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## **ASSESSMENT OF EARLY LITERACY DEVELOPMENT IN UNDER-RESOURCED COMMUNITIES IN SOUTH AFRICA**

### INTRODUCTION

International and national assessments show that a high percentage of South African children are not able to understand what they read after three years at school (Howie et al., 2017). While this points to a need to strengthen the teaching of reading and writing in the Foundation Phase, this is unlikely to be enough to solve our literacy crisis. Many children are at risk when they begin school, having missed out on vital learning opportunities in their early years. In addition to strengthening teaching in the first few years of school, improving literacy outcomes will require greater support for language and early literacy in the years before school. For the foreseeable future there will also be a need for compensatory support for those children who enter the school system having had limited early learning opportunities.

At present, there is very little or no additional support for young children who begin school unprepared for the demands of the curriculum. There is a need for creative early interventions that draw on volunteers and community members to provide additional support for children who are at risk from the early stages of their schooling. Within-school and after-school tutoring programmes at schools, libraries and community centres have enormous potential for mobilising citizens and communities to partner with teachers and play a role in supporting young children as they learn to read and write.

This chapter describes such an early literacy intervention programme, and documents the development of a tool to assess the progress of learners that participate in the programme. Both the intervention and assessment tool were developed by Wordworks, a South African non-profit organisation that focuses on early language and literacy development in the first eight years of children's lives.

### AN EARLY INTERVENTION PROGRAMME

The intervention (Ready Steady Read Write tutoring programme) was first developed in 2005, and since then approximately 20 000 children have benefited from weekly lessons through this programme. In 2016, the programme was being used by 54 schools and 21 non-profit organisations.

Wordworks trains and mentors site co-ordinators who manage and support tutors to work with pairs of children, on a weekly basis for at least six months. Many of the tutors are women who volunteer from local school communities, and no prior qualifications are required.

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The programme can be used in Grade R to build a solid language and literacy foundation and as an early intervention in Grade One. It can also be used to support Grade Two children to learn to speak, read and write in a second language. Tutors work with two children at a time, providing individual attention and the opportunity to hear and use oral and written language in a fun and supportive learning environment. Each lesson follows a structured approach that includes four steps:

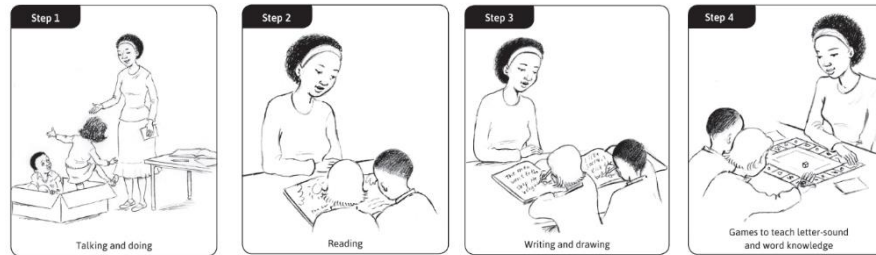


Figure 1. Four-step lesson.

#### DEVELOPING AN EARLY LITERACY ASSESSMENT TOOL

##### *Assessing early reading and writing*

In order to monitor the effectiveness of the Ready Steady Read Write Programme, there was a need for a tool to: a.) establish which children were in need of support; b.) assess children's emergent literacy levels at the start of their participation in the programme; c.) measure progress over time.

One of the challenges we face in the South African context is that there are no locally developed, normed tests to assess emergent and early literacy. Internationally developed and normed tests often have copyright constraints and many of these tests can only be administered by qualified psychologists, or remedial or speech therapists. Even tests that are developed for wider use, such as The Early Grade Reading Assessment ([www.eddataglobal.org](http://www.eddataglobal.org)), can be difficult to administer because most tasks include a timed element. Such tests are generally used in evaluation studies, and therefore under circumstances where test administrators are carefully selected, trained and monitored.

We needed an assessment tool that could be administered after limited training and did not require test administrators to have a professional qualification. The tool needed to be:

- child friendly, quick and easy to administer with simple, jargon-free instructions;
- appropriate for use in under-resourced contexts where children often begin school with limited early literacy skills;
- able to span both emergent and early literacy phases during which children transition from not being able to read and write words to being able to do so.

Wordworks undertook to develop an assessment tool that met these criteria and drew from internationally normed tests for this age group (Hannavy, 1993; Johnston, F. et al., 1998; Clay, 1993). The tool needed to include measures of early reading and writing, as well as measures of the skills and knowledge that are characteristic of emergent readers and writers and that are known to predict literacy development.

Research has shown that letter-sound knowledge and phonological awareness are two of the strongest predictors of whether children will learn to read and write successfully (Ehri, 2005; Stuart, 1995; Blachman et al., 1994). This holds true for young children from diverse linguistic backgrounds and socio-economic groups (Bowey, 1995; Chiappe et al., 2002; Duncan and Seymour, 2000). In the earliest stages of learning to read, emergent readers might initially rely heavily on picture and context cues when reading. They tend to see reading as remembering a visual sequence of letters using whatever cues are most helpful, such as word length and shape, and shapes of letters. Once children know some letters and the sounds they represent, and have an awareness of sounds in spoken words, they can start to use letters as cues to predict what words say, and to recognise words they have seen before.

The tool includes three measures of letter-sound knowledge and phonological awareness:

- A letter writing task in which children are given the following instruction: *‘Look at the ‘apple’... ‘apple’ starts with /a/.... can you write /a/; ‘fish’ starts with /f/... write /f/’*. Test administrators are reminded to say the letter sound and not the letter name.
- A task which assesses awareness of beginning sounds in words. Children are first given practice items using the following instructions: *This is a pencil... pencil starts with /p/’. This is a table.... table starts with /t/’*. The test administrator then shows the child small objects, names the objects and asks the child for the beginning sound of the word.
- A task which assesses children’s ability to blend phonemes in words has recently been included in the test. Children are first given practice items using the following instructions: *‘Listen carefully to these sounds: /c/ /a/ /t/ ... that says cat! /sh/ /o/ /p/ ... that says shop!’*. The practice examples are followed by ten test items as follows: *‘Listen carefully to these sounds and see if you can guess what word I am saying. What word is this? /s/ /u/ /n/’. (Pause for one second between sounds and don’t say the whole word!)*.


As children begin to realise that written language is in fact a representation of the sounds they hear in spoken words, they can begin to represent these sounds through invented spelling which is phonetically meaningful but not necessarily ‘correct’. Invented spelling is an important stage in the development of written language, and has also been found to be a predictor of later reading ability (Tangel and Blachman, 1995; Mann, et al., 1987). Spelling and writing subtests were designed to measure developmental progress in writing, rather than only giving credit for correct spelling.

At the beginning of Grade One, children are asked to write two words and their attempts are scored as follows:


Figure 2. Example of invented spelling.

Refuses to write (score = 0)


Draws, scribbles or writes random letters (score = 1)




First letter correct e.g. 'c' (for cat); 'b' (for butterfly) (score = 2)



More than one letter correct e.g. 'ct'; btf, bfl (score = 3)



Spelling includes vowel – 'cat'; butfli (score = 4)



Total score = score for 'cat' + score for 'butterfly'

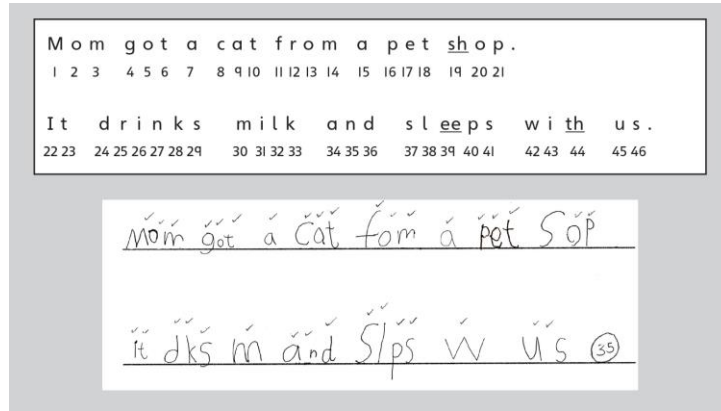
By mid-Grade One, the test includes both word and sentence level writing tasks. In the word writing task, children are required to write five CVC words (consonant-vowel-consonant) each containing a different short vowel sound. They receive a mark for each correct letter represented. Below is an example of a child's written response and the scores allocated to each word (jam, hut, fin, net, log).

Figure 3. Example of CVC spelling.

		Score here only		
		first sound	middle sound	last sound
1	 jam	✓	✓	✓ 3
2	 hat	✓		✓ 2
3	 fn	✓		✓ 2
4	 net	✓	✓	✓ 3
5	 log	✓	✓	✓ 3
Total				13

In a sentence writing (dictation) task, children get a mark for each letter represented correctly. Below is the scoring guideline for this task, as well as an example of a child's written response.

Figure 4. Example of a child's response on the sentence writing task.

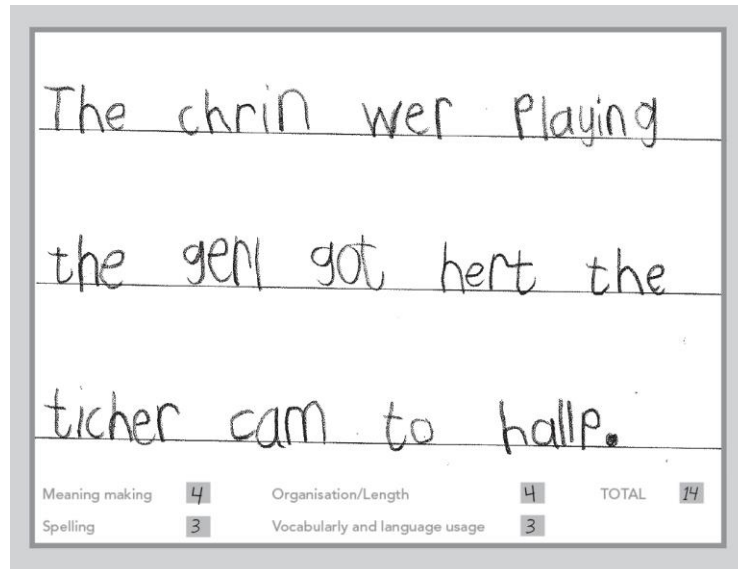


At the end of Grade One, the test also includes a free writing task as a measure of children's growing ability to express their ideas in writing, using their oral language abilities together with their emerging literacy knowledge. The following rubric was developed to score this free writing task:

Table 1. Story writing rubric

CATEGORY	1	2	3	4	5	Score
<b>Meaning making</b>	Story is impossible to understand.	Story is difficult to understand.	Story is not that easy to understand or is off-topic.	Story makes sense and is on topic.	Story makes sense, is on topic and includes relevant details.	
<b>Spelling</b>	Strings of letters that don't relate to sounds in words.	Starting to represent some sounds in words.	Some phonetic spelling that makes sense; high frequency words not all correct.	Still using phonetic spelling; high-frequency words are mostly correct.	Spelling is mostly correct; high-frequency words are spelled correctly.	
<b>Organisation /length</b>	Strings of letters or words that don't make sense.	One idea.	Two ideas.	Three or more ideas.	Three or more ideas; sequence of events.	
<b>Vocabulary and language usage</b>	Strings of letters or words that don't make sense.	Can only make sense of a few words.	Words make sense but vocabulary is limited to safe, known words.	Vocabulary is expanding; uses 1 or 2 descriptive words.	Story includes interesting words or detail to add interest.	
<b>TOTAL</b>						

Figure 5. Example of a child's written response on the free writing task.



In addition to letter writing, phonological awareness and writing tasks, the test also includes a measure of word reading. The test does not include a measure of reading comprehension or oral language, despite this being a strong focus of the intervention. The assessment should ideally be administered alongside a reading comprehension assessment, as well as tests of vocabulary knowledge and the ability to comprehend and use oral language to gain a full picture of children's growing ability to understand what they read, and to express themselves in writing.

Since it was first developed in 2013, the assessment items, instructions and scoring guidelines have been revised in response to feedback and questions that have arisen during training, administration and analysis of the assessment. The tool was initially developed in English, and has been reversioned into Afrikaans and isiXhosa.

#### ANALYSIS OF DATA FROM THE EARLY LITERACY ASSESSMENT

As described above, the Wordworks Early Literacy Assessment includes the following subtests:

Table 2. Early Literacy Assessment subtests

	Mid Grade R	End Grade R/ Begin Grade 1	Mid Grade 1	End Grade 1
Letter-sound knowledge	✓	✓	✓	✓
Invented spelling	✓	✓		
Beginning sounds	✓	✓		
Blending sounds		✓		
Spelling			✓	
Sentence writing			✓	✓
Word reading			✓	✓

Selected subtests are administered at more than one point in time, allowing for comparison over time. However, some subtests are specific to a period in a young child’s development as a reader and writer. Using some of the subtests at two points in time would have meant that there would have been a floor or ceiling effect with children either attaining very low scores on a task or achieving close to the maximum score possible. The Story writing task is only administered at one point in time at the end of Grade One.

Schools that run the Ready Steady Read Write Programme conduct assessments at specific points in the year:

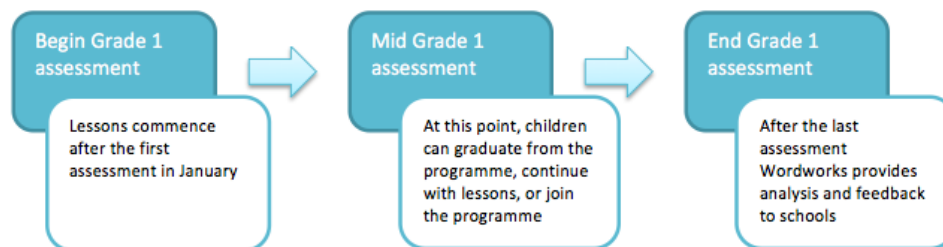


Figure 6. RSRW assessment timeline.

In order to validate the assessment tool, we looked at a sample of assessment scores from three points in time: beginning Grade One, mid-Grade One and end Grade One. The data set included 763 children<sup>1</sup> from 24 schools in Metro South Education District in the Cape Town Metro. Children in the sample were selected by their teachers on the basis that they were at risk and would benefit from additional support for language and literacy.

The analysis of the assessment scores obtained by children in this sample showed the following:

1. **The assessment appears to be relevant for the South African context, particularly for children from under-resourced communities. The subtests generally give a good distribution of scores for this population of children** (even if there might be a ceiling effect in more privileged contexts).

<sup>1</sup> Mid and end Grade 1 assessment scores were only included in analysis if the children had received at least 8 lessons prior to the mid-Grade 1 assessment, and at least 16 lessons prior to the end Grade 1 assessment.

The assessment tool appears to be useful in identifying children in need of extra support and as a diagnostic tool to identify where support is most needed. The tables below give a summary of the scores attained by children in the sample.

*Table 3. Beginning of Grade One scores (n = 627)*

	<i>Letter-sound knowledge (/26)</i>	<i>Invented spelling (/8)</i>	<i>Beginning sounds (/10)</i>
<i>Average</i>	8.44	2.12	6.72
<i>Range of scores</i>	(0-24)	(0-7)	(0-10)

These scores show that there was a range of abilities on all of the subtests. The average scores indicate that children had limited letter-sound knowledge (average score = 8.44) at the start of Grade One, and although some children were able to hear beginning sounds in words, others found this difficult (average score = 6.72). When they were asked to try to write short words, some children just drew a picture, while others were able to write a letter to represent the first sound in the word. These results are in line with other South African studies that have found that children from under-resourced communities achieve low scores on tests of phonological awareness and letter-sound knowledge, and display limited invented spelling at the start of Grade One (O’Carroll, 2011; Willenberg, 2004; Nadler-Nir, 1997).

*Table 4. Mid Grade One scores (n = 379)*

	<i>Letter-sound knowledge (/26)</i>	<i>Spelling (/15)</i>	<i>Sentence writing (/16)</i>	<i>Word reading (/20)</i>
<i>Average</i>	18.50	10.41	10.44	9.99
<i>Range of scores</i>	(0-26)	(0-15)	(0-16)	(0-20)

By mid-year, the children’s letter knowledge had improved to an average score of 18.5. According to the Curriculum and Assessment Policy Statement (CAPS), children should know all of the letters and the sounds they make by mid-Grade One (Department of Basic Education, 2011). Children were starting to use their letter-sound knowledge to spell short 3-letter words (average score of 10/15) and were able to write a short dictation sentence by representing some sounds in words, even though their spelling was still not always correct (average score: 10/16). They were able to read an average of 10/20 high frequency words. Considering that their teachers were concerned about them at the start of the year, it is encouraging that by mid-year the children appear to understand the alphabetic principle and are able to use their knowledge of letter-sound relationships to write and sound out words. This is the beginning of a self-teaching system (Share, 1995).



Table 5. End of Grade One scores (n = 200)

	<i>Letter-sound knowledge (/29)</i>	<i>Sentence writing (/42)</i>	<i>Word reading (/40)</i>	<i>Story writing (/20)</i>
<i>Average</i>	22.96	28.12	24.03	9.48
<i>Range of scores</i>	(4-29)	(0-42)	(0-40)	(4-20)

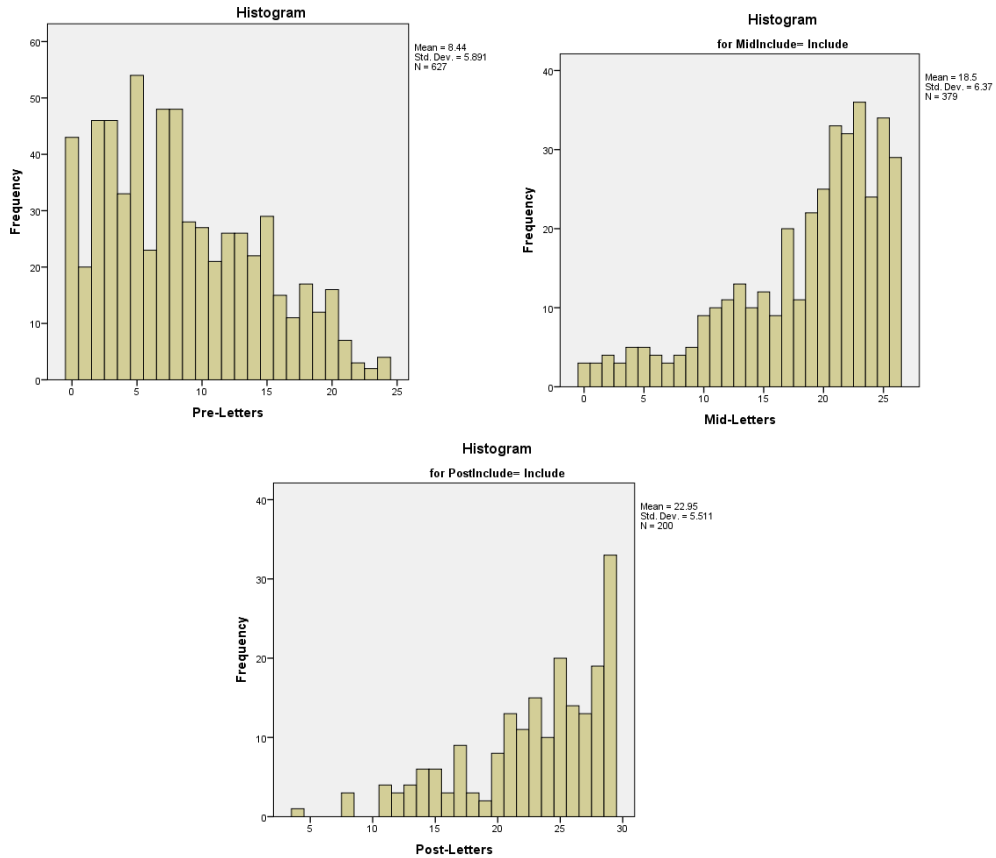
By the end of Grade One, children display a marked improvement in performance. Ceiling effects become prominent on certain subtests and the overall distribution of scores was notably skewed towards the upper range of scores for the letter-sound knowledge, sentence writing, and word reading subtests. However, all subtests still yielded a useful range of scores for this sample. On average, children were able to use their letter knowledge to represent their ideas in print, and decode basic words out of context. They were also increasingly able to recognise high frequency words that have irregular spelling in English and therefore cannot be sounded out (for example: ‘the’; ‘my’; ‘said’). The average score of 9.48 on the Story Writing task indicates that children were starting to be able to compose a written piece with one or two ideas, a storyline that could be understood, and words and phonetic spelling that made sense. Further analysis of the scores on this subtest indicated that there were a number of children who attained the minimum score for this test and were therefore not able to write a meaningful piece. The remainder of the scores displayed a roughly even distribution, indicating that the scoring rubric is a useful measure of young children’s early writing.

**2. The distribution of scores is consistent with the profile of children participating in the programme, and the subtests appear to be sensitive to differences over time.**

We anticipated low scores at the start of the year as children had been identified by their teachers as being at risk, and that scores would be higher after participation in the programme. The letter knowledge subtest provides a good example of this trend. The mean score increased from 8.44 to 18.50 to 22.96 on the same subtest<sup>2</sup>.

<sup>2</sup> In 2016, letter knowledge task had a total of 26 in the beginning and middle of Grade One, with three consonant digraphs included at the end of Grade One to give a total of 29 (sh, ch, and th).

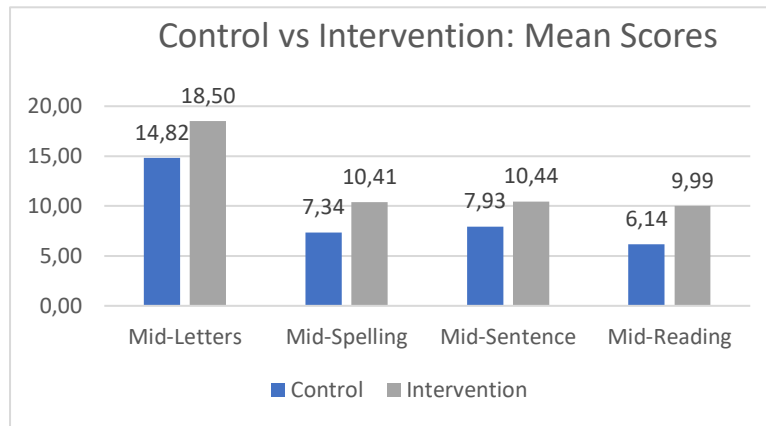
Figure 7. Histograms showing distribution of letter knowledge scores at three points in time.



**3. The data is consistent with the assumption that *at risk children who participated in the intervention from February to June are better off than at risk children who did not have support in the first half of the year.***

Data analysis shows different mid-year scores for children who started the programme mid-year relative to those who had been in the programme for six months. We expect those who start the programme mid-year to have lower scores as they have been identified by their teachers as being at risk but have not yet had any support. It would be expected that those who had already been in the programme for six months would have better scores. Specifically, on the mid-Grade One assessment, children who started the programme in February outperformed children who started in June by a substantial margin. In this analysis, children who started the programme in June, and therefore wrote the mid-Grade One assessment without any previous lessons, formed a control group against which we could compare the results of learners who had been receiving lessons since February.

Figure 8. This graph shows a comparison between the control (n=105) and intervention groups (=393) on mid-year assessment tasks<sup>3</sup>.



## CONCLUSION AND NEXT STEPS

The assessment tool appears to be a relatively easy to administer, diagnostically useful tool for assessing early literacy. Test data from a sample of learners from under-resourced schools in the Cape Town metro indicated that the tool provides a useful distribution of scores for this population, and is sensitive to change over time. The limitations of the tool include the fact that it does not include measures of oral language, reading fluency or reading comprehension.

Further work on the assessment tool could include:

- development of bench marks: what scores would be expected at different points in time according to CAPS?
- comparison of assessment scores and learner progress with school assessments and teacher rankings as a further validation of the tool.

Although the focus of this article was not on the effectiveness of the intervention, the assessment scores yield promising results that indicate positive progress over time across a range of early literacy measures. According to Systemic Tests conducted by the Western Cape Education Department, the average pass rate for Grade Three Language in the province improved from 38,9% in 2012 to 42,5% in 2016. Given the small margin of change in systemic assessment results over this four year period, it is encouraging to see that a volunteer driven tutoring programme has the potential to improve outcomes for at risk children early in their learning trajectory.

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<sup>3</sup> Analysis of a previous dataset yielded significant results ( $p < .01$ ), with the intervention group outperforming the control group by a substantial margin.

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