

'Failing to progress' or not being supported to make progress? Examining variability in reading

**Author:**Belden Liswaniso^{1,2} **Affiliations:**

¹Department of Intermediate and Vocational Education, Faculty of Education and Human Sciences, University of Namibia, Windhoek, Namibia

²Department of Linguistics and Modern Languages, Faculty of Human Sciences, University of South Africa, Pretoria, South Africa

Corresponding author:

Belden Liswaniso, belden1333@gmail.com

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Background: By Grade 4, learners should be able to read fluently and comprehend reading materials at their grade level. However, many learners in Africa, particularly in the Namibian context, seem to go through the primary phase with poor reading skills.

Aim: This article examines the overall reading growth of Grade 5 learners, and then disaggregates performance according to grade age level and older Grade 5 learners in intervention and control schools.

Setting: Data for this study were collected from four low performing schools in the Zambezi Region of north-eastern Namibia.

Methods: Data are drawn from a quasi-experimental study in which teachers in intervention schools were provided with ongoing support over 4 months to enhance their content and pedagogical knowledge about reading, with the ultimate goal of improving Grade 5 learners' reading outcomes.

Results: While reading scores were generally low across the schools, differential effects in terms of age clearly emerged. Significant differences emerged between grade-appropriate age groups (10 and 11-year-olds) and older learners (12–16-year-olds) in all the assessments, with older learners, expected to be cognitively more mature, showing the least progress. The results also showed better progress across age groups in intervention schools than in control schools.

Conclusion: The findings indicate that explicit reading instructional practices can lead to significant gains in reading even among learners showing low reading scores in poor schooling contexts.

Contribution: This study contributes to the knowledge of the factors that influence reading progress and learning among children in low-performing schools in low socioeconomic contexts.

Keywords: reading age effects; word reading; decoding; oral reading fluency; reading comprehension; reading intervention.

Introduction

Every child deserves 'to gain at least a year's worth of learning for a year's input' (Hattie 2015:1). But do we know what a 'year's worth of learning' looks like in reading at different grades? Not all children progress at the same rate – large scale normative data on reading on oral reading fluency (ORF) rates by Hasbrouck and Tindal (2006, 2017) show large differences in performance at or below the 25th percentile compared with at or above the 75th percentile. Likewise, different levels of reading comprehension in the Progress in International Reading Literacy Study (PIRLS) (Howie et al. 2017) show clearly that many children struggle to make sense of texts even at a basic level at the Low International Benchmark of 400 – 470 points (e.g., which involves understanding literal information or making straightforward inferences) while others thrive at the Advanced Benchmark of 625+ points and can integrate ideas, perceive author stance, and interpret events more deeply.

'Failure to progress' is a phrase often used in schools or in report cards to refer to struggling children. Do these children struggle to read and/or learn because of individual learner factors (e.g., learning challenges), and/or school factors (e.g., ineffective teaching)? Schools should assess learners early to identify learners with reading challenges and try to establish whether they have learning problems (e.g., dyslexia, attention disorder) or whether they 'fail to progress' because of poor quality schooling or both. Globally, the estimates for people with dyslexia are

15% – 20% of the world population (International Dyslexia Association 2016). Children are often retained in a grade if they fail to ‘make progress’. What happens to them over time? Does repeating a grade (more time in the same grade) work, or does type and quality of instruction need to change to shift ‘failure to progress’ to ‘making steady progress’? In all schooling contexts, including poor quality schooling contexts, schools and/or teachers need to be aware of where their learners are and how much progress they make in relation to normative learning patterns, such as the fluency norms of Hasbrouck and Tindal (2017) or benchmarks recently established by Wills et al. (2022). For example, by Grade 5 average English home language readers typically read at 139 words correct per minute (wcpm), while those at the 25th percentile read around 109 wcpm (Hasbrouck & Tindal 2017). Based on a corpus of over 20000 English First Additional Language readers, Wills et al. (2022) found that Grade 5 learners should read their grade appropriate text at a rate of 90 wcpm. Learners who read below that rate perform very poorly in comprehending texts. Having such benchmarks is helpful to ascertain whether or not learners are falling behind and enables teachers to provide early support.

Traditionally, literacy has been defined ‘as the ability to read and write’ (Srivastava 2017). However, over time the meaning of the term broadened to include knowledge and meaning making in various domains (e.g., computer literacy, visual literacy, digital literacy). Reading literacy is defined by PIRLS as ‘the ability to understand and use those written language forms required by society and/or valued by the individual’ (eds. Mullis & Martin 2019:6). In reading literacy, readers can make meaning from a text in various ways, and they read for a variety of reasons, including reading for fun, to gain knowledge, to take part in reading communities at school and in daily life (Mullis & Martin 2019). This study focused on reading literacy, also referred to as reading.

In the Namibian context, the carry-over of low reading literacy from Junior Primary to Senior Secondary phase (e.g., Liswaniso 2021; Shaakumeni & Mupupa 2019) suggests that the reading instruction and support provided in schools is not effective. Despite the high enrolment rate (about 99%, UNICEF 2020), the dropout and repetition rates of primary school learners in Namibia are high. For example, in Grade 5, 7.1% of learners drop out of school and 19.4% repeat the grade (Ministry of Education, Arts and Culture 2017). Education statistics in Namibia also show that 22.4% of learners repeat Grade 4 and 28.0% repeat Grade 8, and the completion rate of primary school phase and secondary school phase is about 92.0% and 46.0%, respectively (UNICEF 2020). On average, the repetition rate in Namibian schools is 15.0% (Ministry of Education, Arts and Culture 2017). Generally, the dropout rate increases with the school phases (Ministry of Education, Arts and Culture 2017), suggesting cumulative challenges with reading to learn and academic progress. According to the *National Promotion Policy Guidance for Junior and Secondary School Phases* (2018), learners at risk of academic failure must be continuously identified early

through assessments and these learners must be given additional learning opportunities (e.g., reading support) (Ministry of Education, Arts and Culture 2018). However, there is not enough evidence on whether the necessary support is provided.

The purpose of this study was to examine how age within a grade affects the reading growth of Grade 5 learners in general and more specifically in control schools and intervention schools. This study was prompted by an interest to investigate whether older learners in a grade, who might have repeated at least one grade, perform on par with their younger peers or whether they manifest profiles of learners who struggle more with reading than their peers. There are no existing studies of this nature in the Namibian context.

Theoretical framework and literature review

It is critical for language teachers to have strong content and pedagogical knowledge about reading in order to understand their learners’ reading progress, to be able to identify which aspects of reading they struggle with, and to know how to provide early, evidence-driven remedies if necessary. This perspective aligns with the science of reading relating to how learners learn how to read and effective instructional practices (e.g., Castles, Rastle & Nation 2018; Seidenberg 2013) and will serve as a theoretical framework for this study. This section briefly describes what reading entails and looks at various factors contributing to variability in reading ability among learners.

What is reading?

Reading is a cognitive process that involves the construction of meaning from print (Lee & Spratley 2010; Pretorius & Murray 2019). The two main aspects of reading are decoding and comprehension (Pretorius & Murray 2019). Decoding is regarded as the process of identifying words in a text; this process can be slow or fast depending on the age and skill of the reader and the text being read. When learners start learning to read or in unskilled readers, decoding is slow and laborious. In skilled readers (or fluent readers), the process of identifying words is faster, more accurate and more automatised than their unskilled peers. The decoding aspect is critical in learning how to read and will be unpacked further in the next section. Beyond word recognition, skilled readers apply a number of strategies, knowledge and skills to comprehend a text, for example, vocabulary knowledge, prior knowledge, questioning, and comprehension monitoring (Duke & Pearson 2002; Lems, Miller & Soro 2017).

In the Namibian context, and elsewhere, Junior Primary phase learners (i.e., Grade 0–3) are expected to learn to read, whereas Senior Primary phase learners (i.e., Grade 4–7) are assumed to be able to read to learn. By the end of Grade 3 learners should have developed sufficient vocabulary and word recognition skills to be able to read grade appropriate materials fluently, and by Grade 5 they should be able to read

fluently and comprehend their reading materials. Reading needs to be fluent to enable successful comprehension (National Reading Panel 2000; Pretorius & Murray 2019; Pikulski & Chard 2005). Reading fluency is measured in terms of ORF where focus is on reading rate and accuracy (Hasbrouck & Tindal 2006). It is the responsibility of teachers to help all learners in Senior Primary phase achieve fluency so that they can comprehend texts and thereby use reading as a learning tool and read to learn. However, this can only be achieved if teachers have content and pedagogical content knowledge about reading (cf. Seidenberg 2013).

Factors that contribute to reading performance variability

This section discusses the internal, external (or contextual), and textual factors that influence learners' reading comprehension skills (see Liswaniso [2021] for further details).

Reader-based factors in reading

Variability in reading ability among learners can result from individual and biological factors such as decoding skills, gender, maturation or age, and reading competence in the first language (L1). A brief discussion of each of these will be given in the sections that follow.

Decoding competence

Poor competence in decoding may be because of individual reader factors (learning challenges) and/or context. In developing country contexts, poor decoding skills are usually because of contextual factors (e.g., poor teaching, low socioeconomic status, and inadequate print resources).

Accuracy and fluency in decoding free up attentional and memory constraints for reading comprehension. In the early stages of reading development, reading comprehension can barely happen if too much attention and effort goes into decoding (Castles et al. 2018; Wills et al. 2022). It is only once fluent decoding is established that other factors (such as language proficiency, vocabulary, general knowledge, text effects, etc.) account for individual differences in reading comprehension. Later in primary school (e.g., Grade 5), little progress will be made in reading if accuracy and fluency have not been established (e.g., Wang et al. 2019; Wills et al. 2022). For example, based on a sample of over 20 000 learners in English first additional language in the South African schooling context, a minimum fluency benchmark of 90 cwpm was found to be necessary for a Grade 5 learner to attain higher levels of reading comprehension (Wills et al. 2022). Teachers need to be aware of what the science of reading says to avoid the belief that if attention is paid to meaning and comprehension, then everything else will fall into place.

Differences in reading ability by gender

Research from all over the world generally seems to indicate that girls are better readers than boys (Mullis et al. 2017; Reilly Neumann & Andrews 2019; Shigwedha et al. 2017). International research appears to support the notion that

female learners perform better in reading in lower grades across countries and that this advantage can even last until high school (Reilly et al. 2019; Southern and Eastern Africa Consortium for Monitoring Educational Quality [SACMEQ] III 2010). Although gender disparities can widen over the course of education (cf. Reilly et al. 2019), some studies demonstrated that these disparities narrow or even vanish with age in high school (Völkel et al. 2016) and beyond (Solheim & Lundetræ 2018).

Maturation effect

The maturational effect postulates that as learners become older, they learn more and, as a result, perform better on tests. As Kendeou et al. (2014:12) put it, 'with age and experience, children identify a greater number and wider variety of semantic connections during reading'. This is hardly a surprise. As background information is crucial for reading comprehension, it is to be expected that older learners have had more exposure to a wider range of knowledge than their younger counterparts. Because of their increased vocabulary size, fluency, and ability to mentally visualise the scenarios depicted in texts, older learners can perform better on inferential questions than younger learners. However, the influence of maturity is moderated by other factors such as inherent learning challenges, which is reflected in grade repetition. For instance, a study by Pretorius and Stoffelsma (2017) that looked at Grade 3 learners' vocabulary in South Africa discovered that learners in Grade 3 who were 10 years old (they were older likely because of repeating a grade) knew fewer words than Grade 3 learners who were eight and nine years old (grade-appropriate ages). The older learners' weaker language background may have contributed to their poor performance on the vocabulary tests (Pretorius & Stoffelsma 2017). Learners who do not learn to read fluently in the early grades may continue with their subpar reading abilities and achieve minimal academic progress (Hernandez 2011; Wang et al. 2019).

First language competence

Competence in the learners' language can also affect reading development in both their home language (HL) and an additional or second language (L2). In the Namibian context, a HL is the dominant language spoken by learners at home (also referred to as their L1), whereas the L2 is the language that children acquire at school (English) and which becomes the language of learning and teaching (LoLT) in Grade 4. The linguistic interdependence hypothesis and the threshold theory have both been used to explain the relationship between L1 and L2 reading abilities (Cummins 1979, 2001; Liu 2010). According to the linguistic interdependence hypothesis, a learner's competence level (in reading) in English as a second language (ESL) or any L2 is somewhat influenced by his or her competence level in L1 as language (or reading) skills are transferred. On the other hand, the linguistic threshold hypothesis proposes that the transfer of L1 reading abilities to L2 requires 'a threshold level of L2 language ability' (Liu 2010:156). When learners have mastered reading in their L1, it suggests that they will be able

to transfer higher-order reading abilities to ESL once they have mastered some level of ESL proficiency. These abilities include predicting, analysing, synthesising, and inferencing.

External: Home, community and cultural factors

The development of reading abilities in learners can also be impacted by external factors. This article focuses on three of them: the socioeconomic situation, the accessibility of reading materials, and the cultural aspects.

Poverty and socioeconomic status

Studies from around the world demonstrate that socioeconomic status affects learners' achievement in reading (Dolean et al. 2019; Hernandez 2011; Mullis et al. 2012; UNICEF 2011). Learners from low-income families typically perform academically worse than their classmates from middle-income homes for a variety of reasons, including a lack of reading materials, restricted access to housing and food, inadequate early education, and limited access to healthcare (Hernandez 2011). Schools in poor areas also typically have resource constraints and may not provide quality schooling. For a child from a low socioeconomic background, a combination of all these circumstances makes it more difficult for them to learn to read in primary school. There is nothing inherently 'wrong' with learners from low socioeconomic background, and poverty itself is not a learning disability. The disparities in learning opportunities are what cause the socioeconomic gaps in performance. Since they cannot afford the better schools, learners from low socioeconomic status typically attend poor schools.

Reading materials and exposure

Having access to and exposure to reading resources such as storybooks, newspapers, and the Internet promote literacy and encourage learners to try out reading. The availability of reading resources makes it easier for learners to read and gives them the opportunity to practice reading on a regular basis. Children who enjoy reading read more often than their uninterested peers, increasing their exposure to text and tending to help them do better on reading tasks (Cunningham & Stanovich 2001; Pretorius & Murray 2019). Progress in International Reading Literacy Study uses teacher, learner, parent and principal questionnaires to gather useful information about the home, school and classroom backgrounds of the children that they assess. Large-scale evidence of the impact of access to books on reading comprehension and overall academic achievement is provided by the PIRLS cycles (PIRLS 2016, 2011 & 2006) (Mullis et al. 2007, 2012, 2017). For instance, children who participate in literacy activities and have more books at home do better on reading comprehension tests than their peers who have fewer books (Mullis et al. 2007, 2012, 2017).

Cultural values, reading cultures and reading attitudes

Culture is referred to as the 'values, traditions, and customs of a community or society' (Pretorius & Murray 2019:296). Although learners may read beyond their cultural connection

for information or relaxation, the feeling of a cultural connection to the books they read may motivate them to enjoy reading and participate in reading activities. According to Pretorius and Murray (2019), learners are less likely to read texts when they are not culturally reflective of their experiences, and as a result, they may not be inspired to read. Furthermore, learners are more likely to be inspired to read and engage in reading if their cultures place a high value on books.

School-based factors

The development of reading skills is influenced by a number of school-based factors, including time on task, instructional practices, classroom management, resource accessibility, and a school's reading culture.

To improve learners' reading abilities, schools must implement a successful reading programme. When reading is valued in schools, more time is set aside for it, and that time is used effectively for reading (Pretorius 2002). Reading time should be used to promote decoding skills (in the early grades), teach reading comprehension strategies, introduce learners to different genres, discuss texts with them, ask them a variety of questions, and demonstrate to them how texts function and how good readers construct meaning while reading. Spending time on reading instruction does not necessarily translate into good reading instruction (Pretorius & Spaul 2016). For instance, teachers might utilise the lesson to read aloud a sentence at a time and ask learners to repeat it back to them. This type of chorused mechanical activity can make up a significant chunk of 'reading time,' yet it accomplishes nothing to improve comprehension, build fluency, or teach learners how to interact with a text. To deliver successful reading instruction, teachers need to be well-trained. Effective reading instruction involves assisting learners in becoming self-regulatory, adept readers who can use a variety of strategies to understand a text (RAND Reading Study Group [RRSG] 2002).

The same reading and mathematics assessments that learners took in SACMEQ III (Hungu 2010) and IV were also administered to Grade 6 teachers. The results showed that the regions in Namibia with better-performing learners had teachers with better reading performance (Hungu 2010; Shigwedha et al. 2017). The SACMEQ results imply that competent teachers are more likely to effectively teach learners. However, unless a teacher receives training to build pedagogical content knowledge, being competent in reading does not guarantee that a person will be an effective teacher.

Because of their low literacy levels, learners with weak reading backgrounds find themselves in a negative cycle of poor reading performance and academic achievement and benefit less from reading instructions in school (Fabunmi & Folorunso 2010). High-quality instruction is necessary to improve literacy levels in contexts where learners have low literacy skills. When learners with weak reading abilities attend high-poverty schools, their reading status is less likely

to improve because those schools tend to perform poorly. There are many reasons why high-poverty schools perform poorly. Firstly, they have trouble luring qualified instructors. Secondly, parents typically have low reading skills and give their children and the schools little help. Thirdly, lower learner achievement (or low cognitive skills) has an impact on the quality of instruction provided because teachers tend to teach the basics rather than concentrating on needs for the grade level.

Schools are more likely to promote a reading culture if they have sufficient reading resources and reading programmes. Most Namibian schools, particularly those in rural areas, have understocked libraries with out-of-date literature that are unattractive to learners (Nengomasha, Utoni & Yule 2012) and the schools have a few textbooks and receive limited support from the Ministry of Education (O'Sullivan 2002). This unsupportive school environment makes it challenging to promote a culture of reading. Internationally, learners from schools with more books generally get higher reading scores than their counterparts from schools with less books (Howie et al. 2017; Mullis et al. 2012, 2017). The availability of books is a sign of a reading culture and a dedication to teaching and learning.

The reading attitudes of learners are influenced by the reading culture in their homes and schools. Schools with a reading culture give learners reading materials and engage them in reading activities. The PIRLS 2016, 2011, and 2006 cycles indicated that learners from schools with libraries performed better in terms of reading comprehension (Howie et al. 2017; Mullis et al. 2012, 2017). Libraries that are well-stocked in schools tend to entice learners to try reading new books, which helps them do better in reading comprehension and other academic disciplines. However, merely placing books in schools may not be helpful. In-service teachers must receive training on managing and using the books. Regrettably, some schools do not benefit from the reading materials provided because the books given to them are locked away somewhere and underutilised or never used (World Bank 2018). In the Namibian context, Liswaniso (2021) found that some schools with libraries did not make it easy for learners to access books and that some library books were packed in school offices where learners could not access them.

Factors based on text

Text-based factors also have an impact on reading performance variability. A text's level of difficulty or simplicity depends on a variety of factors, including its textual and linguistic characteristics, how well it corresponds with the reader's knowledge and skills, and the 'activities in which the reader is engaged' (RRSG 2002:14). The inherent factors of a text include: topic, genre, vocabulary load, complexity of linguistic structure, and discourse style. One way of determining a text's difficulty or ease is to use the Reading Ease index, which was applied in the study reported in this article. This method calculates the difficulty of a text by looking at a combination of word and sentence length and the use of

passive constructions in relation to overall length of a text, giving a rough estimate of a text's ease or difficulty.

One of the ways to determine the difficulty or ease of a text is by looking at its vocabulary profile. English words are arranged in various categories according to how frequently they appear in texts. For example, Nation and Anthony (2013) organised English vocabulary into three frequency levels: high frequency (1000–3000), mid-frequency (4000–9000), and low frequency (10000 and above). High-frequency words are common words that are often used in texts and are usually quickly acquired by learners in their early years of school, but low-frequency words are more challenging to learn because they are not frequently used in texts (Li & MacGregor 2010). Knowledge of the basic vocabulary of between 2000 and 3000 words enables learners to participate in everyday conversations (cf. Pretorius & Murray 2019). Grade 5 learners need a broad vocabulary of at least 3500 – 4000 words to understand their texts because this mid-frequency level occurs frequently in textbooks (cf. Nation 2015).

To improve the quality of teaching and learning in the educational contexts in which performance among learners seems to vary enormously, variability in performance needs to be investigated in order to make necessary pedagogic adjustments.

Research questions

This article focuses on different age groups within 'a cohort of Grade 5 learners and examines how progress in different aspects of reading manifests across age groups over a year'.

Two specific research questions are addressed:

- *Overall, how did different age groups within a Grade 5 cohort progress in word reading, fluency and reading comprehension over the course of a year, as reflected in assessments at the start and end of the school year?*
- *Did the reading intervention make a significant difference to the two age groups' reading progress compared with the control schools and, if so, how?*

Methodology

Four schools in the Zambezi Region of north-eastern Namibia provided the data for this study. The schools serve learners from Pre-Primary to Grade 9, and the majority of learners come from low socioeconomic backgrounds. For many years, the schools' academic performance has been dismal. Most of the learners' home languages (e.g., Shiyeyi, Sifwe, Subia, and Totela) lack standardised orthographic form. The learners follow an additive bilingual education programme that includes both ESL and Silozi as their L1. Neither of these languages is the HL for the majority of the learners. In Grades 1–3, the learners use Silozi as both their L1 and the LoLT, and in Grade 4, they switch to using English as their LoLT. As Grade 4 is a transition grade to English as LoLT, Grade 5 was selected for this study because learners are

expected to have developed some level of English proficiency to follow instructions in assessments.

Silozi, which has origins in Zambia's Western Province, is a lingua franca in the Zambezi region. Although most of the learners' home languages are not taught in schools, some efforts have been made to standardise the orthographic form of these languages with the intention of eventually teaching them in future (Harris 2018). Being unable to learn in their home languages is a disadvantage for the majority of learners placed in Silozi L1 and Silozi LoLT classes (UNICEF 2011).

According to the National Planning Commission (2012), the Zambezi region is one of Namibia's poorest. For four consecutive years (i.e., 2013–2016), the region has been placed at the bottom out of 14 regions in terms of Grade 12 school-leaving results. Many learners come from low-income families; they have few or no reading materials; their parents are illiterate or only partially literate and, most of the time, reading is not prioritised (Kirchner et al. 2014). As a result, it is necessary for schools to fill the gap left by the lack of or insufficient reading activities in children's homes.

Research approach

The study reported in this article was longitudinal in nature with data collected in January and again in November 2019, and the intervention itself was carried out for two school terms (over a 4-month period).

A quasi-experimental design was applied in the study. Included in this quasi-experiment were four schools (two intervention schools and two control schools). An intervention programme was conducted after the pre-test. Grade 5 learners from both the intervention and control schools were intact groups who were given pre-tests and post-tests in reading assessment.

Features of the intervention programme

The following are the main features of the reading intervention:

- The intervention involved teacher capacity building and making reading and teaching materials accessible to learners and teachers.
- The intervention teachers were provided with the *Teachers' Guide* with scripted lesson plans (e.g., Piper & Korda 2011), which was designed by the author with the support of experts and the teachers.
- Coaching was embedded into the programme in which the author acted as the coach for reading instructional practices.
- There were 32 lessons: 3 lessons meant to entice learners to read and to introduce them to different text genres, 6 ORF lessons for improving accuracy and fluency in reading, 6 for vocabulary learning strategies, and 17 for reading comprehension strategies.

Further details of the intervention are available in Liswaniso (2021). This study is part of a larger study. It should be noticed that only 20 designed lessons for the intervention instead of the 32 lessons were implemented despite fairly good fidelity to the intervention in following the lesson sequence (Liswaniso 2021). The teachers gave a few reasons for not presenting all the lessons such as attending to extracurricular activities, workshops, learner assessments, and being on leave. There were six lessons presented on supporting fluency skills, six on vocabulary strategies and eight on reading comprehension strategies. A third of the lesson plans for the intervention were not implemented, so the results should be viewed in light of the incomplete application.

The participants and sampling

Participants in this study were learners in Grade 5 from four Katima Mulilo schools. Ages of the learners ranged from 10.1 to 16.1 years, with a mean age of 11.3 years. In Namibia, learners enter Grade 1 in January of the year when they turn seven. The 10- and 11-year-olds formed the majority of the Grade 5 learners in the study, and these learners were at grade age level. In total, there were five primary schools in Katima Mulilo with Grade 5 classes, of which one school was randomly selected to participate in the pilot study. There were two intervention schools and two control schools, which were put into the treatment or control groups at random. A total of 364 learners wrote pre-tests and 353 participated in the post-tests. Because of school transfers and mortality, the number of learners decreased somewhat (from 364 to 353, an attrition rate of 3%) in the delayed post-intervention assessments. Only the test results of 306 learners (156 girls and 150 boys) who were assessed for both pre-tests and post-test are reported in order to provide accurate data about the learners' reading progress. In other words, the final data analysis excluded learners who missed an assessment or were not assessed at the beginning or end of the year because of absence from class.

Even though there were more than two Grade 5 classes in each school, only two of those classes were chosen to participate in the study and provide data. The Grade 5 A–B stream of classes was used for the class selection (i.e., Grade 5A and 5B classes were selected from each school).

Assessment instruments

There were two decoding tests (the Burt Word Reading Test [BWRT] and the ORF test) and a reading comprehension (RC) test. Because English is the LoLT in Namibian primary schools from Grade 4, all the assessments were performed in English. The instruments are briefly described below:

BWRT: This instrument was used to assess learners' decoding (i.e., word recognition ability). The BWRT is a standardised word recognition test. The test is untimed and it comprises 110 words, arranged in decreasing font size

and increasing word difficulty. The test begins with short, well-known words that are high frequency (e.g., 'to, is'), followed by words that are increasingly longer and in the mid frequency range (e.g., 'destiny, apprehend'), ending with lower frequency words (e.g., 'autobiography, melancholy'). It is intended to be administered to learners on an individual basis (one-on-one). Each learner must read the words on the card aloud (from left to right) up until the learner has misread 10 words consecutively. Using the BWRT table, the words that have been read accurately are counted and transformed into a reading age (in years and months).

ORF test: This test assesses oral fluency while reading words in context (Hasbrouck & Tindal 2006; Wright 2013). The ORF test is a contextual decoding test that complements the out-of-context (list format) word reading decoding test. In the ORF test, learners are asked to read aloud (individually) for 1 min on an unpractised grade-level prose text (Hasbrouck & Tindal 2006).

To determine whether the texts in this study were challenging or simple to read, the Flesch-Kincaid readability test was used. Given that the ORF text had a high Flesch reading ease score (of 87.3), similar to a Grade 3 text in the United States (US), it suggested that it would be quite simple for ESL learners in Grade 5 to read. Because English L2 learners develop their reading skills a little later than native speakers, the material may be appropriate for Grade 4 and Grade 5 learners in the Namibian context. The majority of the words (about 95%) in the text were high-frequency words in the 1000–2000-word range, which should be familiar to

Namibian learners by Grade 5. For further details about word frequency levels, see Nation (2015).

RC test: The RC test comprised one narrative and two information texts. The narrative and first information text were adapted from the Grade 5 National Education Evaluation and Development Unit (NEEDU) study (Pretorius & Spaull 2016). The narrative text described the traditional hunting and gathering methods employed by the San people of Southern Africa. The first information text portrayed the life of a San boy in which the nomadic life of the boy and his family is described. The second information text was a released PIRLS passage, which is available upon request, about conducting experiments to determine how small creatures such as ants, pill bugs, and worms locate food. The analysis of the text features showed that the three texts were suitable for Grade 5 learners in the Namibian context (see Liswaniso 2021).

Results

The results are first presented for overall age effects and then age effects in relation to treatment schools (control vs. intervention). As the Kolmogorov–Smirnov test showed that the data did not follow a normal distribution, non-parametric tests were applied, including the Kruskal–Wallis test, Mann–Whitney test, and the Wilcoxon test to test for significant differences.

Reading progress in Grade 5 across age groups

Table 1 provides details about the overall performance of the learners on the BWRT, ORF, and RC in terms of age groups.

TABLE 1: Overall age group performance: Burt Word Reading Test, oral reading fluency, and reading comprehension scores.

Assessment per age group	Start of year, January 2019				End of year, October 2019					
	<i>n</i>	Mean	SD	Zero scores	<i>n</i>	Mean	SD	Gains (%)	Zero scores	Effect size: Hedge's <i>g</i>
BWRT										
10	175	44.4	18.7	-	175	52.6	19.5	8.2	-	-
11	89	37.5	16.3	-	89	44.8	18.0	7.3	-	-
12	29	28.0	17.5	-	29	34.4	18.1	6.4	-	-
13–16	13	31.1	21.4	-	13	35.6	21.7	4.5	-	-
10–11	264	41.0	17.5	0	264	48.7	19.2	7.7	0	0.41
12–16	42	29.5	17.9	1	42	35.0	18.4	5.5	0	0.30
ORF										
10	175	49.7	29.0	-	175	62.1	33.3	12.4	-	-
11	89	38.5	24.2	-	89	48.2	27.8	9.7	-	-
12	29	25.0	25.0	-	29	35.1	27.7	10.1	-	-
13–16	13	33.3	27.6	-	13	42.6	31.3	9.3	-	-
10–11	264	44.1	26.3	6	264	55.1	31.7	11.0	0	0.37
12–16	42	29.1	24.4	7	42	38.8	27.8	9.7	3	0.37
RC										
10	175	20.6	12.1	-	175	29.3	15.3	8.7	-	-
11	89	15.9	8.7	-	89	21.7	11.9	5.8	-	-
12	29	12.5	7.2	-	29	17.7	11.4	5.2	-	-
13–16	13	17.0	9.9	-	13	18.0	11.6	1.0	-	-
10–11	264	18.3	11.0	0	264	25.5	14.4	7.2	0	0.56
12–16	42	14.8	7.9	1	42	17.9	11.4	3.1	0	0.31

Source: Adapted from Liswaniso, B.L., 2021, 'The design and effects of a catch-up reading intervention for Grade 5 teachers and learners in Namibia', PhD thesis, Dept. of Linguistics and Modern Languages, University of South Africa
SD, standard deviation.

The majority of Grade 5 learners (i.e., 86%) were at appropriate grade age.

Word recognition

The outcomes show that the grade age level groups (10- and 11-year-olds) performed better than the older learners in the BWRT. At face value, the 10-year-olds consistently outperformed the other age groups, and these learners show the highest improvement (8.2 points) in terms of word recognition points after the intervention. Table 1 shows the oldest learners had weak word recognition and only marginally improved (by 4.5 points), indicating that they received less benefit from schooling. These are the children that frequently repeat grades and struggle with learning. Generally, it appears that age has an impact on word recognition performance.

An independent sample Kruskal–Wallis test showed significant differences between the age groups at both the start and end of year ($\chi^2 [3, N = 305] = 9.316, p = 0.000$ and $\chi^2 [3, N = 302] = 10.814, p = 0.000$, respectively). The Kruskal–Wallis (k samples) post hoc test to test pairwise comparisons of age groups showed significant differences between the 10-year-olds and the other three age groups: 10-year-olds and 11-year-olds ($p = 0.022$); 10-year-olds and 12-year-olds ($p = 0.000$); and 10-year-olds and 13–16-year-olds ($p = 0.026$). By the end of the year, there were also noticeable differences between the same age groups: 10-year-olds and 11-year-olds ($p = 0.013$); 10-year-olds and 12-year-olds ($p = 0.000$); and 10-year-olds and 13 to 16-year-olds ($p = 0.013$).

The scores of the four age groups were then aggregated to two age groups, namely grade appropriate learners (10- and 11-year-olds) and older learners (12–16 years olds). The Mann–Whitney test for independent samples showed significant differences between word recognition scores of the two age groups at both test times: (Start: $U = 3424.000, p = 0.000$; End $U = 3745.500, p = 0.000$, respectively), indicating steadier (albeit low) reading progress of the appropriate grade age learners. As shown in Table 1, the effect size for the grade age learners is larger than the one for the older learners. The smaller the effect size, the smaller the magnitude of gain.

Oral reading fluency

Table 1 shows that the 10-year-olds scored higher and improved most (12.4 points on average) than other age groups. Overall, the learners were reading quite slowly for their grade. An independent samples Kruskal–Wallis test showed significant differences between the age groups for both start ($\chi^2 [3, N = 305] = 9.055, p = 0.000$) and end time points ($\chi^2 [3, N = 302] = 8.950, p = 0.000$). The post hoc Kruskal–Wallis (pairwise k samples) test showed significant differences at the start between the 10- and 11-year-olds ($p = 0.011$) and 10- and 12-year-olds ($p = 0.000$). The end results showed that the 10-year-olds outperformed the

11- and 12-year-olds: 10-year-olds and 11-year-olds ($p = 0.005$) and 10-year-olds and 12-year-olds ($p = 0.000$).

The Mann–Whitney test showed the appropriate grade age group (10–11-year-olds) outperformed the older learners both at the start and end of year: ($U = 3775.500, p = 0.000$ and $U = 4326.500, p = 0.000$, respectively).

Reading comprehension

Although the reading comprehension was very poor in general, Table 1 shows that at face value, the grade appropriate 10–11-year-old learners performed better than other age groups in the end of year. In both the start and the end of the year, the 10-year-old age group consistently outperformed other age groups. Although the oldest age group (13–16-year-olds) had the second highest score (17.0%) after the 10-year-olds at the start of year, they only improved by 1.0% at the end of year.

An independent samples Kruskal–Wallis test showed that there were significant differences between the four age groups for both the pre-intervention ($\chi^2 [3, N = 305] = 7.174, p = 0.000$) and the post-intervention test ($\chi^2 [3, N = 302] = 10.508, p = 0.000$). The results of a post hoc test for the Kruskal–Wallis (k samples) indicated that the pre-intervention test only showed significant differences between the 10-year-olds and the 11-year-olds ($p = 0.004$) and 12-year-olds ($p = 0.001$), suggesting that the youngest age group outperformed the older learners, except the 13–16-year-olds. At the end of year, significant differences emerged between the 10-year-olds and all the other age groups. The results were: 10-year-olds and 11-year-olds ($p = 0.000$); 10-year-olds and 12-year-olds ($p = 0.000$); and 10-year-olds and 13–16-year-olds ($p = 0.033$).

The Mann–Whitney test for independent samples revealed that there were significant differences in reading comprehension between learners of the appropriate grade-age and the older learners at the start ($U = 5350.500, p = 0.001$) and end of year ($U = 4113.000, p = 0.001$). The effect size for the grade-age learners was medium, whereas for the older learners it was small. Overall, the age appropriate learners consistently made better progress in all the reading assessments compared with the older learners, as summarised in Figure 1. The solid lines represent the grade-age learners while the dotted lines represent the older learners.

Effect of treatment groups

In relation to the second research question: 'Did the intervention make a difference in age groups' reading performance and, if so, how?', Table 2 provides details about the reading growth of the grade appropriate age groups and the older learners in the intervention group and control groups.

Word recognition

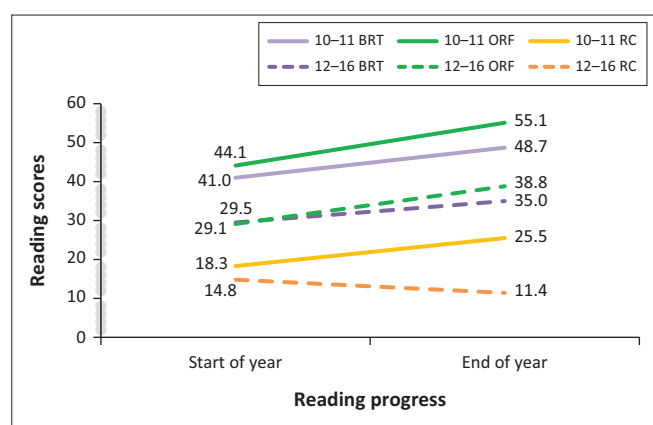
Table 2 shows that the grade age level group (10–11-year-olds) and the older learners (12–16-year-olds) for the intervention improved in word recognition by 11.8 and

7.5 mean points, respectively. In addition, the intervention age groups showed larger effect sizes than the control schools. The grade age level group and the older learners in the control group appear to have improved a little with 3.0 and 0.5 mean points, respectively despite starting relatively stronger in the pre-intervention assessment.

A Mann-Whitney test for independent samples showed no significant differences in word recognition for the grade appropriate age group in the control and intervention group at the start of the year, but at the end of the year the 10–11-year intervention group outperformed the same age control group ($U = 7823.000, p = 0.001$). At the start of the year the older learners in the control schools showed an advantage over their intervention peers with a significant difference in word recognition of

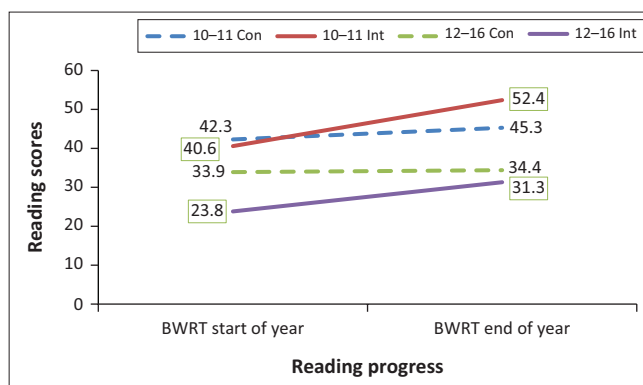
$U = 150.500, p = 0.003$, but by the end of the year this gap had narrowed (Figure 2).

The Wilcoxon matched pairs test showed that the results at the start and end of year for the grade age group and the older learners in the intervention group were statistically different from each other. The results were: 10–11-year-olds intervention group ($Z = -9.104, p = 0.000$), 10–11-year olds control group ($Z = 10.302, p = 0.000$), and older learners ($Z = -2.937, p = 0.003$). For the older learners in the control school, there was no significant difference between the results at the start and end of year, suggesting a stagnant growth in word recognition. Similarly, small to negligible effect sizes were obtained for the grade-age and older groups in the control schools (Hedge’s g of 0.18 and 0.03, respectively), while the intervention schools yielded a large effect size for the grade-age group (0.59) and a small one for the older learners (0.36).



BRT, word reading; ORF, oral reading fluency; RC, reading comprehension.

FIGURE 1: Progress in reading in age appropriate (10–11 years) and older (12–16 years) Grade 5 learners.



Con, control schools dotted line; Int, intervention schools solid line; BWRT, Burt Word Reading Test.

FIGURE 2: Changes in word recognition scores from start to end of year between age groups in control and intervention schools.

TABLE 2: Reading growth: Burt Word Reading Test, oral reading fluency, and reading comprehension scores.

Assessment per treatment	Age group (years)	Start of year, January 2019					End of year, October 2019						
		#	Mean (%)	SD	Points difference from control	Zero scores	#	Mean (%)	SD	Points difference from control	Gains (%)	Zero scores	Effect size: Hedge’s g
BWRT													
Control	10–11	141	42.3	16.0	-	0	141	45.3	16.7	-	3.0	0	0.18
	12–16	21	33.9	13.2	-	0	21	34.4	16.1	-	0.5	0	0.03
	Total	162	41.1	15.9	-	-	162	43.5	17.0	-	2.4	-	-
Intervention	10–11	123	40.6	19.0	-1.7	0	123	52.4	20.6	7.1	11.8	0	0.59
	12–16	21	23.8	20.4	-10.1	1	21	31.3	20.5	-3.1	7.5	0	0.36
	Total	144	37.7	20.2	-3.4	-	144	49.2	21.9	5.7	11.5	-	-
ORF													
Control	10–11	141	46.7	25.2	-	1	141	50.5	26.6	-	3.8	0	0.14
	12–16	21	31.8	20.7	-	1	21	33.6	23.6	-	1.8	1	0.08
	Total	162	44.5	25.1	-	-	162	47.6	26.8	-	3.1	-	-
Intervention	10–11	123	42.7	27.5	-4.0	5	123	60.8	34.4	10.3	18.1	1	0.58
	12–16	21	23.7	27.0	-8.1	6	21	34.4	31.0	0.8	10.7	1	0.36
	Total	144	39.4	28.3	-5.1	-	144	56.8	35.6	3.8	17.4	-	-
RC													
Control	10–11	141	18.7	11.5	-	0	141	23.6	13.3	-	4.9	0	0.39
	12–16	21	14.0	7.7	-	0	21	15.6	9.6	-	1.6	0	0.18
	Total	162	17.9	11.1	-	-	162	22.2	13.1	-	4.3	-	-
Intervention	10–11	123	17.6	10.3	-1.1	1	123	27.8	15.1	4.2	10.2	0	0.78
	12–16	21	12.7	8.2	-1.3	0	21	18.0	13.1	2.4	5.3	0	0.48
	Total	144	16.7	10.1	-1.2	-	144	26.4	15.1	4.2	9.7	-	-

Source: Adapted from Liswaniso, B.L., 2021, ‘The design and effects of a catch-up reading intervention for Grade 5 teachers and learners in Namibia’, PhD thesis, Dept. of Linguistics and Modern Languages, University of South Africa

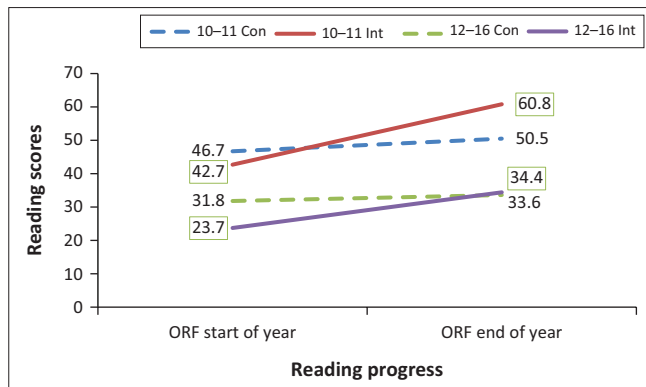
BRT, word reading; ORF, oral reading fluency; RC, reading comprehension.

Figure 2 shows flatter lines for the control age groups indicating little progress in word recognition compared with the intervention groups.

Oral reading fluency

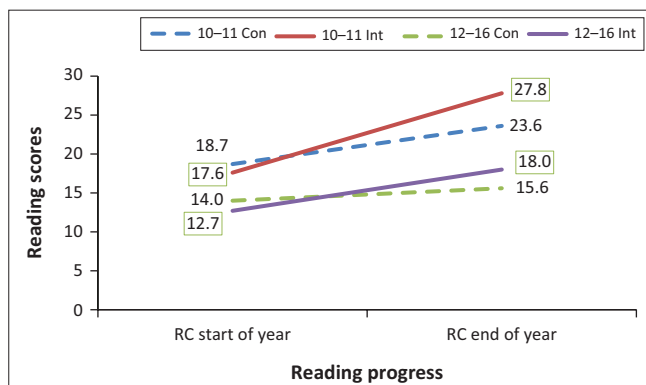
Table 2 shows that the age groups in the intervention schools improved their reading rate by more than five times that of the age groups in the control schools. This better progress for the intervention schools is also displayed in Figure 3. As in word recognition, the effect sizes for the grade-age and older groups in the control schools are negligible (g of 0.14 and 0.08, respectively), while the intervention schools show a large effect size for the same age groups (g of 0.58 and 0.36, respectively). The Mann–Whitney test for independent samples showed that the grade age level learners in the intervention group scored statistically higher at the end of year than the same age group in the control schools ($U = 8344.500, p = 0.012$). There were no significant differences between older learners at both start and end of year.

The Wilcoxon test results showed that the pre- and post-intervention results for each age group in the intervention and control group were statistically different from each other. The results were: grade age learners for the intervention ($Z = -6.215, p = 0.000$) and control ($Z = -5.303, p = 0.000$); for the older learners in the intervention ($Z = -2.201, p = 0.028$) and the control group ($Z = -2.201, p = 0.028$).



Con, control schools dotted line; Int, intervention schools solid line.

FIGURE 3: Changes in oral reading fluency scores from start to end of year between age groups in control and intervention schools.



Con, control schools dotted line; Int, intervention schools solid line; RC, reading comprehension.

FIGURE 4: Changes in reading comprehension scores from start to end of year.

Reading comprehension

As in word recognition and the ORF test, both age groups in the intervention schools showed larger mean points increase (mean gain of 10.2% and 5.3%) than the age groups in the control schools (3.8% and 1.8% mean gain). The intervention age groups also showed a larger effect size ($g = 0.78$ and $g = 0.48$) than the control age groups ($g = 0.39$ and $g = 0.18$), suggesting the intervention had a positive impact on reading comprehension development.

The grade age level learners in the intervention schools started with a lower reading comprehension score compared with the same age group in the control schools. At the end of year, the intervention group scored higher than the control group. The Mann–Whitney test for independent samples showed that the 10–11-year-olds in the intervention group scored statistically higher at the end of year ($U = 7928.500, p = 0.019$). The older learners in the intervention group started with a slightly lower comprehension base compared with the same age group in the control schools, but at the end of year, the older learners in the intervention group had a slightly better comprehension level (Figure 4).

The Wilcoxon test results showed that only the older learners in the control group did not improve significantly between the start and the end of year. The 10–11-year-olds in the intervention and control group and the older learners in the intervention schools improved their reading comprehension scores significantly ($Z = -7.224, p = 0.000$; $Z = -4.789, p = 0.000$; and $Z = -2.812, p = 0.005$, respectively).

Discussion of the results

The focus in this article is primarily on reading progress and how it manifests across age groups within a grade. After the first 3 years of schooling, it is assumed that children can read their grade appropriate materials. In Grade 5 in Namibia, very little effective reading instruction is provided. Children are seemingly left to their own devices. The results of this study show that all children, regardless of their age, can make significant reading progress (as evidenced in larger effect size for the intervention groups) by the end of year in a grade when they are given specific reading support as opposed to ‘business as usual’. It should be noticed that prior to the intervention, teachers in both the intervention and the control schools were interviewed to assess their content and pedagogical knowledge about reading (Liswaniso 2021). The interview results showed that the teachers had limited content and pedagogical knowledge about reading and its effective instructional practices; therefore, it was quite hard for them to provide necessary support to their learners.

Age groups performance

In all the tests, the 10-year-olds (and the grade age learners) consistently outperformed the older learners in both the start and the end of year (see Figure 1 to Figure 4). In this low performing schooling context, grade age children seem to bootstrap themselves to some extent and show some reading

progress during the year, more than older children in the same cohort.

The older learners' decoding abilities were much lower than those of the age appropriate learners. These older learners have trouble in reading and may have repeated grades as a result of their weak academic performance. According to Hattie (2009), learners who are retained in grades without receiving special interventions tend to continue performing badly because they receive the same instructional practices that did not help them in the previous year(s). The findings in this study support this argument. Although these learners were retained in Grade 5 to improve their performance, they still performed poorly on the BWRT, ORF, and RC both at the start of year and the end of year. This is evident in the much flatter profiles for the older learners' age group (Figure 1). These older learners in Grade 5 did not have a maturational advantage – they do not catch up to their grade age peers. Retention without remediation does not seem to benefit them, especially when it is business as usual in the school. When some reading support is provided, reading progress across the age groups increases and even the weaker older learners benefit.

Learners who do not learn how to read before they reach Grade 4 often maintain their weak reading abilities and do not make good progress in school (cf. Hernandez 2011). Only if attention is paid by the teachers to learners' needs and they spend a lot of time assisting them, will these learners' reading skills improve. Their reading difficulties should be identified in the early grades, and the appropriate assistance should then be provided before Grade 4.

Intervention effect on reading growth

Based on the mean points increase in the post-tests and inferential statistics, the intervention seems to have made a difference in the reading growth of the age groups in the intervention schools. The 10–11-year-olds in the intervention group outperformed their peers of the same age group in the control group in all the post-tests, suggesting a faster growth for the grade appropriate age group when receiving quality instructional practices. Despite the fact that the older learners in the intervention schools started with the lowest reading scores at the start of the year, the end of year results showed that they were performing slightly better than the same age group in the control schools by the end of the year (Figure 1 to Figure 4). These older learners in the intervention group made significant progress in all the reading assessments. Although both the grade age level learners and the older learners in the control group also improved their reading assessment scores, the growth was very slow compared with the age groups in the intervention schools. This suggests that 'business as usual' schools make little progress in reading development. The results demonstrate that some instructional practices are highly effective than others (e.g., Hattie 2015). The learners in this study had weak reading skills and needed a faster growth to catch up with skilled readers at their grade level. Although both age groups in the intervention schools

made significant gains in reading, the older learners started off with lower reading skills across all three aspects of reading assessed than their grade age peers and remained very poor readers, showing slower progress than their peers.

If learners find it difficult to understand what they read, even at a literal level, it is likely a sign that they are unable to decode the material they are expected to read (Pretorius & Spaul 2016). Even after the intervention, the majority of the learners' ORF was still not good enough for them to understand texts that were appropriate for their grade level. By Grade 5, they should be reading at least 90 wcpm to be able to understand what they read (Wills et al. 2022). All the intervention age groups improved, but none of them approached the benchmark of 90 wcpm proposed by Wills et al. (2022). Even though they had improved, they were still reading too slowly to properly enable reading comprehension. This suggests that interventions are needed earlier than Grade 5 to optimise reading literacy development in primary school. It might be challenging for learners to access engaging instructional materials that are on their cognitive level if they are having trouble understanding texts because of issues with word recognition or fluency (Snow 2010). Even though the intervention schools made good progress, the learners still needed a lot of help with word recognition, ORF, and RC. It should be noticed that literacy development is a continuous process that requires far more time than the two school terms allotted for this intervention.

Conclusion and implications

The purpose of this article was to examine the reading growth of grade appropriate age groups and older learners in Grade 5. This study has shown that effective interventions can boost reading progress across age groups within a cohort, even with the weaker older learners in the grade. Seemingly, the older learners need more intervention time and extra support to catch up to their peers. The older learners (or grade repeaters) can have stagnant reading growth if they are not supported to overcome their reading difficulties even if they are retained in a grade. Do these older learners have inherent reading difficult (e.g., dyslexia)? As it emerged in this study, the grade repeaters made significant gains in reading in a year (albeit not enough to catch up) when provided specific reading support. Therefore, their poor reading skills may have been caused by limited reading support.

This article seems to suggest three school-based aspects contributing to inequality in reading progress among the learners. Firstly, it seems that teachers and/or schools may not have been aware that little reading progress actually occurs when children are left to their own devices, or they may not have an understanding of how learners need to progress in reading in a year. Reading norms and benchmarks can help to give teachers an indication of how performance below benchmarks can seriously hinder reading comprehension and school learning. Secondly, teachers and/or schools may lack awareness that older learners (grade repeaters) within a grade are at high risk of reading failure. Thirdly, without

remediation activities, grade retention seems not to help at-risk learners.

As Hattie (2015:3) puts it, every child deserves 'at least a year's progress for a year's input'. The stagnant or slow reading growth in this study (particularly in the control groups) may suggest that the learners were not receiving quality instructional practices. The school leaders seem to lack a sense of urgency for the reading challenges and empowerment of teachers (cf. World Bank 2018). The following are the implications of this study:

- The results in this study showed that learner performance varies according to age and treatment factors. This finding supports Reardon, Valentino, and Shores' (2012) view that a response to the question of how well learners read must take into account differences in terms of, among other things, age, gender, and socioeconomic status. These differences in reading ability according to age indicate that teachers should pay close attention to the learning requirements of older learners who are retained in grades because they appear to perform worse than their peers. If learners are to be retained, their individual reading difficulties must be recognised, and they must get explicit scaffolded instruction that focuses on various aspects of reading.
- More effective reading instruction is urgently needed at lower grades to prevent stagnation in reading progress. Effective reading instruction entails what works for different reading abilities of learners in various classroom contexts. Accuracy and fluency in decoding has to be established early for all children for reading comprehension to happen.
- An in-service teacher training programme and ongoing support would be required to assist struggling readers in catching up. Teachers would need ongoing training and assistance rather than once-off training workshops if they were to improve their reading instructional practises and keep using effective strategies.
- A teachers' guide outlining how to teach different reading components as well as a good textbook on reading and how to teach it should be given to in-service teachers who have not yet developed enough knowledge about reading and its instructional techniques. However, merely giving teachers instructional materials and telling them how to use them will not necessarily change the current teaching and learning context (Pretorius & Knoetze 2013). These teachers require formal in-service training and ongoing professional development. As Kim et al. (2016:51) assert, 'rigorous training can change teachers' attitudes, knowledge, and instructional practices' while also enhancing learners' literacy outcomes.

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Competing interests

The author declares that they have no financial or personal relationships that may have inappropriately influenced them in writing this article.

Author's contributions

B.L. is the sole author of this article. This article and research was part of a larger doctoral study.

Ethical considerations

Ethical clearance to conduct this study was obtained from the University of South Africa Department of Linguistics and Modern Languages Research Ethics Review Committee (No. AL_BLL40_2018).

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Data availability

The data that support the findings of this study are available from the corresponding author, B.L., upon reasonable request.

Disclaimer

The views and opinions expressed in this article are those of the author and do not necessarily reflect the official policy or position of any affiliated agency of the author and the publisher.

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