be realistic or practical.

Oral reading fluency among ESL earners

The investigation of ORF for students reading in a second (or third) language is not as extensive as that for students reading in their first language. Notwithstanding the above, ORF studies on ESL students have been conducted in South Korea (Jeon 2012), Kenya (Piper & Zuilkowski 2015) and America (Al Otaiba, Petscher, Williams et al 2009; Jimerson, Hong, Stage & Gerber 2013). This does not include the numerous EGRA studies that have been conducted by RTI and USAID (Abadzi 2011).

For many second language readers, reading is a "suffocatingly slow process" (Anderson 1999:1); yet developing rapid reading – an essential skill for all students – is often neglected in the classroom. Data from Segalowitz, Poulsen and Komoda (1991) indicate that the ESL reading rates of highly bilingual readers can be 30% or more *slower* than English home-language (EHL) reading rates. Readers who do not understand

often slow down their reading rates and then do not enjoy reading because the process becomes laborious. As a result, they do not read extensively, perpetuating the cycle of weak reading (Nuttall 1996, in Anderson 1999).

Conventional wisdom indicates that lack of oral English proficiency is the main impediment to successful literacy learning for young ESL students, but recent evidence suggests that this may not be true. Conflicting data exists regarding the optimal or sufficient reading rate (Anderson 1999). Some authorities suggest that 180 words per minute while reading silently «may be a threshold between immature and mature reading and that a speed below this is too slow for efficient comprehension or for the enjoyment of text» (Higgins & Wallace 1989, in Anderson 1999:3). Others suggest that silent reading rates of ESL readers should approximate those of EHL readers (closer to 300 WPM), especially if the ESL is also the LOLT for most learners beyond Grade 3, in order to come close to the reading rate and comprehension levels of EHL readers.

While research into reading in an ESL is not as extensive as its EHL counterpart, an increasing number of comparative EHL/ESL reading studies have been undertaken at different age levels. Pretorius (2012) argues that ESL reading theories tend to draw quite heavily on EHL reading theory, the assumption being that the underlying skills and processes involved in reading languages with similar writing systems are similar across languages. If these decoding processes are similar in alphabetic languages, then there is no reason why ESL reading rates should be so laborious. An area where differences between EHL and ESL LOLT readers may persistently occur will be vocabulary, but decoding per se should not be a stumbling block.

Jimerson et al (2013) tracked the ORF growth of sixty-eight students from first through fourth grade in one Southern California school district in the US, and used it to predict their achievement on a reading test. They found that both ESL students with low socio-economic status (SES), and other students with low SES showed low performance in their initial first-grade ORF, which later predicted fourth-grade performance. The trajectory was the same for EHL students with low SES who performed poorly at the first-grade level. The reading fluency trajectories (from the first grade) of the ESL and EHL students with low SES were not significantly different. Their study showed that initial pre-reading skills better explained fourth-grade performance than either ESL with low SES or low SES alone.

Using ORF to set reading norms

ORF has been part of national assessments in the US for decades and norms are well established, but the same cannot be said of most developing countries (Abadzi 2011). A search carried out in early 2010 showed that over fifty fluency studies have been conducted in various countries, but the studies often reported data in ways that were not easily comparable, and few had collected nationally representative data.

As early as 1992, researchers compiled norms for ORF in English based on reading data from eight geographically and demographically diverse school districts in the US. With the growing appreciation of the importance of reading fluency, new norms were

developed in 2005 with greater detail, reporting percentiles from the 90th through the 10th percentile levels (Hasbrouck & Tindal 2006).

The use of norms in reading assessments can be categorised to match four different decision-making purposes (Kame'enui 2002, in Hasbrouck & Tindal 2006):

1. *Screening measures*: Brief assessments that focus on critical reading skills that predict future reading growth and development, conducted at the beginning of the school year to identify children likely to need extra or alternative forms of instruction.

2. *Diagnostic measures*: Assessments conducted at any time during the school year when a more in-depth analysis of a student's strengths and needs is necessary to guide instructional decisions.

3. *Progress-monitoring measures*: Assessments conducted a minimum of three times a year or on a routine basis (for example, weekly, monthly or quarterly) using comparable and multiple test forms to (a) estimate rates of reading improvement, (b) identify students who are not demonstrating adequate progress and may require additional or different forms of instruction and (c) evaluate the effectiveness of different forms of instruction for struggling readers and provide direction for developing more effective instructional programs for those challenged learners.

4. *Outcome measures*: Assessments for the purpose of determining whether students achieved grade-level performance or demonstrated improvement.

Such fluency-based assessments have been proven to be efficient, reliable and valid indicators of reading proficiency when used as screening measures (Fuchs et al 2001). This was also shown to be the case for ESL students, as shown by the work of Al Otaiba et al (2009). They examined American Latino students' early ORF developmental trajectories to identify differences in proficiency levels and growth rates in ORF of Latino students who were (a) proficient in English, (b) not proficient and receiving ESL services and (c) proficient enough to have exited from ESL services. They found that ORF scores reliably distinguished between students with learning disabilities and typically developing students within each group.

Setting ESL reading norms in the South African schooling context is a new and, as yet, largely unexplored terrain. One could argue that in the initial stages of ESL reading for LOLT (perhaps Grade 4 learners), reading at 70% the rate of EHL readers is not surprising or unexpected. However, as children go higher up the academic ladder (approaching the end of the Senior Phase), the gap between EHL and ESL reading for LOLT purposes should start narrowing, and by the end of Grade 9, ESL norms should preferably start approximating EHL norms. One may also argue for a fluency continuum, with EHL and ESL LOLT reading norms divergent in the beginning stages of reading, but converging by high school. However, all of these suggestions are speculative in nature and are not based on empirical evidence, largely because such empirical evidence does not yet exist in South Africa. It is this gap in the South African literature to which this study hopes to contribute.

The NEEDU methodology: Test development and sampling information

To assess silent reading comprehension of Grade 5 ESL students in the written mode, NEEDU selected an appropriate Grade 5 level passage and developed a range of literal and inferential questions in a mixed-question format. In addition, Grade 4 and 5 textbooks were used to select two reading passages appropriate to Grade 5 ESL students to assess ORF. Each of the two ORF tests was accompanied by five oral comprehension questions (all test instruments, questionnaires and administrator protocols are available in the Online Appendix).[5] Much of the background information included here can also be found in the NEEDU National Report 2013 (NEEDU, 2014), to which the reader is referred for further detail.

Readability

Readability refers, broadly, to the ease or difficulty with which texts are read. Since the 1940s, various readability formulae have been used to quantify aspects of texts that are deemed to play a role in determining the ease with which texts are read. These readability formulae invariably incorporate word length and sentence length in relation to overall text length, the assumption being that short words and sentences are easier to read than longer words and sentences. Examples of readability formulae include the Flesch Reading Ease, the Dale-Chall and the Grammatik formulae. Although the assumptions underlying the readability formulae have been criticised for oversimplifying the reading process (since there are several text-based and reader-based factors that affect reading ease), they continue to enjoy popularity as predictors of text difficulty (Klare 1974).

The Flesch Reading Ease (RE) formula was used in the creation of the NEEDU reading tests (NEEDU 2014b), primarily because it is easily available and in the educational context, serves as a useful guideline for establishing consistency across texts at specific grade levels. According to Hubbard (2005:56), the RE readability formula uses two factors, namely syllables per one hundred words and words per sentence. The exact formula is included below:

RE = 206,835 - (0,846 syllables per 100 words) - (1,015 words per sentence)[6]

The analysis also determines the number of passive constructions used in a text. Passives are considered slightly more difficult to read than actives. The higher the number obtained from the computation, the easier the text is regarded as being while the lower the number, the more difficult the text. The scores have been measured in terms of readability categories, as shown in Table 1.

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5   Available at https://nicspaull.files.wordpress.com/2015/06/draper-spaull-2015-online-appendix.pdf.

6   See Flesch (1948) for a full discussion of the RE formula.

Table 1: Reading ease categories (based on the RE formula)

RE score	Age/Level	For average adult reader
90-100	10 years	very easy
80-89	11 years	easy
70-79	12 years	fairly easy
60-69	13-14 years	standard
50-59	15-17 years	fairly difficult
30-49	18-21 years (undergraduate)	difficult
0-29	graduate	very difficult

Most academic/scientific texts and research articles fall into the last two categories of RE. One would expect Grade 4 and 5 textbooks to fall within the 90-70 range of scores. Using American textbooks as the data base, the Flesch-Kincaid formula – which presents the score as a grade level – was used to determine the reading ease of texts written for the different grades. These scores reflect the actual grade level; for example, a score of six would indicate a text appropriate for Grade 6. This readability score does not reflect aspects such as the persuasiveness or credibility of a text or its interest level. It is to be expected that the RE score drops the more abstract and complex a topic is. The use of technical terms (for example, 'pollution', 'precipitation') and that of general academic terms (for example, 'operates', 'features') also affects RE.

A selection of Grade 4 and 5 textbooks across various subjects was obtained from primary schools in two townships near Tshwane, namely, Atteridgeville and Mamelodi respectively. From each textbook, four passages were selected: one from the beginning, two from the middle and one from the end. These passages were scanned and converted into MS Word text files; all the pictures and diagrams were removed and only running text used for the readability analysis. The results are given in Table 2 and Table 3.

Table 2:   Flesch RE in Grade 4 textbooks

	English 1st Add Lang	Maths	Life Skills	Social Science	Science†
Words in sample texts	1 057	1 060	777	963	918
Sentences	105	101	58	74	76
Words per sentence	8.5	8.7	10.1	12.3	11.5
Characters per word	4	4.1	4.2	4.3	4.3
Passives	1%	2%	5%	9%	10%
RE	82.8	75.2	83	72.9	76.1
Flesh-Kincaid grade level	3.8	4.8	4	6.1	5.5

† *This textbook was entitled Our World (a Vivlia book), with no further indication of the content subject. It dealt with both physical geography and history topics.*

The RE range of the Grade 4 textbooks was between 82-72, falling within the 'easy' to 'fairly easy' categories, while that of the Grade 5 textbooks was between 84-68, falling between the 'easy' to 'standard' categories.

Table 3:   Flesch RE in Grade 5 textbooks

	English FAL	Maths	Technology	Social Science	Physical science
Words	977	1 987	836	881	894
Sentences	30.3	165	64	63	71
Words per sentence	10.4	9.9	12.5	13	11.8
Characters per word	4	4.2	4.4	4.6	4.3
Passives	3%	7%	26%	12%	18%
RE	84.8	78	74.7	68.5	75.9
Flesh-Kincaid grade level	4	4.8	5.9	6.9	5.6

As to be expected, there was a gradual decrease in RE scores from Grade 4 to Grade 5, with concomitant increases in the use of passives and more words per sentence, particularly in the content subjects. The latter textbooks also carry an increase in the use of specialist technical words as well as general academic words. It is interesting to note that across both grades the RE scores were higher (that is, easier) in the English and Maths texts than in the other content subject texts.

The outcome of the readability analysis served as a guideline for Steps 2 and 3, namely the selection of two passages appropriate to Grade 4 and 5 levels to assess

ORF, and the selection of a passage appropriate to Grade 5 level to assess silent reading comprehension in the written mode.

The reading comprehension passage

Two passages were selected as the base for written reading comprehension tests. Eleven questions were asked, five based on the first passage, and six based on the second. The readability score of the combined comprehension passages, as well as the readability score of the questions are shown in Table 4 while the question types are shown in Table 5. Based on the learner results, a Cronbach's alpha analysis was done on the written comprehension passage. Cronbach's alpha was 0,83 which indicates good reliability of the overall test.

Table 4: Readability score of combined comprehension passages and questions

Combined comprehension passages			
Words	537	Flesch RE	82.3
Words per sentence	12.7	Flesch-Kincaid grade level	4.9
Characters per word	4,1		
Passives	4%		
Questions			
Words	344	Flesch RE	92.2
Words per sentence	11.9	Flesch-Kincaid grade level	3.3
Characters per word	3.8		
Passives	4%		

Table 5: Question types

Information process	Questions	Total Questions	Total Marks
Retrieve explicitly stated (literal) information from a text	1, 9, 10b	3	3
Make (straightforward) inferences from information given in a text	2, 3, 4, 5, 6, 10a, 10c	7	9
Integrate ideas and information across the text	7, 8	2	5
Examine and evaluate the text	1	1	3
Total		13	20

Oral reading fluency passages

Two passages were chosen to test ORF. The first passage (*A traditional story – How Leopard got his spots*) was 205 words long (including the title), had a Flesch RE score of

84,7, making it suitable for testing learners at the end of Grade 3 (Table 6 below). The second passage (*A traditional story from Africa – How Sanguru the Hare got his long ears*) had 269 words (including the title) and a Flesch RE of 83,3, making it suitable for testing learners in the middle of their Grade 4 year (Table 6 below). These two passages were selected as suitable for testing learners at the start of their Grade 5 year.

Table 6:   Readability scores of passages (ORF 1 & ORF 2)

ORF 1: A traditional story - How Leopard got his spots			
Words	205	Flesch RE	84.7
Words per sentence	9.8	Flesch-Kincaid grade level	3.8
Characters per word	4.1		
Passives	4%		
ORF 2: A traditional story from Africa – How Hare got his long ears			
Words	269	Flesch RE	83.3
Words per sentence	10.8	Flesch-Kincaid grade level	4.3
Characters per word	4.1		
Passives	4%		

The NEEDU sample of schools and students

The data used in this study comes from a non-random sample of 4 667 Grade 5 learners[7] in 214 rural schools across all nine provinces of South Africa. They were collected in 2013 by NEEDU school evaluators as one part of NEEDU's larger evaluation design. At the time one of the co-authors of the present study was working within NEEDU and managed the data collection exercise.

Very poor reading levels (poor letter and word recognition in the home language of learners) were identified in the first NEEDU evaluation cycle when Grade 2 learners were assessed using the EGRA instruments in 2012 (NEEDU 2013). Reading was thus identified as a critical factor inhibiting improvement in the sector. In the second NEEDU evaluation cycle conducted in 2013 – which evaluated pedagogical practices in 219 rural primary schools – Grade 5 learners' reading was assessed in terms of their ORF and reading comprehension. It is these data that form the basis for this paper.

The labour-intensive nature of the approach to systemic evaluation adopted by NEEDU (NEEDU 2013), led to the number of schools selected for evaluation being limited and non-random. NEEDU aimed to assess one third of districts with the aim

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7   The original sample included thirty EHL students bringing the total to 4 697; however, given that the focus of the current study is on ESL learners, these thirty EHL learners were dropped from the analysis.

of covering all districts in three years. Within each district a district official was asked to select eight schools for inclusion in the sample. This non-random selection clearly affects the generalizability of the sample, but if anything, the results are positively biased (that is, better schools were put forward). The sample also seems to include more schools that were closer to amenities and fewer extremely remote schools. One further limitation is that the NEEDU school visits (and therefore the ORF assessments) were conducted throughout the year meaning that some schools were assessed earlier in the year and others later in the year. Analysis of the results by month and province shows no relation between the month of assessment and ORF or comprehension outcomes. Consequently, we do not disaggregate the results by month but treat the sample as a Grade 5 composite sample.

Notwithstanding the above, the sample of 214 schools is large by local and international standards and the number of students being assessed on ORF (1 772) is large relative to most of the literature, particularly for the literature looking at ESL students. Thus we would argue that this sample is sufficiently large to give a good indication of reading levels of Grade 5 ESL learners across rural areas in South Africa in 2013.

Within each school, one Grade 5 class was randomly selected. All learners in the class were tested on a 40-minute written reading comprehension test which had eleven questions (see online appendix). Based on the results of the written comprehension test, ten learners from each class were selected (three top, four middle and three bottom achievers) to participate in an ORF test. In schools with less than fifteen learners in the Grade 5 class, all learners were selected for the ORF test so as not to make them feel excluded. The sample for the first ORF passage consisted of 1 772.

Two NEEDU evaluators visited each school to conduct the NEEDU evaluation, and one of those evaluators was trained as a reading assessor. The learners selected for the ORF assessment read aloud to the reading assessor. The assessor recorded the number of words read correctly, and this together with the time taken to read the passage, calculated the total WCPM read by each learner assessed.

The assessment was discontinued for those learners who clearly could not read the first passage, and for those learners who read at such a slow pace that they failed to complete the first paragraph (fifty-six words) in one minute. To test their comprehension of the text, learners were asked five simple questions relating to the passage. Learners who did not read beyond the first paragraph were only asked those questions that were relevant to the sections read. Learners were allowed to refer to the passage to answer the comprehension questions. All learners that were able to read beyond the first paragraph in a minute were asked to read a second more difficult passage. This group consisted of 855 learners, and a similar process was followed for the second ORF passage.

Descriptive analysis of ORF and comprehension data

Table 7 below provides a range of descriptive statistics on each of the three tests (silent-comprehension, ORF 1 and ORF 2), reporting the number of students who completed the

test, as well as the mean, standard error of the mean, minimum, maximum and standard deviation for each measure and reported by province, gender, LOLT in Grade 5 and grade arrangement. It is worth re-emphasizing that the sample was not randomly selected and is therefore not nationally or provincially representative. That being said, the rank order of the provinces in the silent reading comprehension test is broadly the same as the rank order of provinces using the 2007 Grade 6 SACMEQ reading test (Spaull 2011:21) with the exception of the Northern Cape. In the SACMEQ test the Northern Cape scored lower than the Western Cape and Gauteng whereas here it is the province with the highest average reading comprehension score. Unsurprisingly, this provincial rank order is roughly the same for the ORF 1 and ORF 2. While we do not stress the provincial results in this analysis, we would argue that there are enough boys (2 357) and girls (2 294) to interpret results by gender with some level of confidence. The same applies to reporting results by grade arrangement with 3 701 students in monograde classes and 966 students in multigrade classes, and LOLT[8] at Grade 5 level with 623 students in Afrikaans-medium schools and 3 867 students in English-medium schools.

Table 7: Descriptive statistics for key variables and sub-groups

Silent reading comprehension (%)						
	Obs	**Mean**	**SE Mean***	**Min**	**Max**	**Std Dev**
Eastern Cape	1 231	15.8	0.35	0	80	12.3
Free State	309	22.0	0.91	0	85	16.0
Gauteng	647	25.6	0.67	0	95	17.0
KwaZulu-Natal	804	18.1	0.45	0	80	12.7
Limpopo	663	17.2	0.47	0	70	12.1
Mpumalanga	85	19.7	1.58	0	75	14.6
Northern Cape	327	32.3	1.18	0	100	21.3
North West	379	23.5	1.05	0	90	20.4
Western Cape	222	27.2	1.37	0	100	20.4
Girls	2 294	21.8	0.34	0	100	16.3
Boys	2 357	19.4	0.33	0	95	15.8
Afrikaans LOLT (Gr5)	623	30.2	0.92	0	100	22.9
English LOLT (Gr5)	3 867	19.1	0.23	0	95	14.2
Monograde	3 701	20.2	0.26	0	95	16.0
Multigrade	966	21.7	0.53	0	100	16.6

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8   The reader will notice that the two categories 'Afrikaans LOLT (Gr5)' and 'English LOLT (Gr5)' do not sum to the total number of students. This is because there were forty-six Grade 5 students from one school in the Eastern Cape where the LOLT was recorded as isiXhosa. While this is unusual, it is possible. The reason we do not include three categories for LOLT is that the results for isiXhosa would be based on one school rather than a large number of schools, as is the case with Afrikaans LOLT (forty-five schools) and English LOLT (161 schools). Apart from this, the remaining differences in any of the categories are due to missing information.

National	4 667	20.5	0.24	0	100	16.1
ORF 1 (WCPM)						
	Obs	**Mean**	**SE Mean***	**Min**	**Max**	**Std. Dev**
Eastern Cape	421	40.3	1.45	0	167	29.7
Free State	93	52.0	3.59	0	154	34.6
Gauteng	174	51.4	2.59	0	153	34.1
KwaZulu-Natal	339	41.6	1.41	0	124	25.9
Limpopo	245	40.2	1.83	0	133	28.6
Mpumalanga	75	45.0	2.99	0	97	25.9
Northern Cape	136	60.0	3.19	0	163	37.2
North West	142	45.7	2.25	0	121	26.8
Western Cape	147	60.9	2.79	0	182	33.9
Girls	844	52.4	1.06	0	163	30.7
Boys	918	40.3	1.00	0	182	30.4
Afrikaans LOLT (Gr5)	346	56.5	1.94	0	182	36.0
English LOLT (Gr5)	1 357	43.5	0.80	0	167	29.3
Monograde	964	46.3	1.06	0	167	32.8
Multigrade	808	45.9	1.02	0	182	28.9
National	**1 772**	**46.1**	**0.74**	**0**	**182**	**31.1**
ORF 2 (WCPM)						
	Obs	**Mean**	**SE Mean***	**Min**	**Max**	**Std. Dev**
Eastern Cape	182	72.1	1.54	29	161	20.8
Free State	51	80.3	3.17	28	140	22.7
Gauteng	90	83.4	2.65	40	167	25.1
KwaZulu-Natal	139	73.3	1.73	19	124	20.4
Limpopo	108	75.3	2.41	17	161	25.1
Mpumalanga	36	75.0	3.63	31	133	21.8
Northern Cape	68	99.2	3.52	45	164	29.0
North West	78	74.6	2.21	23	130	19.5
Western Cape	103	83.5	2.51	35	177	25.5
Girls	494	80.0	1.10	17	164	24.4
Boys	356	76.1	1.26	19	177	23.8
Afrikaans LOLT (Gr5)	200	88.0	2.01	23	177	28.4
English LOLT (Gr5)	617	75.5	0.89	19	167	22.1
Monograde	455	79.6	1.15	17	167	24.5
Multigrade	400	76.8	1.19	19	177	23.8
National	**855**	**78.3**	**0.83**	**17**	**177**	**24.2**

*SE Mean is the standard error of the mean

Although the silent reading comprehension passage was selected as a grade-appropriate text (with a Flesch-Kincaid grade level of 4,9), most of these students found the comprehension text and questions particularly challenging, scoring 20,5% on average (SD=16,1%). Girls scored statistically significantly higher (21,8%) than boys (19,4%) on this test. The scores of students in monograde classes were marginally lower (20,2%) than in multigrade classes (21,7%); however, this difference is not statistically significant (Figure 1). The largest difference between the three groupings is seen between students learning in English (19,1%) and students learning in Afrikaans (30,2%). The fact that students learning in Afrikaans do better on an English comprehension test than students learning in English requires investigation.

Firstly, the vast majority (92%) of students learning in Afrikaans in Grade 5 also spoke Afrikaans as their home language, and all of them had been learning in Afrikaans since Grade 1, taking English only as a subject. In contrast, all of the students learning in English in Grade 5 did not have English as home language, and 90% had learnt in an African language in Foundation Phase (Grades 1-3) (and taken English as a subject) before switching to English as LOLT in Grade 4 (and taking all subjects in English). Additionally, if one looks at the history of the different schools, the apartheid racial and linguistic segregation of schools is still evident. Of the forty-four Afrikaans schools for which we have data from former departments, thirty-five had been governed by the House of Representatives (HOR) under apartheid. The HOR was the schooling system reserved for the Coloured[9] population only, largely based in the Western Cape. These schools were on average better managed, had more resources and more qualified teachers. In contrast, of the 161 English schools for which we have data on ex-departments in our sample, 153 were governed by either the Department of Education and Training (DET) or the 'homelands' under apartheid. The DET and homelands' schools were reserved for the Black population only.

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9   The use of race as a form of classification and nomenclature in South Africa is still widespread in the academic literature with the four largest race groups being Black African, Indian, Coloured (mixed-race) and White. This serves a functional (rather than normative) purpose and any other attempt to refer to these population groups would be cumbersome, impractical or inaccurate.
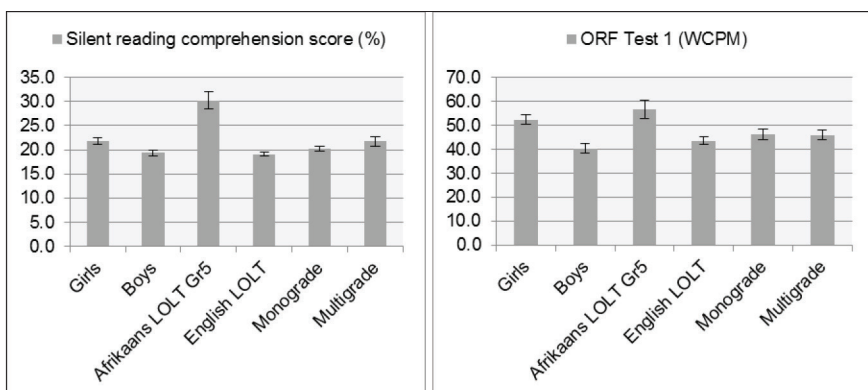
Figure 1: Average silent reading comprehension score (%) and ORF 1 score (WCPM) by gender and grade arrangement

These results are mirrored in ORF 1 where girls read statistically significantly more words correct per minute (52,4 WCPM) compared to boys (40,3 WCPM) with a similarly large and significant gap between English schools (43,5 WCPM) and Afrikaans schools (56,5). The difference between monograde classes (46,3 WCPM) and multigrade classes (45,9 WCPM) was not statistically significant.

The gaps between the sub-groups are smaller for ORF 2, as one might expect when there is a selection effect determining which students proceed to ORF 2. Only students that could read at least the first paragraph of ORF 1 proceeded to ORF 2. While the first paragraph contained fifty-six words, and therefore the minimum WCPM scores here might seem strange, students could have completed the first paragraph with many mistakes allowing them to proceed to ORF 2 while still having an extremely low WCPM score.

Correlations between ORF and comprehension

Table 8 below shows the correlations between five variables: (1) the silent reading comprehension test, (2) ORF 1 (Leopard), (3) five short comprehension questions on ORF 1, (4) ORF 2 (Hare), and (5) five short comprehension questions on ORF 2. Due to space constraints we did not include the full range of descriptive statistics for items (3) and (5). For ORF 1 comprehension the average score (out of five) was 1,3 with a standard deviation of 1,4. For the ORF 2 comprehension the average score was 1,5 with a standard deviation of 1,2.

Table 8 shows that the highest correlation of 0,83 was between ORF 1 WCPM and ORF 2 WCPM. This shows that 69% of the variation in ORF 2 can be explained by ORF 1 (and vice versa). In the present study there were two measures of ORF (ORF 1 and ORF 2) and three measures of comprehension (silent reading comprehension, ORF 1 comprehension, and ORF 2 comprehension). The correlations between either of the two measures of ORF with any of the three comprehension measures ranged from 0,49 to 0,51. Hiebert, Samuels and Rasinski (2012:112) comment on Marston's

(1989) review of studies looking at the relationship between oral reading performances and comprehension and find that correlations range between 0,63 and 0,9 with most clustering around 0,8. However, other studies by Wiley and Deno (2005) and Pressley, Hildren and Shankland (2005) have reported lower correlations of between 0,4 and 0,5. More recently, Piper and Zuilkowski (2015) found that the correlation between oral reading rate and silent reading comprehension for ESL second-graders in Kenya was 0,37 when the test was conducted in English and 0,33 when it was conducted in Kiswahili.

Table 8:   Pearson correlations between key variables

	Silent reading comprehension	ORF 1 WCPM	Comprehension (ORF 1)	ORF 2 WCPM	Comprehension (ORF 2)
Silent reading comprehension	1.00				
ORF 1 WCPM	0.49	1.00			
Comprehension (ORF 1)	0.63	0.56	1.00		
ORF 2 WCPM	0.50	0.83	0.53	1.00	
Comprehension (ORF2)	0.62	0.50	0.66	0.51	1.00

Figures 2 and 3 show the scatter plots and respective histograms of silent reading comprehension and ORF 1 (Figure 2) and ORF 2 (Figure 3). These graphs show that the distributions of silent reading comprehension scores and WCPM was lower for the ORF 1 sample than for the ORF 2 sample, as would be expected given that ORF 1 (n=1 772) was representative of the schools, while ORF 2 (n=855) included only those students who could read at least one paragraph in ORF 1. Figure 2 shows that a full 14% of the sample could only read 0-5 words correctly per minute.
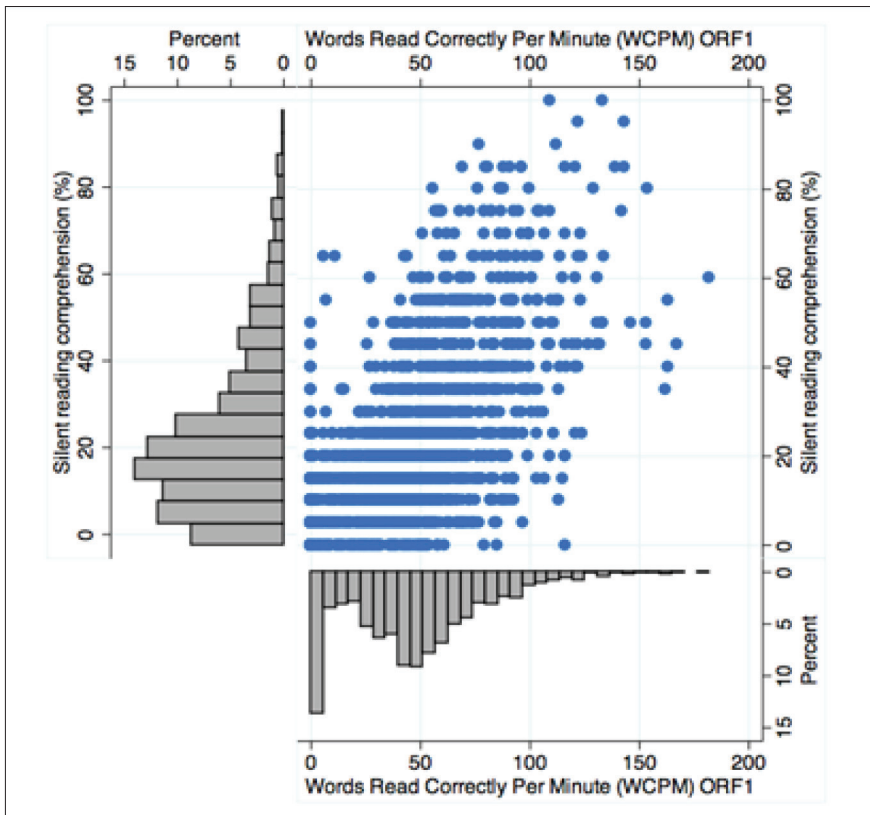
Figure 2: Distributions of silent reading comprehension (in %) and ORF (in WCPM) for the ORF 1 sample (correlation: 0.49; n=1 772)
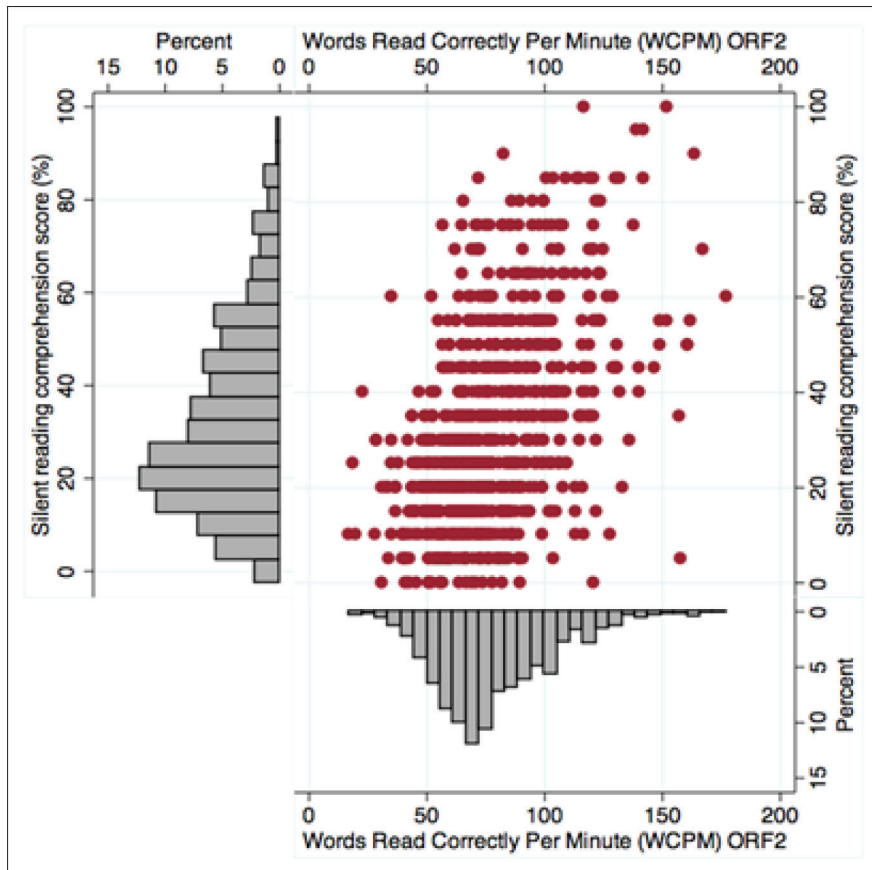
Figure 3: Distributions of silent reading comprehension (in percent) and ORF (in WCPM) for the ORF 2 sample (correlation: 0.50; n=855)

Intra-class variation in ORF

While it is useful to understand average rates of WCPM, as well as overall standard deviations, it is also helpful to report the range of WCPM scores within a school. ORF 1 results show large variation between the best performing learner and the worst performing learner within a school. If one looks at the distribution of the range (maximum WCPM – minimum WCPM), one can see that in 50% of schools this gap is more than 78 WCPM. In 25% of schools the gap is larger than 98 WCPM. The exact percentiles of the distribution of the range and corresponding WCPM figures (in brackets) are as follows: 10th percentile (50 WCPM), 25th percentile (63 WCPM), 50th percentile (78 WCPM), 75th percentile (98 WCPM), 90th percentile (120 WCPM). Two plausible explanations exist for the large intra-class gap: (1) the strong impact of home literacy practices, where some students are exposed to text and encouraged to read

more than others; and (2) teachers teaching to the best learner(s) in the class, such that they continue to improve while students performing at the bottom end of the spectrum stagnate – essentially a manifestation of the Matthew Effect; that is, the more students read, the more they increase their reading abilities.

The relationship between ORF and comprehension

While the aim of the current paper is not to estimate the nature of the relationship between ORF and comprehension, it is still helpful to illustrate the broad trends between these two measures. Before this discussion it is helpful to explain two decisions: firstly, which measure of comprehension is used, and secondly, which measure of ORF is used.

• **Measure of comprehension**: Of the three measures of comprehension, the more reliable measure of comprehension is the 40-minute silent reading comprehension test that consisted of eleven questions and totalled twenty marks. Although ORF 1 and ORF 2 comprehension questions were based on the same text as the one used for the ORF measure, there were only five one-mark questions asked after each passage. Hence, this measure is less nuanced and has less variation. Consequently, we use the silent reading comprehension measure for the remainder of the paper.

• **Measure of ORF**: Of the two measures of ORF (ORF 1 and ORF 2), we use the ORF 1 measure since this included the full sample of those tested for ORF (n=1 772). Given that these students were selected from the top, middle and bottom of the class, they are broadly representative of the classes from which they came. The same cannot be said of ORF 2 results since only students that read past the first paragraph proceeded to ORF 2, making this a selective sub-sample of students in the class. Consequently, we focus on ORF 1 as the measure of ORF.

Figure 4 below shows the cumulative distribution functions (CDF)[10] of WCPM on ORF 1 for three groups of students: (1) those achieving less than 30% on the silent reading comprehension test; (2) those achieving 30-59%; and (3) those achieving 60%+ on the test. One can clearly see that the CDFs of the three groups differ substantially. If one looks at the 50th percentile (y-axis) together with Table 9, one can see that in Group 1 half of the 1 220 students were reading at 37 WCPM or lower, in Group 2 half of the 445 students were reading at 63 WCPM or lower, and in Group 3 half of the 107 students were reading at 87 WCPM or lower.

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10   A CDF shows the probability that the value of a variable falls within a specified range. In this case the thick red CDF here shows that 80% of students scoring less than 30% on the comprehension test read at less than 50 WCPM.
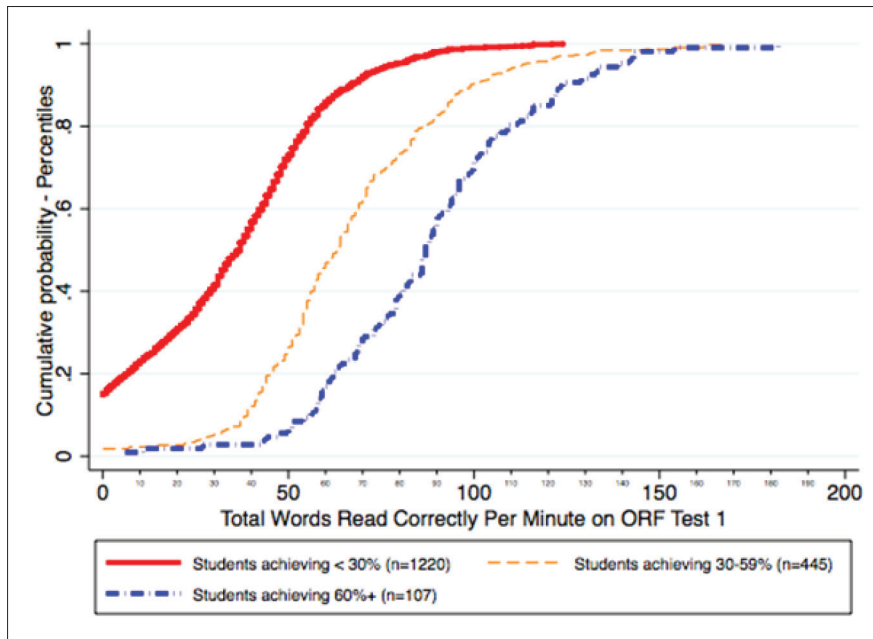
Figure 4: CDF of WCPM on ORF 1 per category of performance on the silent reading comprehension test

Table 9: Percentile distributions of words correct per minute for ORF 1 (with subgroups of comprehension achievement) and ORF 2

Percentiles	ORF 1 (WCPM)				ORF 2 (WCPM)
	Full sample (n=1 772)	<30% silent reading comprehension score	30-59% silent reading comprehension score	60%+ silent reading comprehension score	Full sample (n=855)
10th	0	0	39	56	51
25th	25	13	50	68	62
50th	46	37	63	87	74
75th	64	52	82	104	92
90th	87	67	99	124	109

If one looks at the ORF rates in Table 9 and compares them to common benchmarks found internationally, there is clear evidence to conclude that there is a reading crisis in South African rural schools. International literature points to a threshold of 40 WCPM

as being an absolute lower-bound threshold, below which children do not understand what they are reading. Chard and Kameenui (2000) cite Deno (1997), who argues that "children in the first grade must be reading between thirty and forty words per minute to be able to understand what they are reading at a very basic level". Similarly, in their research on the characteristics of students who are unresponsive to early literacy interventions, Al-Otaiba and Fuchs (2002:313) comment on earlier research: "Good, Simmons and Smith (1998) […] have argued that an oral reading fluency rate of less than forty words per minute at the end of first grade might be viewed as an important marker of unresponsiveness." Of the 1 772 students assessed on ORF 1, 725 (41%) were reading at less than 40 WCPM, with an average of only 17 WCPM, and could therefore be considered non-readers. Unsurprisingly, these students are reading too slowly to make meaning of the text and almost all (88%) of those reading at 40 WCPM or lower scored less than 20% on the silent reading comprehension test.

The major problem with using existing WCPM benchmarks is that they have been calibrated based on EHL students in the US. While this 40-WCPM minimum threshold seems to apply to the South African context as well, it is not clear whether typical Hasbrouck and Tindal (2006) norms could be applied to the South African context. While it is possible to try and equate later grades in South Africa (say Grade 5) with earlier grades in the US (say Grade 2), it would still be helpful to observe ESL students in other contexts when developing benchmarks and trajectories.

Developing ORF benchmarks for rural South African primary schools

Abadzi (2011:13) provides a very rough summary of ORF averages by grade for seventeen countries. These countries were selected because they had information on both ORF (WCPM) and comprehension scores. Unfortunately, she does not identify what proportion of the studies were done in a student's home language (local languages) and what proportion were done in a second language (typically English or French) in each country. This is obviously problematic since it is reasonable to expect that ORF rates would differ based on text type and difficulty, whether it is in a student's home language or an additional language and whether the language is an agglutinating or fusional language. Notwithstanding the above, she recommends that as a broad rule of thumb, children should be reading at 45 WCPM by the end of Grade 2 and 90-120 WCPM by the end of primary school (ibid:27). Given the lack of additional information on language, sample-size, grade, etc., it is difficult to use these benchmarks in the South African context.

We follow Abadzi's (2011) approach and use our assessments of both ORF in English and comprehension in English (a second language to these students) to create tentative ORF benchmarks. If one specifies some minimum level of comprehension and then observes the distribution of WCPM associated with those students, it becomes possible to develop benchmarks that are specific to the South African rural context, and particularly the linguistic context where students are being assessed in a second language (English) and have only been learning in that language for 1-2 years.

Following this approach, one can use Figure 4 and Table 9 to help identify logical thresholds of WCPM for South African ESL students. If students are performing below these thresholds, teachers have reasonable cause for concern. Table 9 shows that of those 107 Grade 5 students (from sixty-one schools) that are performing 'acceptably' (here defined as 60% or higher on the silent reading comprehension test), almost no student achieved lower than 50 WCPM and the majority (75%) scored above 68 WCPM. In contrast, of those students scoring less than 30% on the comprehension test, the majority (75%) scored less than 52 WCPM.

The median student scoring acceptably on the comprehension test was reading at 87 WCPM. Although there is clearly need for more research, we would argue that this benchmark of roughly 90 WCPM in English in Grade 5 in rural South Africa is a good starting point. If one raises the comprehension threshold to 80%, then the twenty-five students achieving this level read at 104 WCPM on average.

Interestingly, the WCPM distribution of Grade 5 South African students performing acceptably (60%+) is very similar to that of Grade 3 ESL students classified as 'Intermediate-English Speakers (B1)' in Broward County, Florida, US (Table 10). The Broward County Public School System is the 6th largest public school system in the US and has a large proportion of ESL students. They have developed a range of materials, diagnostic tests and classification systems for ESL learners (Broward County 2012). There are five language level classifications: non-English speaker (A1), limited English speaker (A2), intermediate English speaker (B1); intermediate English speaker (B2) and advanced English speaker (C1). These are briefly described in Table 10 below.

Table 10: Broward County language-level classifications and descriptions (Source: Broward County 2012:1)

Language-level classifications	Descriptions
A1	Non-English speaker or minimal knowledge of English
	Demonstrates very little understanding
	Cannot communicate meaning orally
	Unable to participate in regular classroom instruction
A2	Limited English speaker
	Demonstrates limited understanding
	Communicates orally in English with one- or two-word responses
B1	Intermediate English speaker
	Communicates orally in English, mostly with simple phrases and/or sentence responses
	Makes significant grammatical errors which interfere with understanding

Language-level classifications	Descriptions
B2	Intermediate English speaker
	Communicates in English about everyday situations with little difficulty but lacks the academic language terminology
	Experiences some difficulty in following grade-level subject matter assignments
C1	Advanced English speaker
	Understands and speaks English fairly well
	Makes occasional grammatical errors
	May read and write English with variant degrees of proficiency

The benefit of using Broward County classifications and materials is that they were created specifically for ESL learners. Table 11 below shows the ORF scores by grade for each of the three lowest categories A1, A2 and B1. If one compares these distributions to those shown in Table 9, one can see that the full sample of South African Grade 5 ESL students (1 772) would be classified as A1 Grade 2 or B1 Grade 1. That is to say that South African rural Grade 5 ESLs are achieving at the same level as the lowest performing (A1) Grade 2 ESLs in Broward County, Florida. These students cannot orally communicate meaning in English and demonstrate very little understanding of English.

Figure 5 shows a histogram of South African rural Grade 5 ESLs with the kernel density distributions of Broward County B1 ESL learners in Grades 1 and 3 as well as the typical Hasbrouck & Tindal (2006) norms for American Grade 5 students. One can see that the South African Grade 5 (rural) ESLs and the Broward County Grade 1 ESLs (B1) have essentially the same distributions. As has been mentioned above, the Grade 3 B1 ESL distribution shown here (the middle kernel density distribution) approximates the distribution of South African Grade 5 rural ESLs scoring 60% or higher on the silent reading comprehension test. From this it is possible to see that the Hasbrouck and Tindal (2006) norms for American students are probably inappropriate to use grade-for-grade, at least at the primary school level. ESL students in South African can attain acceptable levels of comprehension at lower WCPM scores than first-language students in America.

If one were looking for minimum benchmarks for South African ESL learners, then the Broward County ESL classification system is one starting point. If one used a higher comprehension threshold of 80% correct on the silent reading comprehension test (as opposed to 60% as earlier), then only twenty-five students (from fourteen schools) performed at this level in ORF 1. Their average fluency score was 104 WCPM on ORF 1. Thus one can see that comprehension scores of 60-80% among South African Grade 5 ESLs correspond to WCPM ranges of 90-104 WCPM. Using the Broward County ESL classification system, this corresponds to B1 Grades 3-5. Thus one might consider using the Broward County B1 ESL ORF schema as a tentative benchmarking system for ESL students in Grades 1-5 in South Africa, at least until more data becomes available on ORF benchmarks in South Africa.

Table 11: ORF scores for ESL/ELL in Broward County Public Schools (Florida, US) (Broward County 2012)

Percentiles	Grade	Non-English speaker (A1)			Limited English speaker (A2)			Intermediate English speaker (B1)		
		Fall WCPM	Winter WCPM	Spring WCPM	Fall WCPM	Winter WCPM	Spring WCPM	Fall WCPM	Winter WCPM	Spring WCPM
90	Grade 1		62	78		71	80		69	75
75			48	61		55	62		55	61
50			34	43		38	43		41	46
25			20	24		20	24		27	30
10			6	7		5	6		13	17
90	Grade 2	47	79	82	70	73	92	93	95	100
75		36	61	64	53	58	73	76	80	86
50		23	41	44	35	41	52	57	62	69
25		11	21	24	18	24	31	39	45	53
10		0	3	7	1	9	11	22	30	38
90	Grade 3	58	73	85	90	98	114	98	106	124
75		44	58	68	72	82	95	79	94	107
50		29	41	49	52	65	74	59	80	89
25		13	24	30	32	47	53	39	67	70
10		1	9	13	14	31	34	21	55	54
90	Grade 4	86	93	102	97	118	124	120	126	143
75		70	75	84	79	96	103	106	109	124
50		51	56	65	60	73	80	90	90	103
25		33	37	45	40	49	56	74	71	82
10		16	19	27	22	28	35	59	54	64
90	Grade 5	103	93	128	119	105	128	123	122	146
75		83	78	107	98	88	110	108	107	126
50		61	62	85	74	70	89	92	89	104
25		40	46	62	51	52	69	76	72	83
10		20	32	42	29	35	50	61	56	63

Approximates SA Rural Grade 5 ESL (Full ORF 1 sample)

Approximates SA Rural Grade 5 ESL sample scoring 60%+ on comprehension

In order to develop accurate benchmarks and acceptable growth trajectories that are specific to South Africa, one would need a large data set of panel data on student ORF scores at successive grades, or at the very least, repeated cross-sections of large samples of students at successive grades. As this is not yet available, an improvised schema – such as that of Broward County – may be of value in the interim.
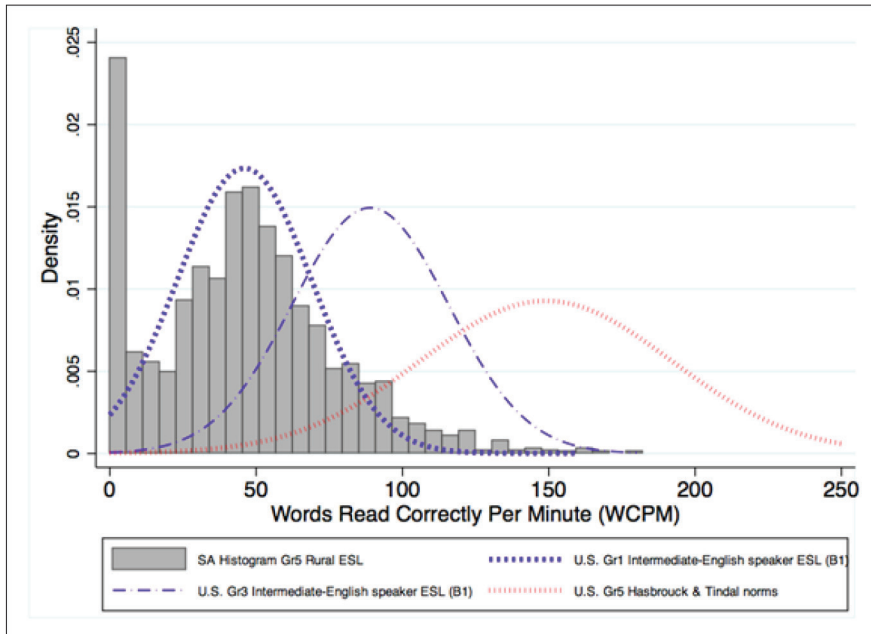

Figure 5: Distribution of ORF scores (WCPM) for rural South African ESL learners relative to Broward Country ESL learners (Source: Broward County 2012)

Conclusions and policy discussion

While the reading crisis in South Africa is widely acknowledged (Fleisch 2008; Spaull 2013; Taylor, Van der Berg & Mabogoane 2013), almost no prior research exists on ORF in English, despite this being one of the major components of reading. The NEEDU Reading Study, supplemented by the present analysis, has begun to alleviate this paucity of information by analysing a large data set of Grade 5 rural ESL learners assessed in English. The four major findings emerging from the analysis are as follows:

1. The English ORF of rural Grade 5 ESL learners in South Africa is exceedingly low. 41% of the sample read at cripplingly slow speeds of less than 40 WCPM with an average of only 17 WCPM and can be considered non-readers. These students were reading so slow that they could not understand what they were reading at even the most basic level. Almost all of these non-readers (88%) scored less than 20% on the comprehension test. A further 28% of the sample scored less than 30%

on the comprehension test bringing the total to 69% of Grade 5 students who could not score 30% on the comprehension test. A quarter scored between 30% and 60% and only 6% of the sample scored above 60% on the comprehension test.

2. The full sample of South African rural Grade 5 ESL students' ORF scores are approximately the same as the lowest category of Grade 2 ESL students in the US (non-English Speaker: A1). These students cannot communicate meaning orally in English.

3. The correlations between ORF and comprehension were approximately 0,5. This is relatively low compared to most of the international literature. However, that literature reflects largely work done with home-language speakers. More research on ESL learners is needed before concluding whether these correlations are low or high in international context. This may also provide support for the argument that ORF is a necessary but not sufficient condition for comprehension.

4. Setting ORF benchmarks for South African ESL learners is a useful endeavour, allowing teachers to identify and track struggling readers and to provide a yard-stick against which teachers can compare their students' progress or lack of progress. Given that the Hasbrouck and Tindal (2006) norms were developed for the US and primarily for EHL students, they are not appropriate for the South African context. We argued that a benchmark of 90-100 WCPM in English in Grade 5 for ESL students in South Africa is probably a good starting point until more data become available. Only 6% of the sample achieved these ORF levels. We also highlighted the potential of using the Broward County ESL classification chart and following the 'Intermediate English (B1)' trajectory for South African ESL students.

From a policy perspective there are three main recommendations that we would put forward:

1. ***The majority of rural primary school teachers do not know how to teach reading in either African languages or in English.*** This is evidenced by the cripplingly low ORF scores in Grade 5. These students cannot engage with the curriculum (which is now in English in Grade 5) and consequently fall further and further behind as the reading material and cognitive demands become more and more complex. While there *are* clearly other constraining factors that contribute to weak reading outcomes (no books to read, large classes, low teacher morale, etc.), the extant qualitative literature does also strongly point to the same conclusion (Hoadley 2012). There is a clear need to convene a group of literacy experts to develop a course to teach Foundation Phase teachers how to teach reading. This course should be piloted and evaluated and if it is of sufficient quality, should become compulsory for all Foundation Phase teachers in schools where more than 50% of students do not learn to read fluently in the LOLT by the end of Grade 3.

2. ***The clear need for evidence-based interventions, evaluations and sustained support.*** Much of the policy energy that has been expended in the last ten years has been sporadic and haphazard. Successful programs (like the Systematic

Method for Reading Success – SMRS) are not pursued while new initiatives are funded (but not evaluated) without a clear understanding of how they improve on or learn from previous initiatives. Any new national literacy drive needs to be piloted, independently evaluated and only taken to scale if and when it is proved to be effective. This should be seen as a medium- to long-term goal rather than a short-term goal.

3. **Reading as a unifying goal for early primary schooling.** The single most important goal for the first half of primary school should be the solid acquisition of reading skills so that every child can read fluently in his or her home language by the end of Grade 3 and read fluently in English by the end of Grade 4. This goal is easily communicated and understood by parents, teachers and principals and is relatively easy to measure and monitor. The benefit of having a single unifying goal to focus attention, energy and resources should not be underestimated.

4. The Department and the research community at large need to research, develop and set ORF benchmarks in English but especially for African languages for Grades 1-3. Given that ORF benchmarks do not translate across languages with different orthographies, new research is required to set African language benchmarks.

5. Individual oral reading must be part of reading instruction that is insisted on by departmental officials and subject advisors.

6. **Declare early literacy research (particularly in African languages) a National Research Foundation (NRF) research priority area.** Given the scale of the reading crisis and the lack of research on African languages at South African universities (particularly relating to early literacy in African languages), the NRF should declare this to be a national priority and dedicate significant resources to those researchers and departments with the skills and expertise needed to understand more about how children learn to read in African languages and which interventions are most promising.

Acknowledging the extent of the reading crisis in South Africa is only the first step towards remedying it. Thereafter there is a need for sustained research and evidence-based interventions focusing on the Foundation Phase and teacher development. Only then can we expect the timely acquisition of core reading skills by all children, irrespective of their linguistic or socio-economic background.

Acknowledgments

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