

Still Falling at the First Hurdle*: Examining Early Grade Reading in South Africa

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Abstract This chapter provides an overview of what we know about reading outcomes in South Africa. After an initial survey of some foundational tenets of reading research we show that while reading outcomes in South Africa improved between 2006 and 2011 they have stagnated between 2011 and 2016. The most recent PIRLS study (2016) showed that 78% of Grade 4 children cannot read for meaning in any language. There is nothing inevitable about these results. The knowledge and instructional practices required to teach children to read – as well as the resources needed to do it – are known and well understood internationally, even in high-poverty contexts. We argue that the inequalities evident in the schooling system have their roots in unequal life chances doled out at birth and consolidated through differential reading trajectories. Moving beyond the ‘comprehension iceberg’ we document what lies beneath these dire results. The majority of children have not mastered the basics of decoding in their home language in Grade 1 or 2 making reading for meaning or pleasure unlikely. We advocate for an approach focusing on early reading success and ensuring that teachers know how to teach reading, that they have the materials to do so, that children have ready access to books and that reading outcomes are assessed annually.

* The title *Falling at the first hurdle* was that of a research report by Taylor (1989) on literacy in South African schools. That we face similar challenges with similar diagnoses 30 years on is reason enough to reproduce Taylor’s incisive title, with a slight modification.

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1 Introduction

There are not many topics that encapsulate all of the different dimensions of South African inequality quite like that of reading. One could discuss the unequal provision of material resources like storybooks, graded readers and libraries, or move to *human* resources like well-trained reading teachers and remedial specialists. Alternatively, one could look at the processes in reading like pedagogy, or the outcomes of reading like comprehension. All reflect the structural inequalities of racial and spatial apartheid. Yet all of this is also true for subjects such as mathematics and science. Why is reading different? Essentially it is because reading is the vehicle for learning in all other subjects, and therefore all other inequalities have at least some of their roots in reading inequalities.

The aim of this chapter is to document important inequalities in reading inputs, processes and outcomes. After discussing three guiding principles of reading development, the chapter provides a summary of what we know about reading outcomes in South Africa, as well as the sub-components leading to those outcomes, notably oral language proficiency and decoding. The chapter concludes by pointing to six factors we believe contribute to the current impasse: (1) the paucity of reading research in African languages, (2) the inequality of policy attention - which is itself a resource, (3) the continued prioritization of matric over early grade reading, (4) the inadequate training provided to pre-service and in-service teachers on the specifics of how to teach reading, (5) a lack of quality print resources in schools, and lastly (6) the wholesale lack of a primary school assessment to monitor reading outcomes in the early years.

2 Learning to Read in South Africa

Access to knowledge and information in the 21st century is largely mediated through written language, either digitally or in print. Technological advances do not leapfrog over literacy. Similar reading skills that were required for print in the 20th Century, are required for digital print in the 21st Century. The recent exponential growth of digital information means learners require sophisticated sifting mechanisms that enable them to read with a critical eye, to read beyond the literal level, to discern 'real' from 'fake' knowledge. Similarly, work in the 21st century presupposes familiarity with the production and manipulation of knowledge through text, i.e. it requires reading literacy.

Throughout this chapter we focus on reading literacy. The Progress in International Reading Literacy Study (PIRLS) defines reading literacy as "the ability to use and understand those written language forms required by society and/or valued by the individual" (Mullis et al, 2009, p. 19). The teaching of reading literacy should be the 'core business' of primary schools. By the end of their third year of schooling, children around the world are expected to read fluently and with understanding in at least one language. In languages with regular orthographies (such as Spanish

and Finnish, for example) Grade 1s read faster and more accurately than English children with an opaque orthography (Aro and Wimmer, 2003). The nine African languages in South Africa have regular orthographies, so early reading success is possible. To reach that goal functional education systems have a shared understanding of what the core business of reading entails; what it is, how it develops, how it is measured and how it is taught. In addition teachers and policy-makers must also grapple with questions of reading failure and understand where, when and why this happens, how best to fix it, and how long the fixing takes.

The South African evidence suggests that on most of these fronts there is no such shared understanding – of the problems, the causes or the solutions. Results from the most recent nationally-representative assessment of reading comprehension (PIRLS Literacy 2016) show that 78% of Grade 4 learners in the country cannot read for meaning in any South African language (all 11 were assessed) (Howie et al, 2017). It also revealed that South African learners had the lowest performance in reading comprehension across all 50 participating countries. There is nothing inevitable about these outcomes. The knowledge and instructional practices required to teach children to read – as well as the resources needed to do it – are known and well understood internationally, even in high-poverty contexts. Teaching reading is not a mystery. South Africa's GDP per capita is higher than that of Iran's, yet while 78% of South African Grade 4s cannot read, only 35% of Iranian Grade 4s are similarly handicapped (Mullis et al, 2017, p. 55).

The PIRLS results point to the need to pay more attention to comprehension in schools, but what are the PIRLS results not revealing? PIRLS only assesses the outcome of the reading process, namely reading *comprehension*, but not the necessary 'input' components of reading such as fluency, vocabulary, decoding, and oral language proficiency. If the components of reading are well-known and measurable then surely failure in reading comprehension outcomes can be traced to earlier failures in reading process inputs?

Before discussing reading comprehension outcomes and reading process inputs in South Africa, we first summarise three guiding principles of reading development and highlight the points that are relevant in the South African context. These are based on converging evidence in the broader field of reading research (Castles et al, 2018).

3 Three Guiding Principles Underpinning Reading Development

3.1 The Bidirectionality of Language and Literacy

Oral language proficiency and literacy development are inextricably linked through strong *bidirectional* or *reciprocal* ties. Although debates about the exact nature of the relationship between oral and written language are still ongoing, there is general consensus that (1) language proficiency is foundational to learning to read, and (2)

the relationship is reciprocal, in that as learners become proficient in reading, reading influences language proficiency and provides a rich and powerful resource for new learning in general. This applies equally to reading in a home language (HL) or an Additional Language (AL)³.

Research shows that various aspects of oral language skills that children bring with them when they start school affect how successfully they learn to read (Chall et al, 1990; Whitehurst and Lonigan, 1998; Sénéchal et al, 2006). In turn, the ability to read confers a large cognitive advantage on individuals. Through reading, children learn more words, acquire more concepts, learn to use complex syntactic structures, and increase their general knowledge of the world (Lee, 2011; Cunningham and Stanovich, 1997; Pikulski and Templeton, 2004).

The majority of children in South Africa come to school with some degree of oral language proficiency in their home language, and considerably less proficiency in either English or Afrikaans which are the languages of learning and teaching (LoLT) from Grade 4 onwards. The majority of children (70%+) first learn to read in one of the nine African languages in Grades 1-3 before switching to English in Grade 4 and continuing in that language until they leave school (Pretorius and Spaull, 2016). Thus, these children must overcome two consecutive hurdles to succeed at school. Firstly, literacy in the home language and then literacy in an additional language, typically English. To do so they need to become both bilingual (able to orally communicate in two languages) *and* biliterate (reading and writing in two languages). There are likely to be complex bidirectional relations not only between oral language proficiency and literacy within each language, but also jointly between these two oral languages and literacies.

In a multilingual developing country context like South Africa the reading journey is further complicated by dialects and multilingual urban environments. Dialectal varieties can introduce differences between spoken varieties and the standard written forms of a language. As a result even though children may be learning to read in their home language, they may not be familiar with the standardised written version, adding a further hurdle to their journey. In South Africa there is little empirical research indicating how widespread the use of dialects in schools is, or how large a problem it is when learning to read (Gxilishe, 1996; Mtsatse, 2017).

Similarly, children who live in multilingual, usually urban, environments may be forced to learn to read in a language that is not their home language. Because most South African schools teach in English from Grade 4 (90%+), if there is no single dominant language among learners in urban areas, schools typically choose to go 'straight for English' from Grade 1, irrespective of the children's home languages. In most provinces in South Africa this is not a large problem because most children in a school share a single home language. However, in urban contexts this is often not the case. For example, PIRLS Literacy 2016 shows that nationally 75% of learners spoke the Foundation Phase LoLT at home either 'always' or 'almost always' (own calculations). However, in Gauteng – the most urban province - the figure is

³ In keeping with official South African curriculum terminology, we use the terms Home Language and Additional Language. In the literature more broadly, these are synonymous with first language (L1) and second language (L2) learning.

only 53%. A 2011 review of all South African schools provides large-scale corroborating evidence, showing that 72% of learners are in schools where most children (75%+) have the same home language as the one that is used in their school in the Foundation Phase (Table 1). However, in Gauteng this is only 30%. For many learners in Gauteng (and to a lesser extent also those in Mpumalanga) they must overcome an additional hurdle of learning to read in a language that is not their home language.

Table 1 Percentage of South African Grade 1-3 learners whose home language is the same as the largest home language in the school

% of Gr1-3 learners	EC	FS	GP	KN	MP	NC	NW	WC	SA
≥90%	85%	48%	17%	86%	41%	69%	63%	55%	61%
≥75%, <90%	5%	24%	13%	7%	17%	14%	15%	14%	11%
≥50%, <75%	8%	22%	29%	6%	24%	14%	14%	26%	16%
>0%, <50%	2%	6%	41%	1%	18%	3%	8%	5%	12%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source: Martin Gustafasson's calculations on Annual Survey of Schools 2011 data (2014: personal communication).

3.2 Language Is Acquired, Reading Is Taught

Reading is not part of our genetic makeup in the way that vision and oral language are. Writing systems (and concomitantly, reading) are only recent cultural artefacts in our human history (Wolf, 2008). While children acquire oral language naturally, they only learn how to read if they are taught to do so. How well they learn to read depends on how well they are taught and how many opportunities they are given to read. The ability to understand the abstract symbolic representation of speech sounds – print – “is an optional accessory that must be painstakingly bolted on” in our brains (Pinker (1997), see also Dehaene (2009) and Seidenberg (2017)). One does not simply ‘pick up’ reading as one does oral language. While some precocious children, especially from middle-class homes, will do so and enter school already able to read at a basic level, this is not true for most children and especially not those from high-poverty low-text homes (Adams, 1990; Snow et al, 1998). While there have been many generic critiques of the ‘whole language’ approach to early reading (Adams, 1990; Vellutino, 1991), particularly in the last two decades (Stanovich, 2000; Tunmer et al, 2013; Seidenberg, 2017; Castles et al, 2018), the most pertinent for the South African context is that this method does not readily work for agglutinating languages, especially those with a conjunctive orthography resulting in long words (Pretorius, 2018, forthcoming). Furthermore, it is unlikely to work outside of an extremely print-rich environment and intensive individual attention both of which are in scarce supply in high poverty contexts with large classes and limited resources, as in South Africa (van der Berg et al, 2011). Less than a third

of Foundation Phase learners are in classes of 35 learners or less, and more than one in four are in classes with 46 or more learners (Spaull, 2016a). In such an environment a systematic phonics or balanced approach (as advocated in the South African curriculum) is best (National Reading Panel, 2000; Pressley, 2006; Castles et al, 2018).

3.3 Environmental Input Matters

The kind of linguistic input and the nature of the input that children receive at home and in the classroom affect both language and literacy development. Although practically all children will acquire the basics of their home language through a process of natural acquisition, research has documented how socioeconomic factors impact on language ability, particularly the amount and quality of language exposure that children receive in their homes (Tunmer et al, 2006; Hart and Risley, 2003; Farkas and Beron, 2004; Vasilyeva and Waterfall, 2011). For example, vocabulary development is heavily influenced by the home environment (Hart and Risley, 1995; Corson, 1997; Biemiller, 2012), and also correlates with listening comprehension, reading comprehension, writing, general background knowledge, and academic performance in general (Alderson, 2005; Helman and Burns, 2008; Staehr, 2008; Marchman and Fernald, 2008; Stahl and Stahl, 2012).

Disadvantaged children need more time at the beginning of their reading journeys than those who come to school with high language skills and vocabularies (Brown and Saks, 1986). While schools cannot change the socioeconomic status of their learners' home backgrounds, they can change what happens in their schools and classrooms. Given that at least 75% of South African primary schools serve poor communities, making schools centres where children receive rich language and literacy input irrespective of their home background should be a priority. The status quo in South Africa is that children with the biggest backlogs attend schools with the least capacity (Spaull, 2015; NEEDU, 2013, see also fig.1). Thus the initial home disadvantage is compounded by a school literacy disadvantage.

4 What Do We Know About the End Point of Reading – Comprehension - in South Africa?

Reading is essentially about meaning. The main goal in primary school is to produce learners who are independent readers, that is, they can read fluently, with comprehension, on their own. Most of our knowledge about the reading comprehension ability of South African learners and how this has changed over time comes from periodic large-scale nationally representative assessments. The most prominent of these is PIRLS which assessed Grade 4 and 5 learners in all 11 official South African languages in 2006, 2011 and 2016. South Africa also participates in another inter-

national assessment – the Southern and Eastern African Consortium for Monitoring Educational Quality (SACMEQ) which assesses reading at the Grade 6 level in English and Afrikaans (in 2000, 2007 and 2013). Because there are a number of doubts⁴ about the reliability of the most recent SACMEQ results (2013), when discussing time trends we choose to focus on PIRLS.

A number of other local assessments have contributed to the picture of reading comprehension in South Africa which include the Systemic Evaluations (2000, 2004 and 2007), the Annual National Assessments (2011-2014), the National School Effectiveness Study (2007-2009), and the National Education and Evaluation Development Unit (NEEDU) studies of 2012 and 2013. We choose not to dwell on these latter assessments because the vast majority of their findings on reading are subsumed in the PIRLS results and they are not as rigorous, authoritative, psychometrically comparable, or recent.

4.1 PIRLS 2006 to 2016: Stalling Progress and Stark Inequalities

The best evidence available in South Africa suggests that between 2006 and 2011 there was a significant improvement⁵ in reading outcomes across the country (see also Gustafsson & Van der Berg in this volume). Table 2 shows that the Grade 4 PIRLS⁶ scores increased from 253 (2006) to 323 (2011) and thereafter stagnated for four years with a statistically equivalent score of 320 (2016). To indicate how large these magnitudes are, one can consider 50 PIRLS points being equivalent to

⁴ While SACMEQ has released its 2013 results and claimed they are comparable, they have not released any technical documentation or data as is standard practice in previous rounds of SACMEQ (Ross et al., 2005), and in other international assessments (see the 300+ page technical reports for TIMSS, PISA or PIRLS for example). Because there are open and unanswerable questions around their validity (Spaull, 2016b), notably that the assessment instruments used and the analytical assumptions made changed between 2007 and 2013, we do not discuss the SACMEQ 2013 time trends in reading.

⁵ A technical note of some importance is that older reports of the prePIRLS 2011 results (Howie et al, 2012; Mullis et al, 2012) use a different scale to the traditional PIRLS scale. This was because the prePIRLS assessments were not calibrated to be equated to PIRLS in 2011. This was rectified with the release of the 2016 PIRLS results where the International Association for the Evaluation of Education (IEA) retrospectively rescaled the prePIRLS scores to be comparable to the PIRLS scores. Thus while in 2011 one could not compare PIRLS-2006 and prePIRLS-2011, by 2016 one could compare PIRLS-2006, prePIRLS-2011 and PIRLS-Literacy-2016 all on the same PIRLS scale (as in Table 2 below). All three included nationally representative samples of Grade 4 learners who were assessed in whatever the language of learning and teaching was used in that school in Grades 1-3. (Note prePIRLS and PIRLS-Literacy are easier versions of PIRLS that use texts of approximately 400 words rather than the 800 word texts of PIRLS, although for equating purposes there are two PIRLS passages in PIRLS-Literacy and two PIRLS-Literacy passages in PIRLS (Mullis and Martin, 2015, p. 28)

⁶ We do not report the Grade 5 results from PIRLS 2011 or PIRLS 2016 since these assessments were not administered to a nationally-representative sample of primary schools. They were only administered to English- and Afrikaans-LOLT schools in 2011 and English, Afrikaans and isiZulu-LOLT schools in 2016.

one year of learning in South Africa⁷. As such, reading outcomes improved⁸ by about 1.4 years of learning (70 points) between 2006 and 2011 with no improvement from 2011 to 2016. Because the concept of a ‘year of learning’ is relatively amorphous and difficult to conceptualize, Table 2 also includes the percentage of learners reaching the PIRLS Low International Benchmark of 400 points. A learner who reaches the PIRLS Low International Benchmark can “locate and retrieve explicitly stated information, actions or ideas; make straightforward inferences about events and reasons for actions; or begin to interpret story events and central ideas” (Mullis et al, 2017, p. 53). Essentially, they can read at a basic level. In 2006 only one in eight South African Grade 4 learners were at this level (13%), compared to about one in four or five in 2011 (24%) and 2016 (22%). However, to put these numbers in context, one finds considerably higher figures in countries like Egypt (31%), Morocco (36%), and Iran (65%), not to mention Chile (87%), the United States (96%) or England (97%) (Mullis et al, 2017, p. 55).

Table 2 A decade of PIRLS reading outcomes in South Africa (2006 to 2016)

Study	Year	Grade	Schools	Students	Mean	Std. Error	% reaching PIRLS Low International Benchmark	Std. Error
PIRLS prePIRLS PIRLS Literacy	2006	Gr4	429	16 073	253	4,6	13%	0,5%
	2011	Gr4	341	15 744	323	4,3	24%	Unavail.
	2016	Gr4	293	12 810	320	4,4	22%	1,5%

Sources: PIRLS: Howie et al, 2006; p14, p19, p.26; prePIRLS: Mullis et al, 2017 p.58; PIRLS Literacy; Mullis et al, 2017 p.33, p.55; Howie et al, 2016: p.2

It is a sobering realization to see that even after the gains of the 2006 to 2011 period, three-quarters of South African Grade 4 children still could not read in any

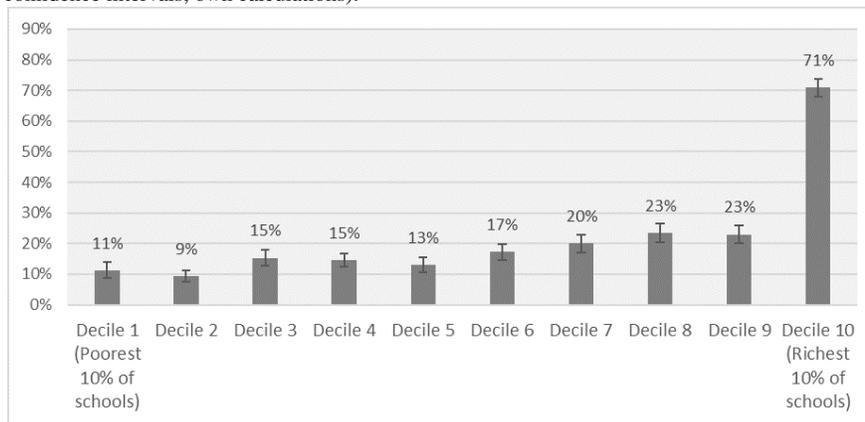
⁷ The oft-cited 40-point figure for a year of learning is based on three Nordic countries which each assessed two consecutive grades in PIRLS; namely 3rd and 4th Grade in Sweden, and 4th and 5th Grade in Iceland and Norway. The overall differences were found to be 41 points in Sweden, 39 points in Iceland and 43 points in Norway (Rosén, 2010, p. 7). The more correct 50-point figure comes from the South African PIRLS experience in 2006 where a nationally-representative sample of Grade 4 and Grade 5 learners from the same schools were assessed at the same time and on the same assessment yielding a 49-point difference (Howie et al., 2007: p.19).

⁸ As an aside, it is also worth noting that the improvement in performance between 2006 and 2011 is not undisputed. For example, the official PIRLS 2016 report indicates that the trend results for South Africa are only comparable between 2011 and 2016 and that between 2006 and 2011 the data is “not comparable for measuring trends to 2016, primarily due to countries improving translations or increasing population coverage” (Mullis et al., 2017: 303). In the case of South Africa this is primarily because in the PIRLS 2006 assessment, the psychometric scales and instruments were not calibrated to measure performance accurately below 300 PIRLS points (Personal Communication, Dirk Heystedt, 2017). In 2006 South Africa’s score was 253. This may be an underestimate due to motivation problems where learners become demotivated by encountering texts that are far too difficult to them. Notwithstanding the above, it is highly unlikely that the full improvement from 2006 to 2011 is accounted for by motivation problems alone rather than a real improvement in reading outcomes.

meaningful way, in any language. Perhaps of even greater concern is that reading outcomes now seem to be stagnating at this low post-improvement level of performance.

Moving beyond the national averages – which are always misleading in South Africa – stark inequalities emerge when the results are disaggregated by school wealth⁹. Figure 1 reports the percentage of PIRLS Grade 4 learners who can read at a basic level by deciles of school wealth in 2016. The graph shows the stark contrast between the wealthiest 10% of schools (all fee-charging) and the poorest 90% of schools (almost all no-fee schools, with a few low-fee schools). A child in the wealthiest 10% of schools in South Africa is five times more likely to learn to read at a basic level by Grade 4 than a child in the poorest 50% of schools.

Fig. 1 The percentage of Grade 4 learners who can read at a basic level (the PIRLS Low International Benchmark) by deciles of average school wealth. (Data: PIRLS Literacy 2016 with 95% confidence intervals, own calculations).



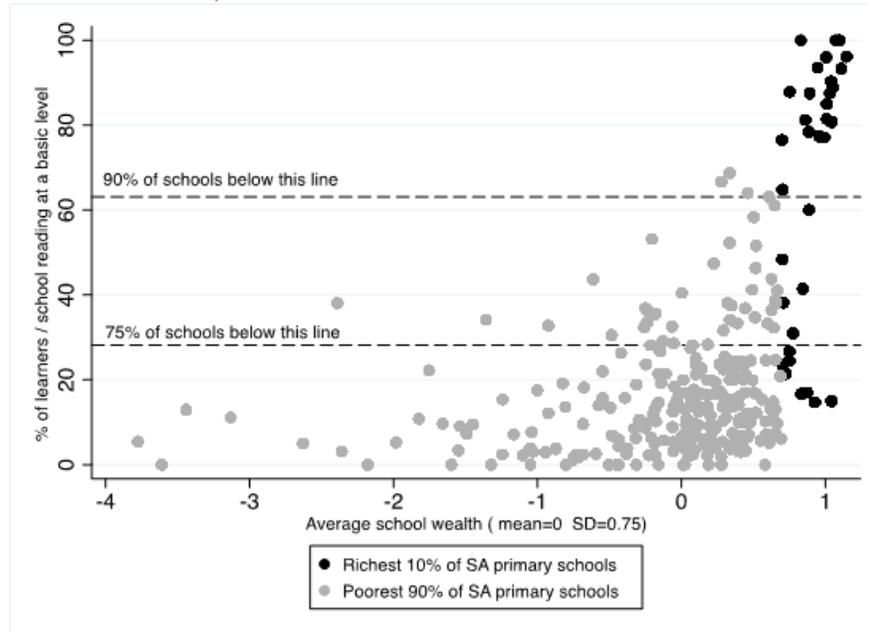
The ‘split’ between the wealthiest 10% of schools and the poorest 90% of schools reported here might seem to be at odds with previous work on the two-tiered bimodal schooling system. For example, (Fleisch, 2008, p. 21) suggests an 80%-20% split and Spaul (2013) argues for a 75%-25% split – both separated along school wealth with the smaller group being the wealthier one. However, these two studies use SACMEQ literacy data (2000 and 2007 respectively). It is plausible – and indeed probable – that the process determining the size of the respective systems is at least partly a function of the difficulty of the assessment. The more difficult the

⁹ School wealth here is calculated as the average of student asset wealth in the school. Student wealth is calculated using Multiple Correspondence Analysis (MCA) on the eight possession questions in PIRLS Literacy 2016 (PIRLS, 2018a: S1.1; 2018b: 2,7). While this is unlikely to create an accurate cardinal indicator of wealth, the purpose here is to create an ordinal ranking and this is arguably the best measure of student wealth available. Calculations on the PIRLS Low International Benchmark use the first plausible value.

assessment the smaller the ‘functional’ part of the school system is and vice versa. The SACMEQ assessment, which was developed for an African context, is considerably easier than the PIRLS assessment which was developed for a predominantly high-income country context.

While Figure 1 provides a summary of the data, it does not reveal whether those who do learn to read in poorer schools are concentrated in a few exceptional schools (an ‘outlier school’ hypothesis) or whether in each school there are a few children who learn to read while the vast majority do not (an ‘outlier child’ hypothesis). Figure 2 suggests the latter. It shows the percentage of Grade 4s per class that learn to read at a basic level in each of the 293 PIRLS 2016 schools (y-axis), overlaid on average school wealth (x-axis). A clear deterministic relationship between the probability of learning to read and average school wealth is evident. In this PIRLS sample there were only 20 schools where more than 70% of children in the class had learned to read at a basic level by Grade 4. Every single one was from the wealthiest decile of schools and 14 of these were from the wealthiest 3% of schools. The fact that some Decile 10 schools report high percentages of children not learning to read suggests that even in the wealthiest 10% of schools reading acquisition is not universal (as it is in most high-income countries).

Fig. 2 Percentage of Grade 4 learners per school reaching the PIRLS Low International Benchmark by average school wealth (PIRLS Literacy 2016) (Note: the two y-axis reference lines are drawn at 28% and 63%).



The steep gradient seen in Figures 1 and 2 reflects a society where learning to read is largely a function of the average wealth of the school you attend. While it is true that some children in no-fee schools manage to succeed against the odds, it cannot be stressed enough that they are the exception to the rule. The average child in the poorest 75% of schools has a five times higher probability of not learning to read than of learning to read (85% compared to 15% respectively).

4.2 Conflating Language of Instruction and Quality of Instruction

While the above results present the PIRLS Literacy 2016 data by wealth, similar patterns are seen by Language of Learning and Teaching (LoLT). More than 80% of learners attending an African language LoLT school could not reach the PIRLS low international benchmark, while for those attending English- or Afrikaans-LoLT schools the figure was 56-57% (Howie et al, 2017, p. 5). Given the strong correlations between wealth, socioeconomic status, school location and language (Spaull, 2013), this finding is to be expected. To the familiar refrain that fee-charging schools offer higher-quality instruction (Spaull et al, 2018), one can now add the nuance of language of instruction. Almost all fee-charging schools (95%+)¹⁰, public or independent, are either English- or Afrikaans-medium schools. It is therefore understandable that many parents in South Africa conflate language of instruction and quality of instruction, using the former as a proxy for the latter. Given many teachers' own lack of proficiency in English – which is often their second-language – it is concerning that many parents are advocating for their schools to go 'straight for English'.

4.3 Moving From Outcomes to Processes and Inputs

Much of the South African discourse on reading, and indeed most of this chapter so far, has focused on the end point of the learning-to-read journey, namely, reading comprehension. Studies such as PIRLS, SACMEQ or the NSES reveal a wealth of information about who can read, by when, and at what level. What they do not reveal is *why* children cannot read. They tell us almost nothing about the initial and intermediate stages in the learning-to-read process. Which of the building blocks of reading are children stumbling on and when are they doing so? Elsewhere we have described this as the 'comprehension iceberg', arguing that we need to move beyond a repetitive focus on weak comprehension outcomes and instead look below the surface at the causes of reading failure (Spaull et al, 2018). It is telling that South

¹⁰ According to V-ANA (2013), 90% of fee-charging schools in the sample had English or Afrikaans as their language of assessment. In addition, given that virtually all independent schools are either English or Afrikaans medium and fee-charging, this adds a further 4-5% of learners to this group.

Africa has assessed reading comprehension outcomes of a nationally-representative sample of Grade 3-6 learners at least 10 times in the last two decades, yet it has not once assessed a nationally representative sample of learners on the sub-components of reading (decoding, vocabulary, listening comprehension etc.).

5 What Do We Know About the Subcomponents (Inputs) of Reading in South Africa?

While comprehension is the main goal of reading, it is underpinned by two sets of skills (1) oral *language comprehension* (the ability to use and understand spoken language), and (2) *decoding* (the ability to accurately read familiar words and decode unfamiliar words out of context) (Scarborough, 2001; Hoover and Gough, 1990). Without decoding, there can be no text comprehension; but skill in decoding does not automatically guarantee text comprehension. Both decoding and comprehension rely on oral language proficiency, which includes vocabulary knowledge, listening comprehension and morphosyntactic knowledge (knowledge of grammar).

The South African empirical research base on *language comprehension* among African-language primary school learners is almost non-existent. This would involve studies focusing on vocabulary knowledge, listening comprehension, morphosyntactic knowledge and verbal reasoning. Of these topics, when looking specifically at African languages in Grades 1-3 in relation to these topics, vocabulary and morphology have probably been the areas that have received the most attention, and there have only been four studies in total. The studies that included vocabulary looked at Grade 3 in two Setswana-medium schools in the North West (Malda et al, 2014) and Grade 1 in two Northern Sotho schools in Gauteng (Wilsenach, 2015). The studies that looked at morphology included Grade 3 in two isiXhosa schools (Rees, 2016) and Grades 3 and 4 in two Setswana and isiXhosa schools respectively (Probert, 2016). One cannot base any national conclusions on language comprehension in the Foundation Phase in African languages on small scale studies of eight schools. The fact of the matter is that we simply do not know the levels of language comprehension for this group. There are no norms or reference criteria. There are no psychometrically-validated instruments in African languages to measure these constructs. In short, there is almost nothing one can draw on to make empirical conclusions about 70% of South African children's *language skills* (i.e. not their *reading comprehension skills*).

The second set of skills that underpin the development of reading comprehension are decoding skills. In languages with an alphabetic writing system, spoken language is represented in print by letters that stand for speech sounds. These letters form the code. Decoding, which is the ability to decipher the code, in turn relies on various sets of skills such as *phonemic awareness* (the ability to identify single sounds within spoken words), *letter-sound knowledge*, *word reading* and *reading fluency* (Adams, 1990). Skilled reading involves the rapid processing and integration of all these components. Problems in any one - or several - of the subskills

can affect processing problems elsewhere in the reading system, resulting in poor reading outcomes. In this way, differences in reading outcomes between children or groups of children can thus be traced back to differences in each of these components.

In the last five years there has been a proliferation of South African research measuring the various elements involved in skillful decoding. The Early Grade Reading Assessment (EGRA) provides one ‘standardized’ tool to assess children’s decoding ability. There have been five relatively large studies that have included decoding assessments. These have been administered in five African languages across six provinces. A discussion of each of these subcomponents is beyond the scope of this chapter, so only two are singled out for discussion, viz. letter-sound knowledge and oral reading fluency.

There is consensus in the reading literature that decoding subskills derive from a finite knowledge base that is highly generative: knowledge of letter-sounds enables children to blend letters together into words, and the rapid recognition of word patterns enables fast oral reading fluency. These skills enable children to decode words that have not been encountered before. Because these are finite skills they can, if taught systematically and explicitly, develop quickly and mastery should be attained by nearly all children at an early stage of reading, within a year in transparent orthographies. Speed matters in these subskills – they should be executed rapidly and accurately, so that working memory is freed up for comprehension. These skills are also more immune to the effects of socioeconomic factors than more complex aspects such as language proficiency, vocabulary development and reading comprehension. In addition, research indicates that additional language learners can perform as well as home language learners on letter-sound tasks (Muter and Diethelm, 2001; Lipka and Siegel, 2007).

Table 3 provides an overview of two components of decoding: (1) Letter-sounds (measured as letter-sounds read correctly per minute, LCPM) and (2) Oral Reading Fluency, measured as words read correct per minute (WCPM). These results reflect decoding outcomes in ‘business as usual’ schools. For this reason, where the data come from a study involving an intervention (as in EGRS and Zenex) we have only included information on the control schools and not the intervention schools.

Two points from Table 3 have relevance here. Firstly, Grade 1-3 learners’ letter-sound knowledge and oral reading fluency scores are generally low and slow. Benchmarks for letters sounded correctly per minute are given as 40 LCPM for Grade 1¹¹ (Kaminski and Good III, 1996; Good et al, 2001); some of our learners are only approximating this at the end of Grade 3. With oral reading fluency, it is more difficult to assess levels because of the differences in average word length between languages with conjunctive orthographies (isiZulu and isiXhosa) and those with disjunctive orthographies (Northern Sotho and Setswana). For example, the sentence *Nobody had any food* (4 words) is *Abantu abengenakho ukudla* (3 words) in isiZulu, and *Go be go se na yo a bego a na le dijo* (12 words) in Northern Sotho. This makes any direct comparison of ORF scores across language groups problematic. Nevertheless,

¹¹ Although this benchmark is derived from learning to read in English, all languages that use the Roman alphabet in their orthography should reflect fairly similar benchmarks.

Table 3 Letter-sounds and oral reading fluency

Study	Language	Total letters read correctly per minute			# Learners	# Schools	Reference and notes
		End Gr1	End Gr2	End Gr3			
EGRS 1	Setswana	22	39		1200	80	
EGRS 2 (DBE, forthcoming)	EFAL	18			1459	80	Q1-3 schools in Mpumalanga. Mostly remote rural.
Spaull et al (2018)	Northern Sotho		31	43	113	9	End of Grade 2 is actually start of Grade 3 (Spaull et al., forthcoming)
	Xitsonga		35	47	89	10	
	isiZulu		27	36	414	42	
Zenex (2018)	isiZulu	6	11	16	60	4	Rural
	isiXhosa	24	41	47	60	4	Urban
E-LIT	isiXhosa	29			63	7	Q1-3 WC
Oral Reading Fluency (wcpm)							
End Gr1 End Gr2 End Gr3 # Learners # Schools							
EGRS 1	Setswana	7	24		1200	80	
EGRS 2 (DBE, forthcoming)	EFAL	5			1459	80	Decodable words
	EFAL	5.3			1459	80	Sight words
	isiZulu	6.1			427	22	CVCV words
	Siswati	5.3			1032	58	CVCV words
Spaull et al (2018)	Northern Sotho		39	55	113	9	End of Grade 2 is actually start of Grade 3
	Xitsonga		41	59	89	10	
	isiZulu		21	31	414	42	
Zenex (2018)	isiZulu	1	12	21	60	4	Rural
	isiXhosa	7	16	21	60	4	Urban
E-LIT	isiXhosa	12			63	7	Q1-3 WC

nascent benchmarks for the end of Grade 2/start of Grade 3 for both disjunctive and conjunctive orthographies (Spaull et al, 2018) suggest that the results in Table 3 illustrate severe problems with oral reading fluency. For example, at the end of Grade 2 in a disjunctive Sotho-language orthography one would expect 66-84 WCPM to allow for comprehension (Spaull et al, 2018, p.18). Yet students in the EGRS control schools are reading at half this speed. The same can be said for the isiZulu schools using conjunctive orthographic norms (32-43 WCPM). Almost none of our learners in Table 3 are achieving these benchmarks at the end of Grade 2 and a small fraction are achieving a score within this range at the end of Grade 3.

These foundational subskills that should reflect ‘finger-tip’ execution of decoding processes are slow and onerous, making comprehension virtually unattainable. Provided teachers are well trained and have access to resources for reading practice, these are the “low hanging fruit” of reading instruction which could be realistically mastered by all learners.

6 Resources for Reading

The most critical resource for teaching reading is the teacher. If a teacher knows what the goal of reading is (comprehension), as well as how to develop the various components that lead to comprehension, she is well on her way to becoming an effective reading teacher. In addition, she needs practical knowledge of how to actually teach these components in the classroom and the resources to do so,—the reading activities, books, routines and assessments to take all her learners from novice to competent readers. Very few South African teachers are thus equipped. Consistent research findings in the South African literature reveal communalized rather than individualized instruction (NEEDU, 2013), little formal teaching of vocabulary, spelling or phonics (Taylor and Vinjevold, 1999), as well as insufficient time dedicated to the formal instruction of reading (Reeves et al, 2008). See Hoadley (2012) for a more comprehensive overview.

These are teachers who have never received what Shalem (2003) refers to as “meaningful learning opportunities” to acquire the theoretical and practical knowledge to teach reading. The situation for pre-service teachers is not much better. A recent curriculum review at one of South Africa’s most prominent universities found that only 6% of the credits in the Foundation Phase Bachelor of Education program was allocated to literacy (personal communication, Taylor, 2018). The overall study to which this contributed – the Initial Teacher Education Research Project (ITERP) study - found that the curricula offered to Bachelor of Education students across 5 of the 23 universities in South Africa gave little attention to the explicit teaching of reading and writing and to teaching English as a FAL (ITERP, 2014, see also Taylor N, 2018 in this current volume). Many university education faculties favour particular theoretical approaches that may not always lead to effective early reading instruction. For example, social constructivism is a dominant theory of learning that prevails in many education faculties around the country and texts on Piaget and Vygotsky form common prescribed reading. While these worthy scholars dedicated their lives to the study of learning in educational contexts, none of them were reading specialists. Much of what we have learned about decoding has occurred in the past 40 years or so (Adams, 1990; Stanovich, 2000; National Reading Panel, 2000; Castles et al, 2018), and advances in technology have brought about new insights into how the brain processes reading (Dehaene, 2009; Seidenberg, 2017).

6.1 Access to Books

It goes without saying that it is not possible to teach reading for meaning without books. Teachers need a basic supply of graded readers, ‘Big books’, storybooks and non-fiction books if they are to teach reading effectively. Furthermore, having enough books and the right kinds of books is a necessary but not sufficient condition for teaching reading. Teachers need to know how to use them in their daily reading lessons, how to determine which books are appropriate for which children and for

what purpose, not to mention performing the administrative functions of managing and replenishing the books that they do have.

Table 4 reports the percentage of children in schools that have a school library, a mobile library, a classroom library or any library whatsoever (cumulative across all categories). The data are also split by primary and secondary schools and by the schools' apartheid classification. The inequalities in the provision of school libraries are particularly extreme. While 87% of children in former White primary schools have access to a school library, only 4% of children in the former Venda and Lebowa homelands are similarly resourced (there is clearly a Limpopo-specific library deficit that is currently unexplained). Although the percentage of schools with a school library may already seem low at 37%, this is likely to be an over-estimate since many libraries are not functional. The 2018 report of the National Education Infrastructure Management System (NEIMS) indicates that while 5,423 schools out of 23,471 have libraries (30%), only 3,304 were actually stocked (17%) (Department of Basic education, 2018, p. 5). Little is known about the contents of these libraries or whether they are actually used. Perhaps of greater importance are the classroom books and classroom 'reading corners' that teachers use to teach reading. The qualitative literature on this points to a severe lack of good print materials in classrooms as well as limited opportunities to handle what books do actually exist (Reeves et al, 2008; Hoadley, 2012).

Table 4 Availability of classroom and school libraries

	Historical category	All schools in sample	% of learners in schools		
			All	Primary	Secondary
Former Department	White (HOA)	167	80%	87%	69%
	Indian (HOD)	38	81%	78%	91%
	Coloured (HOR)	189	51%	52%	47%
	Urban African (DET)	535	47%	36%	64%
Former Homelands	Bophuthatswana	89	33%	28%	44%
	Ciskei	53	28%	20%	48%
	Gazankulu	32	10%	14%	0%
	KaNgwane	37	38%	37%	37%
	KwaZulu	216	19%	18%	19%
	Lebowa	155	7%	4%	11%
	Ndebele	20	35%	34%	26%
	Transkei	202	11%	13%	12%
	Venda	43	2%	4%	0%
	Other	199	34%	35%	34%
	Total % with school library	1975	37%	35%	39%
			Alternative libraries		
All schools	Total % with classroom library		26%	31%	16%
	Total % with mobile library	1975	5%	6%	3%
	Total % with any library		58%	60%	51%

Source: Department of Basic education (2014, p. 20) report on the School Monitoring Survey 2011

6.2 Managing and Mediating Books

In the South African education system there have been a number of ‘book-flood’ interventions – both by the non-profit sector and the State over the past two decades. Because none of these have ever been evaluated properly it is difficult to say if they ‘worked’ or not, or which ones were more effective than others. The closest approximation to an evaluation is the 2015-2016 Early Grade Reading Study in the North West (see Taylor N, 2018, in this volume). In this study reading materials were provided to various Foundation Phase classrooms as part of a randomized control trial. One of the treatment groups received reading materials (in addition to lesson plans and centralized teacher training). However, after two years of the intervention there was no statistically significant difference in the reading outcomes of the children in this group compared to the control group who received no resources. (Note any effect that would have been found would be an upper-bound limit of materials provision because this was a more considerable intervention than simply providing reading materials). All of this is not to say that the State should not prioritize the provision of a basic set of reading materials for all Foundation Phase classrooms, it should. However, the provision of reading materials in the absence of training and support on how to use and manage them is unlikely to accomplish much.

7 Conclusion

Throughout this chapter we have made hierarchical arguments about how children learn to read and what material and human resources they need to do so. If children have not mastered the basics of decoding in their home language by the end of Grade 1, reading for meaning or pleasure is challenging. Without a basic set of books that are used and managed effectively, one cannot teach children to read beyond a superficial level. If teachers do not possess a basic knowledge of how children learn to read and how to teach this in the classroom it is naïve to expect their learners to acquire this all-important skill. In each case a one-sided focus on the tip of the iceberg is unhelpful. Knowing that 78% of Grade 4’s cannot read for meaning in any language is important and sobering information, but probably not as helpful as knowing which components of reading children are struggling with and why teachers are struggling to teach them. Recognizing that in-service teachers do not currently teach reading well or that pre-service teachers are ill equipped is necessary information but it is more important to know why, and why this is so resistant to change. Perhaps unsurprisingly, given our hierarchical reading of the evidence, we have advocated for a focus on the basics – of how to teach, what to teach and when to teach it. If children and teachers are ‘falling at the first hurdle’ (Taylor, 1989) does it make sense to focus on the seventh or eighth hurdle and ask why learners and teachers are not making it over?

There are various reasons why so little is known about what lies beneath the surface of the comprehension iceberg. The paucity of research on the components of

reading in African languages in the Foundation Phase suggests a neglect of something that should be a national priority. Secondly, South African politicians, bureaucrats and the media continue to focus obsessively on the school-leaving matric exam. This inevitably leads to policy attention, resources and accountability pressures being channeled to high schools rather than primary schools. For example, teachers in Grades 10-12 are 36% more likely to have been visited by a curriculum advisor in the last year compared to those in Grades 1-3 (Wills, 2016). While difficult to quantify, policy attention is itself a resource. In order to garner and sustain policy attention, an ongoing, reliable metric of performance is required, as is the case with the matric exam. In light of this one should note that South Africa is almost unique in the region – and certainly among middle-income countries – to not have a provincial or national primary school exam (the Western Cape is an exception here). With the abolishment of the Annual National Assessments in 2015 - largely due to teacher union objections - there is now no objective measure of which primary schools are successfully teaching their children to read and which ones need the most support.

Staying with the hierarchical lens, one can easily see the lasting effects of early reading failure. Grade 3 reading ability predicts how well children will perform later in their schooling careers and consequently in the labour market (Lesnick et al, 2010; Hernandez, 2011). Those who do not master the code in their first three years of school face an almost insurmountable challenge as they continue their journey through school and into society. The majority of those who are left behind in Grade 4 stay behind for the rest of their lives, precluded from further learning and excluded from meaningful work.

Getting reading right is necessary not only for success at primary school but also for secondary and tertiary education, not to mention national economic prosperity. No country can succeed when half of its workforce are excluded because they have not mastered foundational numeracy and literacy skills. More importantly, it is difficult to think how one can live a truly dignified life in the 21st Century without being able to read for meaning. And those who cannot read for meaning will not read for pleasure.

The inequalities evident in the schooling system (Figure 1) and subsequently in the labour market have their roots in unequal life chances doled out at birth and consolidated through differential reading trajectories. For the vast majority of children in South Africa their life chances are determined before their 10th birthdays. While there are many reasons for this, including inadequate nutrition and early childhood stimulation, a significant contributing factor is early reading failure. Those who do not learn to master the basics of reading remain in catch-up mode for the rest of their lives. There are many tangible and specific things that can be done to avoid this – some of which have been mentioned in this chapter and others in this volume. However, ultimately the solution to the South African reading crisis will depend entirely on whether the Department of Basic Education, and the government more generally, prioritizes the universal acquisition of basic literacy above all other policy priorities.

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