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TIME LEARNING BRIEF 6

# Exploring the implementation of the TIME home-learning programme and learning trajectories of 5-7 year olds

## *Learning trajectories of children exposed to TIME: Insights from early mathematics and early literacy assessments*

*This brief was written for Wordworks by Magali von Blottnitz, with input from colleagues. It can be referenced as follows: von Blottnitz, M. (2025). Exploring the implementation of the TIME home-learning programme and learning trajectories of 5-7 year olds, Brief 6, Wordworks: Cape Town.*

This is the sixth in a series of learning briefs based on a longitudinal study about the TIME programme, with fieldwork taking place in multiple Western Cape families between 2022 and 2023. The study, which is described in Learning Brief 1, explored the implementation of the TIME home-learning programme[1] and the learning trajectories of 5- to 7-year-olds. This brief unpacks the analysis of assessment data of sampled children at mid-Grade R, early Grade 1 and end of Grade 1, for mathematics and home language. A more detailed report, which presents the methodology and some in-depth data findings, can be provided on request to Wordworks.

The brief seeks to address the following questions:

- How did the literacy and mathematical skills of sampled children develop between Grade R and the end of Grade 1? In what sequence do the skills develop, at what pace and with which level of variation? Are there any noticeable differences based on characteristics such as gender or home language?
- In light of expectations or benchmarks arising from CAPS, to what extent are sampled children on track with their learning? How does their achievement compare with other studies?

This brief is descriptive in nature and does not address the question of whether, and to what extent, the TIME programme contributed to the children's learning gains – this question will be addressed in Learning Brief 7.

1 Together In My Education (TIME) is a home learning programme for Grade R and Grade 1 children and their families, developed in 2020-2021 with literacy contents coordinated by Wordworks and mathematics contents provided by RED INK. Wordworks and RED INK also developed child assessment tools for literacy (WELA) and mathematics (MELA).

# Children's mathematical skills, from Grade R to the beginning of Grade 1

## A CAVEAT ON METHODOLOGY AND STUDY LIMITATIONS

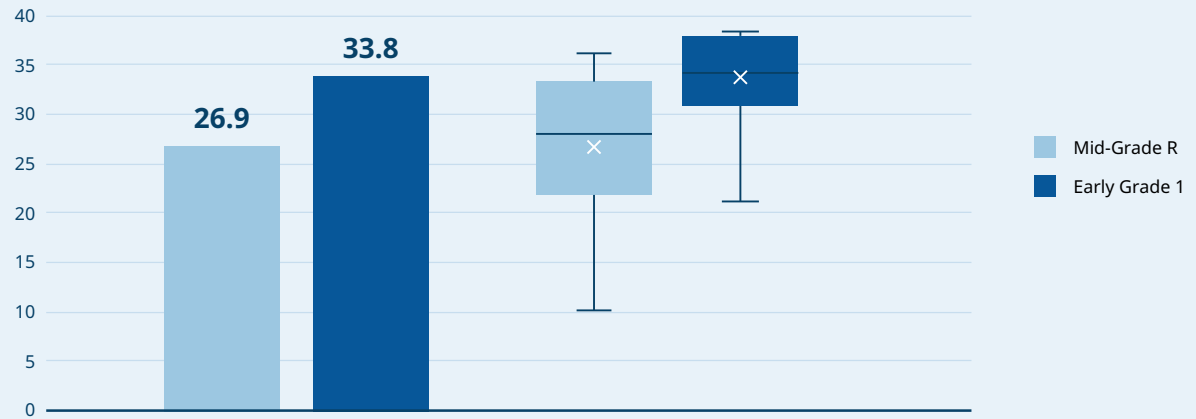
In this section, we report on the composite MELA scores obtained by the 26 children of the sample at quasi- baseline (mid-Grade R) and midline (beginning of Grade 1)[2]. Refer to Learning Brief 1 for a presentation of the sample profile and the methodology, to Learning Brief 5 for more details on the Mathematics Early Learning Assessment (MELA) or request the detailed technical report.

In the absence of a Grade 1 MELA extension, the mathematics assessments took place only on Grade R tasks. Since the midline assessment took place towards the end of Term 1 of Grade 1, a ceiling effect was inevitable and represents a limitation of this study. Another limitation is that some revisions to the MELA tasks between the quasi-baseline and the midline assessment, especially for non-numerical tasks, thus affecting comparability.

## OVERALL ACHIEVEMENT

Figure 1 shows the composite MELA scores achieved on Grade R curriculum, between mid-Grade R and early Grade 1[3].

**Figure 1 – The MELA composite score, Grade R and early Grade 1: mean score (left) and score dispersion (right)**




As the column chart shows, on average, children in the study sample achieved a composite score of 26.9/40 (67%) at mid-Grade R, and 33.8/40 (85%) at the beginning of Grade 1. Note that both graphs refer to acquisition of the **Grade R curriculum** – which was not yet fully achieved at the beginning of Grade 1.

The box-and-whiskers diagram shows the dispersion or range of scores observed across the sample at both assessment intervals. The "boxes" (coloured rectangles) represent the central half of the sample; these children progressed from scoring 22-33 /40 (Grade R) to 31-38 /40 (early Grade 1). At both intervals, the lower whisker, which represents the scores achieved by the weaker quarter of the sample, is relatively long, indicating that the weakest children are falling far behind the middle group. The short upper whisker, especially at the Grade 1 interval, is caused by the ceiling effect of administering a Grade R assessment to Grade 1 children.

2 We use the term 'quasi-baseline' here because a true baseline would have needed to take place at the beginning of Grade R, which has not been practically possible. The MELA assessment was only developed for Grade R and was therefore not suited for administration at endline (end of Grade 1). This is explained in greater detail in Learning Brief 5.

3 Note that the Early Grade 1 scores are intended as a delayed test of Grade R competence rather than testing Grade 1 achievement.

## LINK WITH CHILD CHARACTERISTICS

Figure 2 illustrates the main differences observed in the sample. Importantly, these results are not generalisable, since the sample was not statistically representative.

- A moderate gender gap of 6-8% in favour of girls – consistent with a finding from the TIMMS 2023 results, that the mathematics gender gap among South African children is in favour of girls.
- A very slight advantage of fee-paying schools over no-fee schools (less than 5%), reflecting a well-known link between achievement and socio-economic status.
- A higher achievement in the isiXhosa and English language groups, than the Afrikaans group. The lower performance of children attending Afrikaans schools has been observed elsewhere, e.g. in the Roots & Shoots study (Hofmeyr & Qvist, 2025).
- Interestingly, the Xhosa and English groups achieved similar total MELA scores, but different scores per task. For example, the mean scores of Xhosa children were better in contextual word problems, grouping and sharing but lower in tasks that required the use of specific mathematical words, like oral counting, shapes and positions. (See longer report for this detailed analysis).

## DOMAIN SCORES AND DESCRIPTION OF SKILLS

As Figure 3 shows, the domains of counting and adding & subtracting were the ones with the highest mean achievement at both intervals. Scores were lower in the other two domains (advanced numeracy and non-numerical mathematics).

In order to give the reader a tangible sense of the children's ability, the descriptions below unpack for each normed score what children were actually achieving.

### Counting and number sense

At **quasi-baseline** (middle of Grade R), counting and knowledge of two-digit numbers was still developing for most of the children. On average, they could recite numbers up to 15 and could count objects up to 17; only a minority of them (40%) could count backward from 10. English-LOLT children were performing markedly better in this task than children from other language backgrounds.

By **midline** (Term 1 of Grade 1), most of the children in the sample mastered these tasks. 84% of them could count to 20 and 88% could count backward from 10, as well as count 20 counters. Afrikaans- and isiXhosa-LOLT children still scored slightly lower than English-LOLT children. Due to the ceiling effect of the Grade R task, it is not possible to indicate up to which number the children would have been able to count.

**Figure 2 – Mean MELA composite score depending on child and school characteristics**

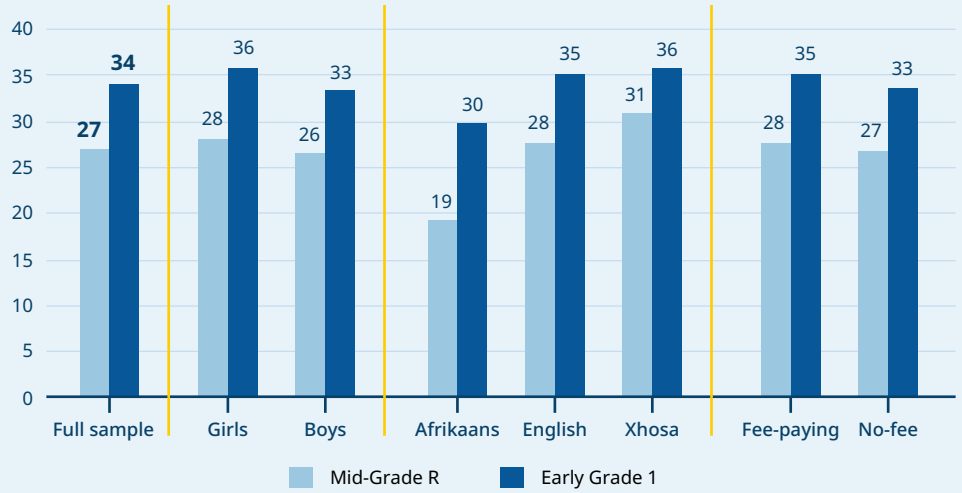
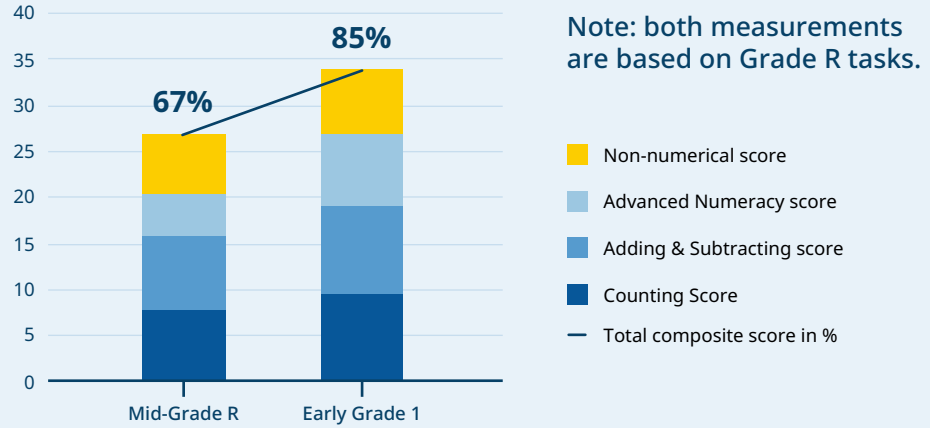



**Figure 3 – Average MELA composite score with breakdown by domain, mid-Grade R to early Grade 1**



## Adding and subtracting

At **quasi-baseline**, most children were able to perform simple one-digit additions with the support of counters (88%) and pictures (80%). The task of subtracting with pictures posed a slightly bigger challenge but was achieved by 64% of children.

By **midline**, nearly all in the sample mastered one-digit additions and subtractions with counters or pictures, again with a slight challenge for subtraction with pictures (achieved by 88%).

## Advanced numeracy tasks

At **quasi-baseline**, advanced numeracy was the domain with the lowest average score (4.7/10). Children found it challenging to perform tasks related to grouping and sharing or to resolve word problems. Only 36% of the sample resolved all three word-problems correctly. For those tasks, isiXhosa-LOLT children performed markedly better than those in English or Afrikaans schools.

By **midline**, the children had improved remarkably, achieving a normed score of 7.7. Children scored an average of 71% in grouping and sharing tasks and 77% for word problems. However, the score dispersion in this domain was high at both assessment intervals.

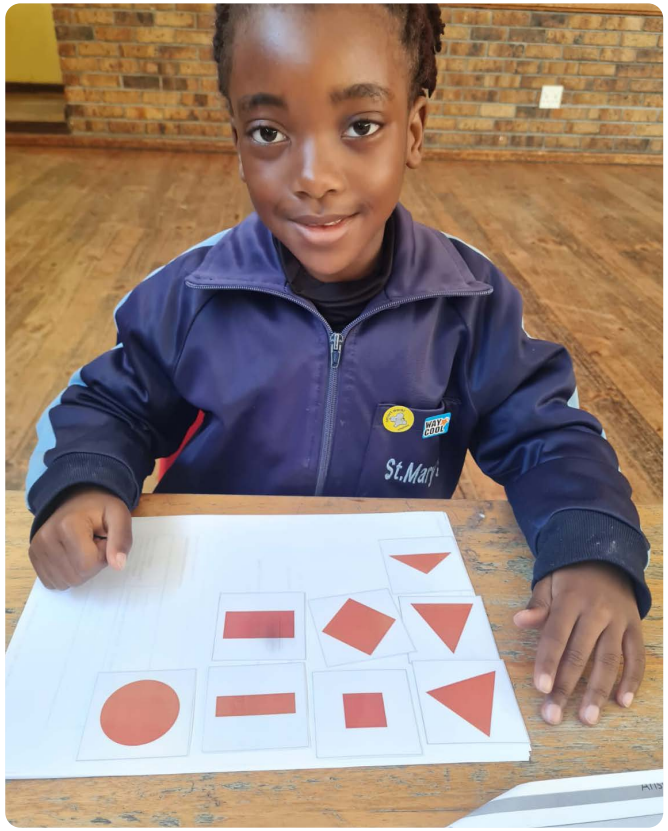
## Non-numerical mathematics

Due to a change in the task instructions between the two assessments, it is difficult to establish conclusively to what degree the children have improved.

At **quasi-baseline**, nearly all children could reproduce and extend a pattern and 78% could create their own pattern with colour counters. However, many lacked confidence in recognising, naming and sorting shapes. Their knowledge of position words was limited to the simplest ones (on top, under, in), and 42% of children were unable to sort strips from the shortest to the longest.

By **midline**, the children could name correctly three of the four shapes on average. However, they were still struggling with position words and there was still a substantial fraction of children (36%) who couldn't sort the strips.

**Figure 4 – Some Grade R children engaging with mathematical tasks**



**Above:** Children performing tasks related to sorting shapes, counting and reproducing patterns.

## CHILDREN'S SCORES IN COMPARISON TO CAPS EXPECTATIONS OR TO OTHER STUDIES

The CAPS expectations for Grade R (Department of Basic Education, 2011) offer a useful reference to gauge the sample children's achievement – with the caveat that they refer to the end of the Grade R year. As for other South African studies, there are very few that provide comparable data. For example, the Marko-D assessment tools applied by Fritz et al (2022) to 602 Gauteng Grade 1 learners, do not compare easily with the MELA framework. In a study by Spaull et al (2022), children from the Eastern Cape and Limpopo were assessed towards the end of the year, using the EGMA and the Junior EGMA Hybrid. Although the difference in tools limits comparability, we present in Table 1 below their findings juxtaposed with the closest result from our sample.

Looking at the scores in the various groups of tasks, it appears that:

- **Basic number-related tasks, patterns and geometry do not raise major concerns.** The sample's mean score in these groups of tasks went from well over 60% at mid-Grade R to around 90% at the start of Grade 1.

  As Table 1 shows, in Grade 1 the TIME sample children were far more comfortable with counting tasks than children studied by Spaull et al., 2022.

- **In grouping and sharing, word problems, positions and measurement, many children were falling behind CAPS expectations.** The sample's mean score for those tasks ranged from 47% to 60% in mid-Grade R, and remained below expectations in the 70-80% range at the start of Grade 1, meaning that a sizeable number of children had not yet acquired the Grade R competencies. This learning gap may be caused by language difficulties or by content and methodology used by the teachers.

  Nevertheless, as Table 1 shows, their backlog with word problems was significantly more contained than what Spaull et al (2002) found in their Grade 1 samples[4].

**Table 1 – Mathematics achievement in comparison: TIME study vs. Spaull et al. (2022)**

| | **TIME Study** *(Western Cape, using MELA Grade R Tasks)* | | **Spaull et al., 2022** *(Eastern Cape & Limpopo, using EGMA/Junior EGMA Hybrid)* |
|---|---|---|---|
| | **Term 3 of Grade R** | **Term 1 of Grade 1** | **Term 3 or 4 of Grade 1** |
| **Counting** | **48%** of learners could count forward to 20<br>**40%** of learners could count backward from 10 to 1 | **84%** of learners could count forward to 20<br>**88%** of learners could count backward from 10 to 1 | **68%** of learners can count forward to 20<br>**39%** of learners can count backward from 10 to 1 |
| **Word problems** | **47%** of learners, on average, scored in a task with word problems involving addition and subtraction | **77%** of learners, on average, scored in a task with word problems involving addition and subtraction | **40%** of learners, on average, scored in a task involving word sums. |

4 The following three caveats apply when comparing TIME Study scores with the Spaull et al. study: (1) Different assessment methodologies used affect comparability. (2) Differences in background (urban/rural split, socio-economic context, linguistic groups) contribute largely to the differences in achievement. (3) The different inputs received prior to the Grade 1 year, both in the classroom and at home, are also likely to have influenced these results. Some of the learners in the Spaull et al. study may not have had access to Grade R.

# The development of children's language and literacy skills, from mid-Grade R to the end of Grade 1

## A NOTE ON THE VARIABLE SCOPE OF THE WELA ASSESSMENT

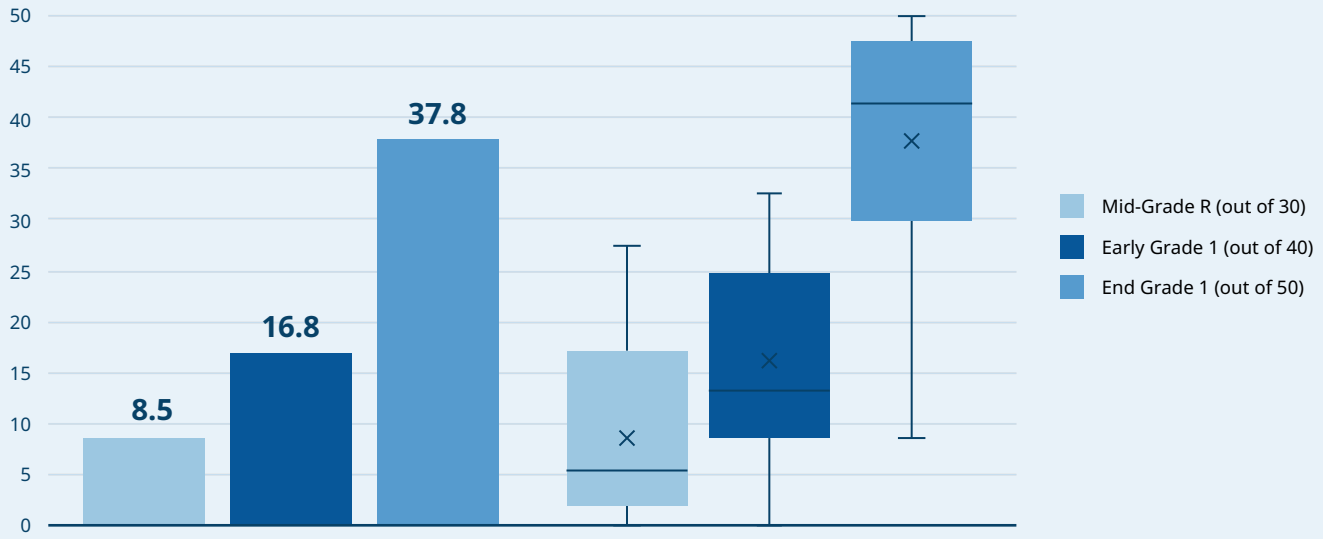
This section reports on the scores achieved by children in the three rounds of language and literacy assessments, using the WELA (Wordworks Early Literacy Assessment) tool. Children were assessed at mid-Grade R (quasi-baseline), beginning of Grade 1 (midline) and end of Grade 1 (endline).

Unlike the MELA tool, the WELA is designed as a single set of tasks spanning from mid-Gr. R to end-Gr. 1, whereby the assessment scope varies according to the ability of the child: as a child's knowledge of letters and ability to read and write progresses, they will qualify for more advanced tasks. Therefore, two factors cause the WELA composite score to increase over time: the child's improvement in specific repeated tasks and the growing scope of the assessment. See Learning Brief 5 for more information on the WELA.

## OVERALL ACHIEVEMENT

Figure 5 shows the improvement of the composite WELA score achievement between mid-Grade R and end of Grade 1. The steep increase of the mean score (from 8.5 to 37.8) is a combined consequence of improved performance in individual tasks, and addition of new tasks as the children's skillset expands, hence the different scales for each assessment interval.

**Figure 5 – The WELA composite score, Grade R to end Grade 1: mean score (left) and score dispersion (right)**




The box-and-whiskers diagram illustrates the clear growth of the majority of children over the period (boxes move 'up' and closer to the applicable maximum). The long lower whisker at the end of Grade 1 indicates that some weak learners remain far behind the middle group. The shortening of the upper whisker is a result of the WELA tool's calibration (increasing ceiling effect).

## LINK WITH CHILD CHARACTERISTICS

Figure 6 illustrates the differences in achievement observed in our sample, which are similar to the trends observed in mathematics. Again the observations from this small, non-representative sample are not generalisable to the greater population – but they are consistent with findings in the literature.

- The gender gap is in favour of girls; it is initially relatively high (18%) and narrows down to 6% by endline
- Low-fee schools achieved performed moderately better than no-fee schools (6-11% at quasi-baseline and endline).
- The isiXhosa and English language groups achieved higher scores than the Afrikaans group.

## DOMAIN SCORES AND DESCRIPTION OF SKILLS

Figure 7 below shows the breakdown of composite scores by domain. The WELA scores reveal that most children in the sample have grown all their literacy skills quite remarkably over the period.

To give the reader a more tangible sense of the children's actual level of skill, we unpack each normed domain score below to describe what children were able to perform at each assessment interval.

### Letter knowledge

Over the period, the children's knowledge of letters (i.e. ability to write the letter corresponding to a given sound) improved from a median of 3 letters at quasi-baseline to 17.5 letters at midline and 25 at endline. Their tendency to write reversed or capital letters also improved over the period.

### Phonological awareness

- At quasi-baseline, most of the children in the Xhosa group and half of the children in the English group were already comfortable with beginning sounds in words, while most of the Afrikaans children were struggling with it. Barring a few exceptions, blending (combining individual sounds to make a word) was out of reach of the children.
- At midline, most children were fully comfortable with beginning sounds. They were also progressing with blending, with a median score of 50%.
- At endline, children had fully acquired the beginning sounds and most of them were able to blend sounds. Only 5 children (18% of the sample) still scored at or below 60% in the blending task.

**Figure 6 – The WELA composite score, Grade R to end Grade 1: mean score by child and school characteristic**

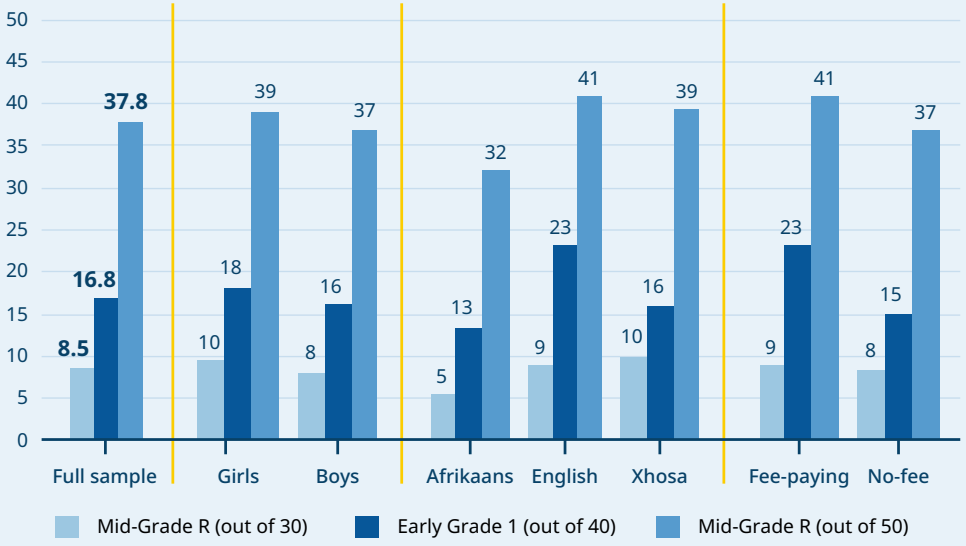
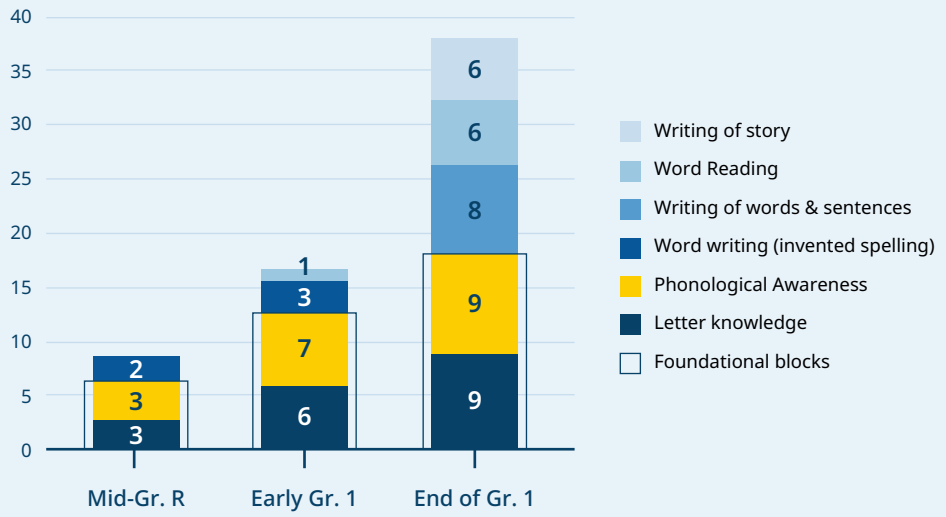



**Figure 7 – Average WELA domain scores of TIME study children, mid-Grade R to end of Grade 1**



## Writing (words, sentences, story)

- At quasi-baseline, the top 30% of the sample (those with a more advanced knowledge of the alphabet and phonological awareness) were already having a go at representing sounds in written words (e.g. inventing a spelling for the word 'cat/kat/ikati' and the word 'butterfly/ spinnekop/ ifolokhwe').
- At midline, half of the sample had progressed enough to qualify for the word-writing task, and among those who did, the median score was over 50%. Interestingly, some of the more advanced children, who had been confident enough to have-a-go writing in Grade R, refused to do the writing task at midline, possibly because of their increased awareness of the risk of spelling mistakes.
- At endline, the writing of words was mostly very easy for the children, except for a few whose letter knowledge was still weak. Most children were able to write a simple dictated sentence; in the more difficult sentence, scores varied but generally exceeded 50% except for the Afrikaans group. With the encouragement of the assessors, most children could apply their literacy skills to express their ideas in written stories, which were of variable quality.

## Reading of words

- Reading high-frequency words was beyond reach of children at quasi-baseline, except for one child who scored 32%.
- By midline, although half of the sample qualified for the word-reading task, most of them still found it difficult, with a median score of 5% among those who qualified.
- At endline, the majority of children were able to read at least some high-frequency words. However, 35% of the sample scored below 50% in this word-reading task.

**Figure 8 – Samples of writing tasks: letter-writing and word-writing (mid-Grade R)**

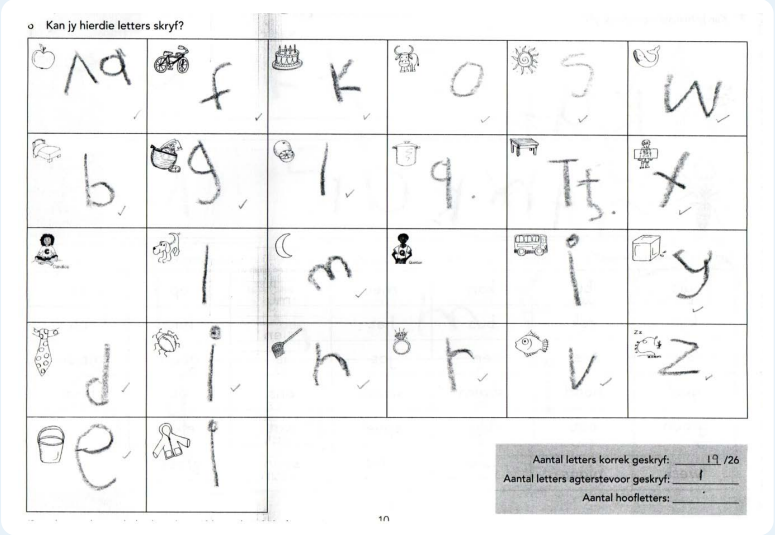
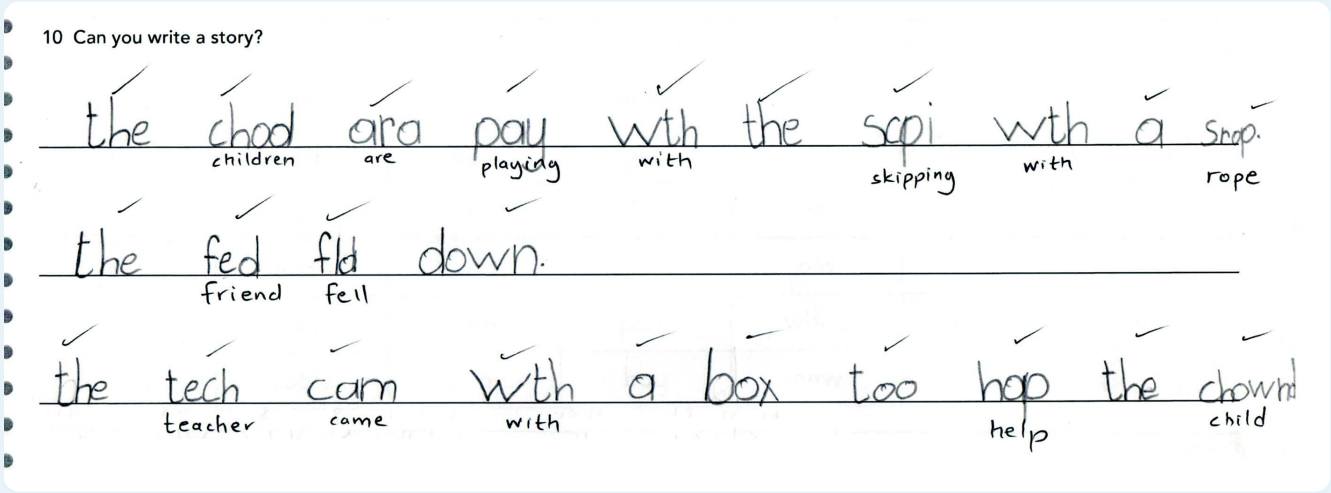



**Figure 9 – Samples of writing tasks: story writing (End of Grade 1)**




**Top left:** samples of Grade R learners' letter-writing task.

**Top right:** The word-writing task is in isiXhosa, the correct words being 'ikati' (cat) and 'ifolokhwe' (fork).

**Above:** sample of a Grade 1 learner's story-writing task

## COMPARING TO OTHER STUDIES

To put our sample's test scores into perspective, we have again juxtaposed the TIME sample's achievement in some key domains with the results from previous South African studies, although those studies used different assessment tools. As for mathematics, the comparison suggests that at the start of Grade 1, the children in the TIME sample were performing at a much stronger level than those from other recent South African studies, which took place in more rural provinces[5].

**Table 2 – Language and literacy achievement of the TIME study children, compared with previous studies**

| | **TIME Study** *(Western Cape, using WELA)* | | **Previous studies** *(Using tests taken from the EGRA)* | |
|---|---|---|---|---|
| | **Term 3 of Grade R** | **Term 1 of Grade 1** | **Term 1 of Grade 1** | |
| **Letter-sound knowledge** | Based on the full sample of 37 learners (pre-attrition):<br>• 6 learners **(16%)** had **no letter-sound knowledge**<br>• 22 of the 37 learners **(59%)** wrote at least 2 letters correctly<br>• Mean score was **5.5** letters correct | • The lowest score was **2** letters correct and 1 reversed.<br>• 20 of the 25 learners **(80%)** wrote at least 6 letters correctly<br>• Mean score was **15.3** letters correct | SMRS Impact Study: (Limpopo, Mpumalanga and North West)<br>• **65%** of learners had **no letter-sound knowledge**<br>• Mean letter knowledge was **1.75** letters correct<br>*(Piper, 2009, p. 7)* | In Funda Wande & EGRS data, the following proportion of children had **no letter-sound knowledge**:<br>• Eastern Cape: **51%** of learners<br>• North West: **42%** of learners<br>*(Wills, Ardington & Sebaeng 2022, p. 46)* |
| **Phonemic awareness: initial sounds** | • 8 of the 37 learners **(21%)** scored 0<br>• Mean score was **59%** (5.9 of 10 sounds correct) | • 18 of the 25 learners **(72%)** could identify at least 9 of the 10 sounds<br>• Mean score was **90%** (9 sounds correct) | Eastern Cape sample:<br>• **49%** of learners scored zero<br>• Mean score was **37%**<br>*(Wills et al. 2022, p. 44)* | Mpumalanga sample:<br>• **68%** of learners scored zero<br>• Mean score was **18%** |
| **Listening comprehension** | On a task with 5 questions asked:<br>• Mean score was **65%** | On a task with 5 questions asked:<br>• Mean score was **92%** | On a task with 5 questions asked, the mean score was:<br>• Eastern Cape sample: **53%**<br>• Mpumalanga sample: **55%**<br>*(Wills et al. 2022, p. 44)* | |

5 The same caveats apply to the comparison as for mathematics: (1) different assessment methodologies used, (2) wide differences in the children's background (urban/rural split, socio-economic context, linguistic groups) and (3) different inputs received prior to the Grade 1 year, both in the classroom and at home.

## BENCHMARKING CHILDREN'S SCORES

Learning Brief 5 describes how, in the absence of a large, representative body of scores for psychometric analysis, WELA benchmarks were derived from CAPS expectations for Grade R and Grade 1 and likely learning trajectories. On-track cut-off values are 6/30 at the middle of Grade R, 12/40 at the beginning of Grade 1 and 37.5/50 by the end of Grade 1.

Figure 10 shows the sample's median scores against these benchmarks – it suggests that the average child was almost at the on-track cut-off at quasi-baseline, then exceeded the mark at midline and endline.

Figure 11 shows how the sample's 26 children improved over time against the performance bands, from those at risk to those who exceed the expectations. 62% were below the on-track cut-off at quasi-baseline, with 7 of them classified *at risk* due to their low scores on basic tasks. From midline, the proportion of children *on track* or above grew, and only 4 of the 26 sampled children were still at risk at the end of Grade 1.

**Figure 10 – Median WELA composite scores of TIME study children vs "on-track" cut-offs.**

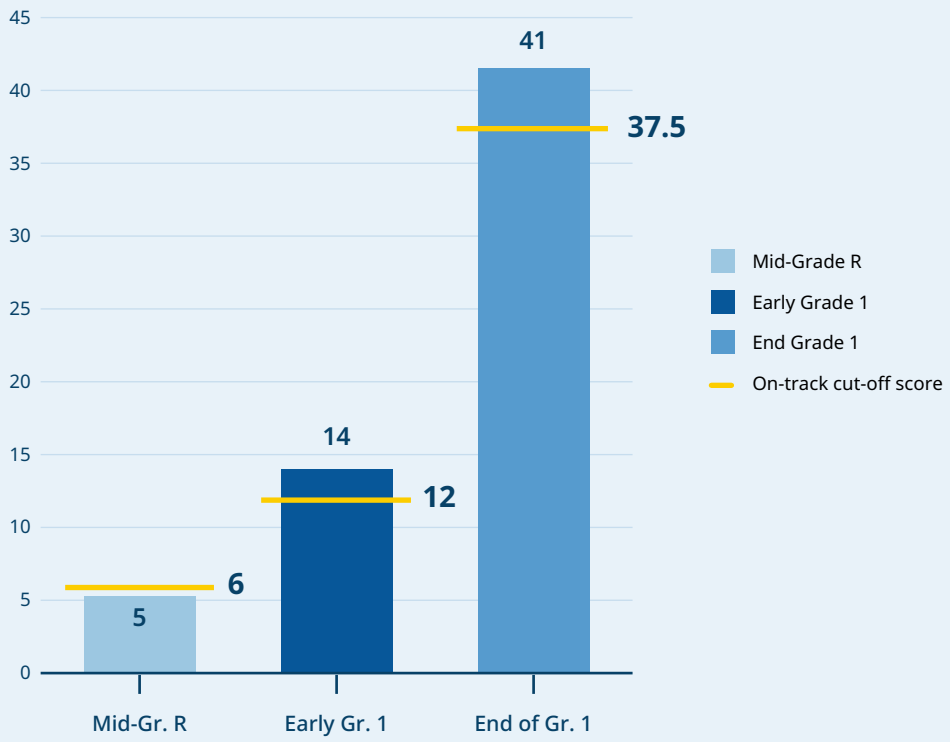
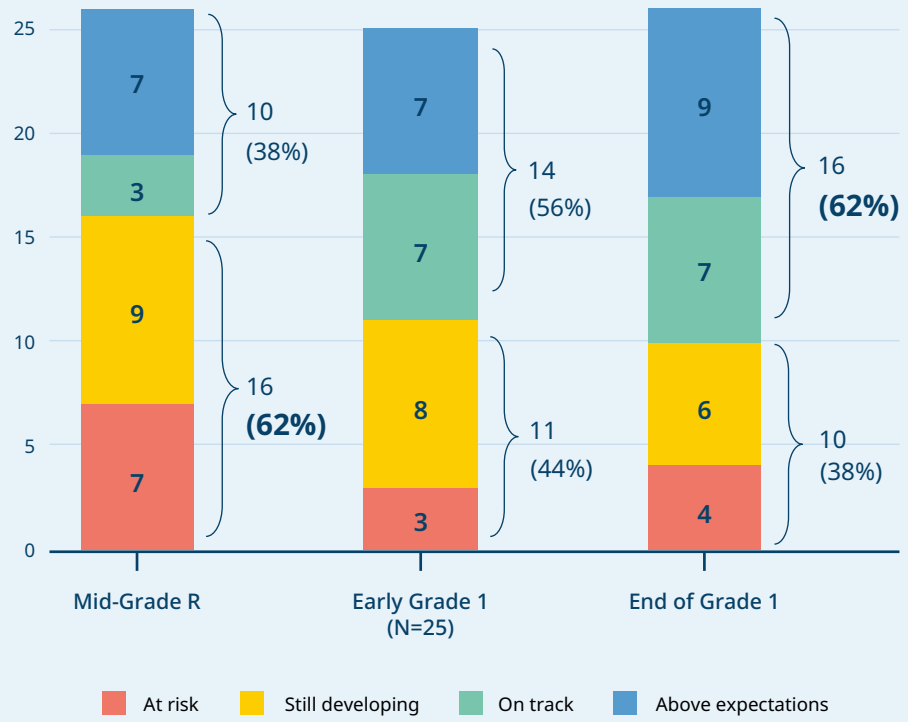



**Figure 11 – Distribution of TIME Study children into performance bands according to WELA benchmarks**



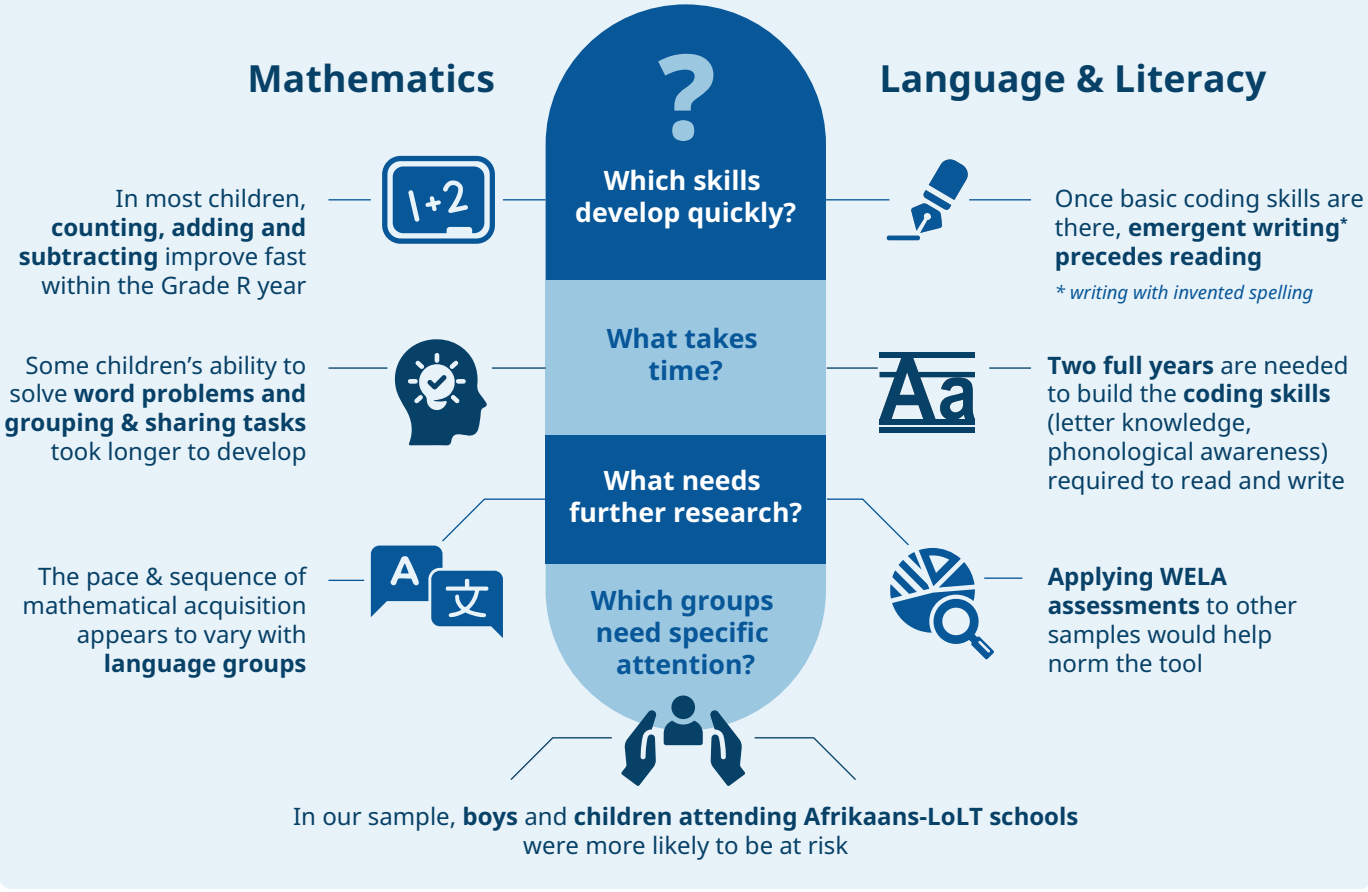
# Children's learning trajectories: findings and reflections

To conclude this learning brief, we summarise below the key insights which the MELA and WELA evidence has provided and consider the learning trajectories of children.

## ACQUISITION OF EARLY SKILLS: SEQUENCING, PACE AND VARIABILITY

The key findings regarding the acquisition of early mathematical and literacy skills are summarised in Figure 12.

**Figure 12 – Key findings from studying the WELA and MELA scores of the sample**




### Mathematics:

Not surprisingly, oral counting and simple addition and subtraction supported by concrete and semi-concrete resources develop before more advanced skills such as grouping and sharing or the ability to resolve word problems. The MELA data also suggested the following observations:

- The skills pertaining to counting, adding and subtracting have improved rapidly between the middle of Grade R and the beginning of Grade 1.
- Many children did not become fully comfortable with solving word problems and specifically, with grouping and sharing during the Grade R year; the data available was insufficient to establish the reasons for this.
- **isiXhosa-LoLT children** in the TIME study sample mastered **advanced mathematical tasks** sooner than the other language groups, but were outperformed by English-LoLT children in **tasks involving specific vocabulary (oral counting, shapes and positions)**. This may be a consequence of their exposure to mathematical words in more than one language. This topic would deserve further research on a larger sample.

### Literacy:

- After oral language and basic fine motor skills, **letter knowledge** and **phonological awareness** are critical competencies for further acquisition of reading and writing.
- If encouraged accordingly, **the ability to write words** (with invented spelling) **precedes the ability to read words**. Identifying and transcribing the sounds in a word is a very effective way of practising the alphabetic principle; as long as the adult encourages the child's attempts regardless of spelling, this type of task seems to create a bridge towards reading.

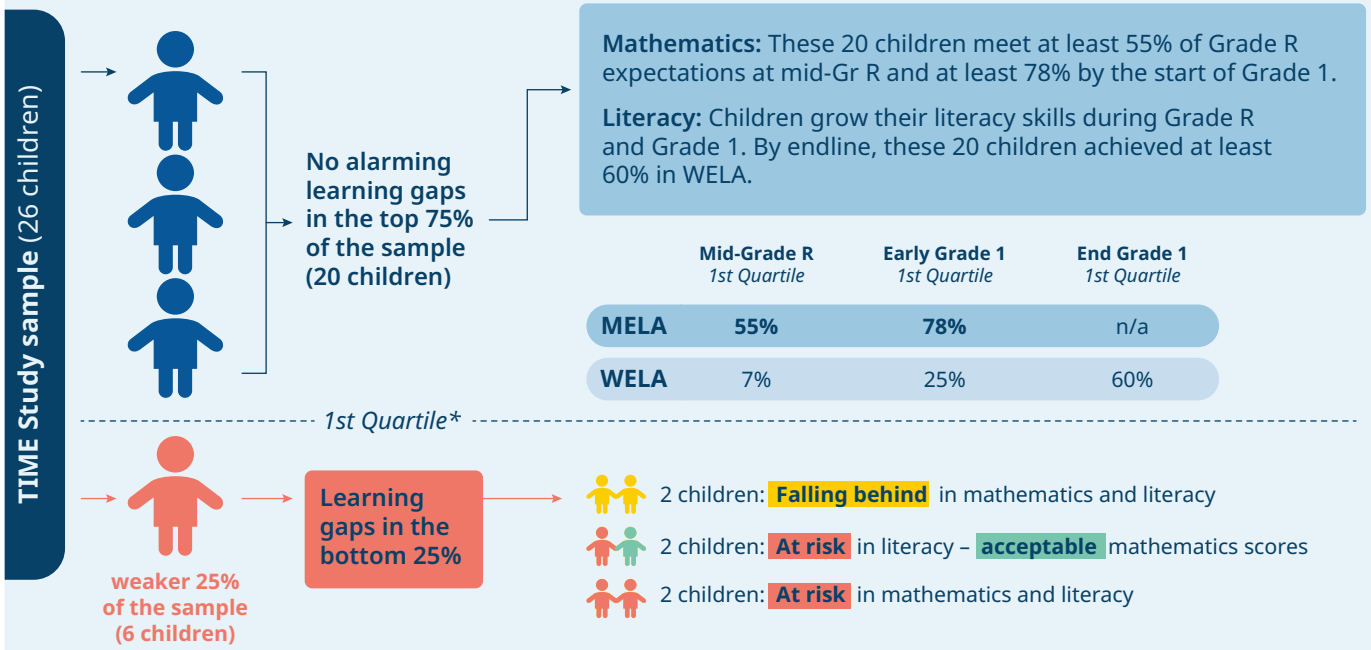
- In language and literacy, the WELA data shows that **the two years of Grade R and Grade 1 are required** for a child to acquire the coding skills required to progress in their reading and writing. With a foundation of letter-sound knowledge and phonological awareness, the children's writing evolves from basic invented spelling to more systematic representation of sounds in words to more advanced writing tasks such as the writing of a story. Their word-reading skills are slower to develop, with considerable gaps at the end of Grade 1 between the faster learners and the slower ones.
- Although generalisations are not possible due to the non-representative sample, the data hints at a **moderate gender gap** in favour of girls (with girls' scores being 6 to 8% above boys' scores for mathematics, and 6 to 18% in language and literacy) and a moderate advantage of low-fee schools to no-fee schools. On average Afrikaans -LoLT children achieved lower scores than the other groups at all intervals.

## ARE CHILDREN DOING TIME ON TRACK? A DIFFERENTIATED LOOK AT THE SAMPLE

Figure 13 illustrates how the sample can be split between the top three quarters, who performed at acceptable levels in the MELA and WELA assessments, and the weaker quarter, where children were at risk of not meeting curricular requirements.

- The sample included a mix of children who performed at different levels. However, the lowest quartile for **MELA composite scores** shows that 75% of children reached at least 22 out of 40 (55%) at mid-Grade R and 31 out of 40 (78%) at the beginning of Grade 1. The sample average was at 67% at mid-Grade R and 85% in early Grade 1. This means that, among those 20 children, the data revealed **no alarming learning gaps** in mathematics against CAPS.
- For the **WELA composite score**, the lowest quartiles reveal a marked improvement over time from 2/30 (7%)[6] at quasi-baseline to 30/50 (60%) at endline, confirming that here too, for the stronger 75% of the sample, there were **no major concerns** about their literacy acquisition.
- There were concerns for **the weaker end of the sample**. In mathematics, four children (15% of the sample) performed consistently below expectations, with two being particularly far behind. The same four children were also underperforming in the WELA, with two of them falling into the 'At risk' category at the end of Grade 1. Two further children were classified as "At risk" in literacy, although they had acceptable mathematics scores.
- The early identification of these 'At risk' learners is a critical first step. These children would need dedicated support to keep up with curriculum expectations.

**Figure 13 – WELA and MELA achievement: a differentiated look at the sample**




**See Footnote 6 on the lack of comparability between the MELA and WELA quartiles.*

6 The seemingly low values of the WELA 1st quartile at mid-Grade R and early Grade 1, especially compared with MELA quartiles, do not reflect greater learning gaps in literacy than in mathematics. Rather, they reflect the fact that the WELA assessment is designed to enable early identification of emerging skills predictive of further literacy development, whereas the MELA assessment and scores are normed according to CAPS expectations for Grade R.

Apart from the internal variability within the sample and the absence of psychometrically established benchmarks, a particular word of caution is required in relation to the sample bias that resulted from attrition between Grade R and Grade 1. While the initial sample was constituted with an effort to balance stronger and weaker learners, the attrition between Year 1 and Year 2 was stronger at the weaker end of the sample, resulting in an over-representation of stronger learners[7].

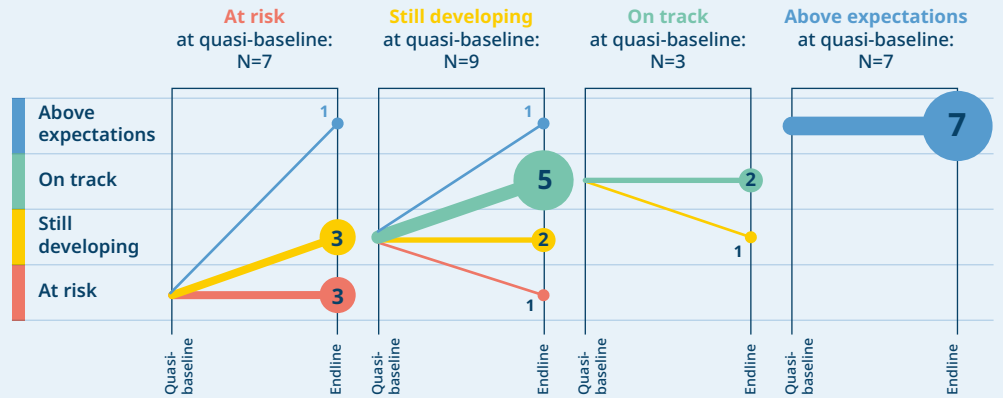
Despite this sample bias, the findings presented in Figure 14 contrast starkly with those from other recent studies in South Africa, which tended to find that Grade 1 children performed far below expectations. Despite the limitations on comparability, it is undeniable that the TIME Study sample is performing at a higher level than samples from other studies:

- In mathematics, the TIME study sample appeared to be **almost one year ahead** of samples from rural Eastern Cape and Limpopo. TIME study children achieved at a similar level at mid-Grade R, as the Eastern Cape and Limpopo samples at mid-/end of Grade 1 (see Table 1 on page 5).
- In language and literacy, the TIME study sample appeared to be performing markedly better at mid-Grade R than samples from Limpopo, Mpumalanga, North West and Eastern Cape at the beginning of Grade 1 (see Table 2 on page 9). Again, the assumption of **roughly a one-year-advantage** of the TIME sample seems plausible.
- Note that the samples were not comparable in terms of language, socio-economic backgrounds, and probably in terms of educational input. We do not know if the children assessed for other Grade 1 studies attended Grade R at all, whereas all children in the TIME study had access to a **quality Grade R experience:** all Western Cape primary schools implement the R-Maths and ELIT-Stellar programmes in their Grade R classes. It is therefore possible that this result reflects the value of a good quality Grade R experience to ensure that more children are on track at the start of Grade 1 despite the learning disadvantage associated with low-resource contexts.

## HOW DID CHILDREN DOING TIME IMPROVE? WELA TRAJECTORIES ACROSS PERFORMING BANDS

The WELA benchmarks presented above make it possible to classify the TIME Study children across four performance bands, and to represent their trajectories from quasi-baseline to endline. As Figure 14 shows, between quasi-baseline and endline, most of the children follow either a flat trajectory (meaning that their WELA score increases with maturation, but they stay in the same performance band), or an upward trajectory (i.e. they moved from a lower performance band to a higher one), sometimes moving up two levels or, in one case, three levels.

**Figure 14 – WELA trajectories across the performance bands[8]**




Apart from the 7 strongest children ("above expectations"), who all stayed in their performance band, the remaining 19 children were more likely (53%) to **improve to higher bands** than to **stay in the performance band** where they had started (37%)**,** with only two children regressing to lower bands (8% of the sample). Among the 16 children who were below the on-track cut-off at baseline, 10 (63%) progressed to higher performance bands. This suggests that children with literacy backlogs have a high likelihood of catching up if they have access to the same levels of support as these children[9].

7 When Grade 1 teachers were asked to classify the sample children based on where they stood in relation to the rest of their class, learners were 2.75 times more likely to be among the stronger learners or among the top 5, than to be among the weaker ones or bottom 5 for mathematics, and 2.2 times more likely for home language (see technical report for more details).

8 How to read this chart: of the 7 children classified "At risk" based on their composite WELA score at quasi-baseline, 3 stayed at risk at endline, 3 improved to "still developing" and 1 improved to "Above expectations", etc. Note that a horizontal line does not reflect a lack of progress but rather, a progress that is in line with the expectations within the applicable performance band. The background report provides a more detailed chart, which specifies the children's performance bands at midline, thereby providing more complex insights into their trajectories.

9 This result may have been influenced by the composite score formula for WELA mid-Grade R. Indeed, the composite score focused on skills that were still developing at that stage of children's maturation, resulting in a large number of children being classified as below the on-track mark at quasi-baseline.

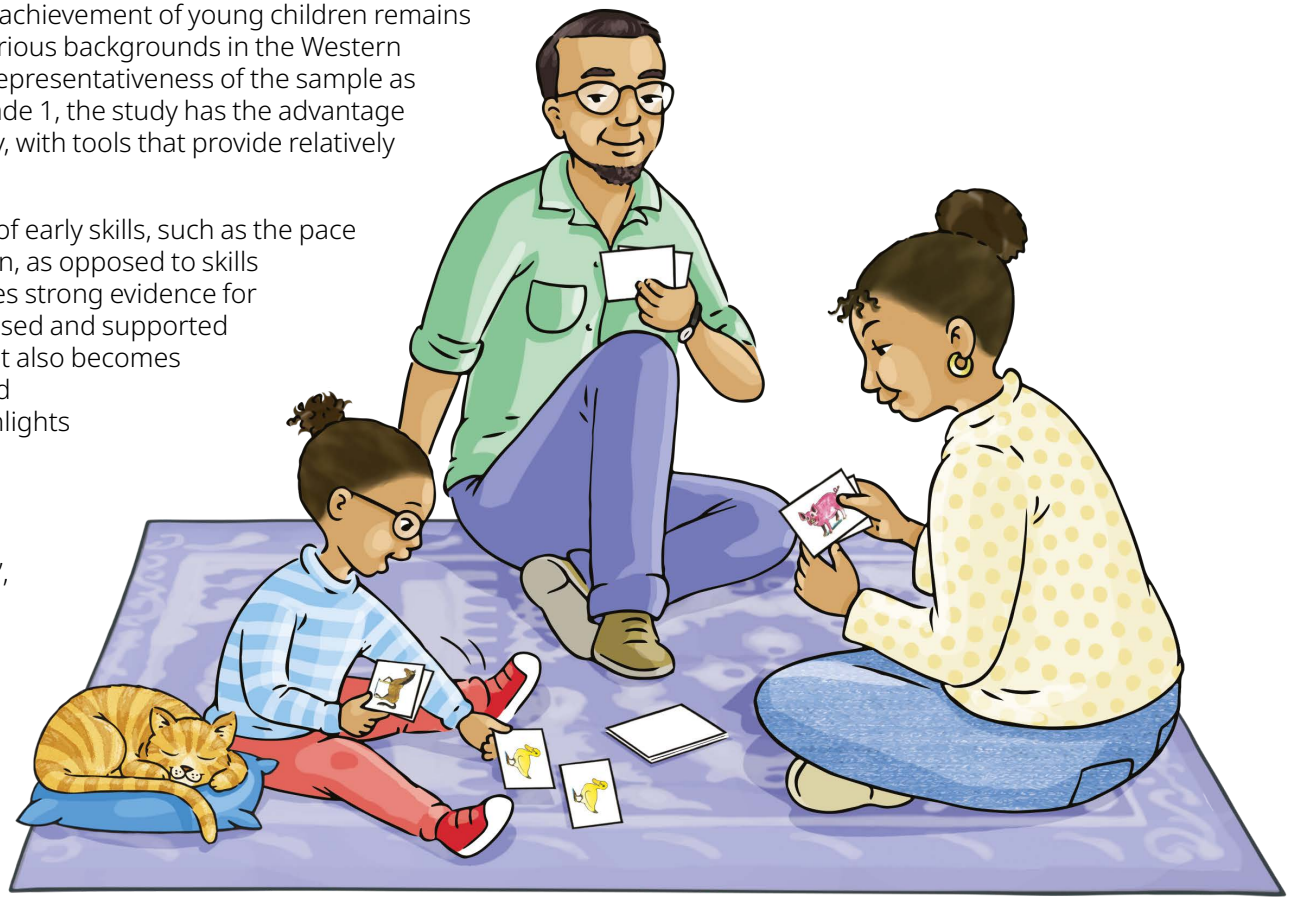
# Concluding words

In a country where quantitative data on early mathematics and literacy achievement of young children remains scarce, this study provides a useful reference point for children from various backgrounds in the Western Cape. Despite the limitations, related in particular to the size and non-representativeness of the sample as well as the absence of mathematics assessment data for the end of Grade 1, the study has the advantage of tracking children in time and covering mathematics as well as literacy, with tools that provide relatively granular insights into the progression of their level of skills.

It provides valuable insights into the sequence and pace of acquisition of early skills, such as the pace at which counting, adding and subtracting skills are acquired by children, as opposed to skills pertaining to grouping, sharing and word problems. WELA data provides strong evidence for the fact that emergent writing precedes reading and needs to be practised and supported as a step to embed a child's understanding of the alphabetic principle. It also becomes evident that the acquisition of coding skills (full knowledge of letters and advanced phonological awareness) requires a full two years, which highlights the importance of quality tuition in Grade R.

The children's learning trajectories suggest that those who begin their literacy journey with strong foundations stay ahead as they move through the Grade One curriculum. Of the children who start off 'At risk', a high percentage appear to struggle to acquire basic skills over the course of Grade One, and tests like the WELA and MELA could help with early identification of these children who are likely to require more targeted support. Encouragingly, within the study sample, a number of children who started off without strong foundations, moved closer to being 'on track' by the end of the study.

Learning Brief 7 will investigate causal relationships between child achievement and factors related to the TIME programme and the involvement of the children's caregivers.



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