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The impact of the 2023 Back-on-Track Programme on learning

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Keywords

COVID-19 learning losses, education recovery programs, mathematics and literacy outcomes, impact evaluation in education

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Abstract

The 2023 Back-on-Track (BoT) programme, launched by the Western Cape Education Department (WCED), aimed to address significant learning deficits caused by the COVID-19 pandemic over a period of three years. This R1.2 billion initiative targeted improvements in mathematics and language through interventions for learners and teachers in grades 4, 7, and 8. Using Systemic Tests and School-Based Assessments (SBAs), this evaluation assesses the programme's impact on grade 4 and grade 7 learners.

Key findings show partial recovery in learning outcomes, with notable gains in schools where Afrikaans or isiXhosa were the Language of Learning and Teaching (LOLT). The key outcomes of the learner interventions are summarised in the table below. It shows the average gains from the learner intervention for the two samples of children (those who had written Book A and Book B respectively in the 2022 Systemic Tests). It is based on assuming that a year of learning (200 days) is equivalent to 40% of a standard deviation. This leads to a conservative conversion of effect sizes to school days. A smaller estimate of a year of learning, which may seem warranted by the low learning trajectories in South Africa, would mean that the effect sixes would be converted at a different rate. For instance, if it were assumed that a year of learning was only 0.20 SD, it would mean that each 1% of a SD converts to 10 school days, rather than five. It would also mean that the learning losses or deficits would convert to an even larger fraction of a school year.

Impact in days of learning (average impact for both Book A and Book B in the Systemic Tests)

	Grade 4				Grade 7			
	Afrikaans	English	isiXhosa EFAL	isiXhosa	Afrikaans	English	isiXhosa EFAL	isiXhosa
Effect of attending all 9 sessions (continuous treatment)								
Language	190	0	140	120	87	0	142	167
Mathematics	122	0	85	-	180	50	205	-
Effect of attending at least 5 sessions (binary treatment)								
Language	135	20	92	82	65	37	102	122
Mathematics	90	0	57	-	127	0	155	-

Note: In cases where only one sample was significant, the other sample was assumed to have an estimate of 0.

isiXhosa LOLT schools (see explanation in main text) tested in both EFAL (English First Additional Language) and in isiXhosa.

The table shows that the largest gains from the learner interventions were in Afrikaans and isiXhosa LOLT schools, while the learner intervention showed few significant effects in English LOLT schools. (Interestingly, though, these schools did achieve the largest gains from interventions targeted at teachers.)

The size of some of these gains was massive. This is even more the case if we consider the scope of the intervention, where learners were at most attending only 9 Saturday sessions. To note a few of these gains based on the continuous measure of treatment:

- The largest gains were made in Mathematics in grade 7, where isiXhosa LOLT schools gained more than a year (205 school days).
- The second largest gains were in Afrikaans schools in language in grade 4, with gains measured at 190 days, close to a full school year.
- The third largest gains were also in grade 7 Mathematics, with Afrikaans schools gaining 180 school days.
- Next on the list with gains of 167 days were isiXhosa LOLT schools writing isiXhosa, indicating some language spillover, as the intervention was in English. But isiXhosa LOLT schools also gained much in terms of their EFAL marks in both grades 4 and 7, with both these subjects showing gains of about 140 school days.

The effect of teacher interventions is more difficult to estimate, as it is not clear which children were in the classes of those teachers that have participated in the intervention. As a result of this data weakness, it is more difficult to estimate teacher effects and these would tend to be under-estimates. Nevertheless, there are a few effects that are notable in terms of the treatment values measured continuously, again showing averages across the two samples:

The largest effects were in Mathematics, with English LOLT schools gaining 160 days in grade 4 and 130 days in grade 7, while isiXhosa LOLT schools also gained 105 days in Mathematics performance in grade 4.

In Language, gains of 95 school days were calculated for isiXhosa LOLT schools in EFAL in grade 7. The only other positive and significant effect was found for English language schools in grade 4 that gained an average of 52 school days.

As mentioned, it was impossible to link individual learners to the teachers who taught them, as different teachers may have been taking different school classes for the same subject. The learners in the schools targeted by the teacher interventions ranged between 21 000 and almost 25 000, thus constituting a much larger potential reach of the teacher interventions of 22%-26% compared to the individual learner interventions that reached only about 3.2% (grade 4) and 1.9% (grade 7) of learners in the respective grades.

The massive effect sizes encountered in this investigation were a surprise, as some were much larger than the effect sizes typically encountered in education interventions. This could be interpreted in two ways:

- 0n the one hand, it shows that the interventions were appropriate and relatively well implemented, despite difficulties experienced on the ground with implementing such a large new programme.
- On the other hand, that only nine Saturdays could show results of this magnitude indicates that there are gross inefficiencies in the way schools operate. This should come as no surprise to anyone following what we know about the South African school system. Yet it also shows the scope for improvement in the school system. This needs attention, beyond the shorter term efforts to counter the learning losses that resulted from the pandemic interruptions.

In conclusion, the BoT programme has positively impacted learner performance, particularly in Afrikaans and isiXhosa LOLT schools. While challenges in participation rates and measurement accuracy persist, the combination of learner and teacher interventions presents a promising approach to mitigating learning losses and enhancing educational outcomes. Further research and sustained efforts are necessary to fully realise the programme's potential and continue addressing the long-term impacts of the pandemic on education.

Introduction

The Western Cape's "Back-on-Track" (BoT) programme, launched in March 2023, was an ambitious effort by the Western Cape Education Department (WCED) to address substantial learning losses caused by the COVID-19 pandemic. With a budget of R1.2 billion, the programme was designed to improve mathematics and language outcomes through targeted interventions for both learners and teachers. The primary focus was on grades 4, 7, and 8, critical transition points in the education system.

The programme included Saturday and holiday bootcamp sessions for learners, while teachers participated in the innovative "1+9" training model. This approach offered a full day of intensive training and coaching every two weeks, followed by the application of these strategies over the next nine days. This model provided intensive support and guidance to teachers and had shown promising results in improving teacher effectiveness and student learning outcomes (WCED 2023a & b).

The Western Cape also allocated additional time to mathematics and reading in the Foundation Phase (grades 1 to 3) during normal school hours, reducing time spent on other subjects (WCED, 2023a). This initiative was encouraged at the national level but was not widely implemented. No other provinces have announced a budget specifically for COVID-19 learning recovery.

Early Systemic Test results suggested a nascent recovery, though scores remained significantly below pre-pandemic levels across both subjects and grades. A further deterioration in grade 6 language scores in 2022 may reflect the disruption of the critical language transition years.

"The Western Cape also allocated additional time to mathematics and reading in the Foundation Phase "

The BoT programme's key goals were to recover lost learning, strengthen foundational skills and enhance teacher effectiveness. Table 1 reveals the comprehensive nature of the BoT Programme 2023, a wide-ranging initiative covering various interventions. Our evaluation will primarily focus on the Back-on-Track programme for grades 4 and 7. But first, we must examine the evidence of the continued impact of the pandemic on learning.

The WCED approached RESEP to conduct an independent evaluation of the impact of some measurable aspects of the BoT programme. RESEP values this commitment to obtaining independent verification of the programme's success. We also gratefully acknowledge the cooperation in making the necessary data available to facilitate this evaluation.

Table 1: Content of the Back-on-Track Initiative to improve language and mathematics skills

Activities
Learners: ✓ Language and Mathematics interventions for grades 1-3. ✓ Saturday classes for grades 4, 7 and 8. ✓ Back On Track holiday classes for grades 7 and 8 ✓ Back On Track holiday residential camps for grade 12 learners. ✓ After-school tutoring programmes. ✓ Subject-specific support for grade 10 and grade 12 learners. ✓ eLearning platforms like the Maths Curriculum Online programme in the Foundation Phase. ✓ Back On Track Matric Support booklets. ✓ Adjusted timetable for additional time in Language and Mathematics. **Teachers:** ✓ Training on the Science of Reading & Synthetic Phonics Approach in the Foundation Phase. ✓ eLearning Mathematics platform training. ✓ Teacher professional development programmes covering the entire curriculum in the Intermediate Phase and Senior Phase. ✓ Subject-specific support for grade 10 and grade 12 teachers.
Targeting
Learners: Approximately 310 000 learners in the Foundation Phase and 126 000 in grades 4, 7, 8, 10 and 12. **Teachers:** Approximately 10 000 teachers in the Foundation Phase, and 8 900 teachers in grades 4, 7, 8, 10 and 12. **Parents:** Approximately 28 000 parents targeted.

GRADE 4	GRADE 7	GRADE 8
Schools Targeted: 140 Teachers Targeted: 800 Learners Targeted: 4 000	Schools Targeted: 152 Teachers Targeted: 400 Learners Targeted: 2 000	Schools Targeted: 140 Teachers Targeted: 800 Learners Targeted: 4 000

Has there been a recovery? Evidence from the Systemic Tests

The Systemic Tests are **only partially valid** for inter-temporal comparisons, as test questions vary from year to year, and there is no formal system of equating the difficulty levels of test questions over time.

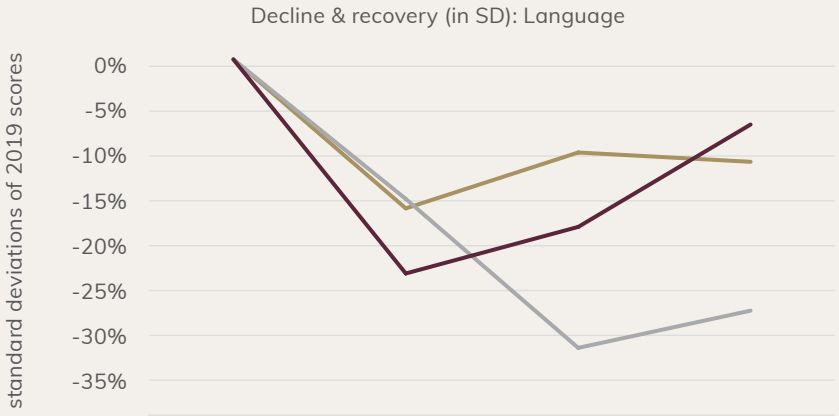
Nevertheless, historically, the results vary little over time, as one would expect, and in line with expectations, the 2021 results show considerable learning losses and, subsequently, some recovery. To test learning losses, many of the 2021 test questions were designed to overlap with the 2019 tests, which were evaluated separately (Van der Berg et al. 2022). Generally, recovery has been strong, but **aggregate performance in none of the six tests (language and mathematics, each in grades 3, 6 and 9) fully returned to 2019 levels** (Figure 1a & 1b). Some concerns remain:

- Grade 6 language test scores continued to decline in 2022. Even after a minor recovery in 2023, performance (converted to standard deviations) showed a deficit compared to the 2019 cohort of 0.27 standard deviations, equivalent to about 135 school days. This was likely due to the LOLT change to English in grade 4 for learners originally taught in their home language. Figure 2 shows the decline in the grade 6 language scores in 2021 and 2022 by LOLT. **Even after the slight recovery in 2023, children in isiXhosa LOLT schools still scored 0.41 SD less than in 2019, a deficit of more than a year (205 school days).**
- In grade 6 mathematics, **there has been no recovery** by the most recent cohorts and the deficit remained at approximately 85 days.
- The **steepest losses occurred in grade 3 mathematics**, but there we saw quite a remarkable recovery, leaving the 2023 cohort around 85 days behind the 2019 cohort.
- In contrast, **grade 9 language losses were the smallest** of all the tests, with nearly full recovery to the pre-pandemic performance levels, with losses of about 55 days remaining in 2023.

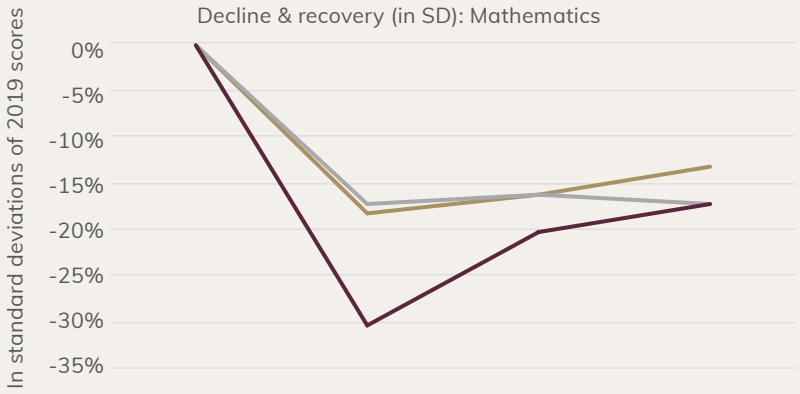
"The 2021 results show considerable learning losses and, subsequently, some recovery"

Given the ongoing recovery from COVID-19-induced learning losses, it is difficult to separate the effects of the interventions from those of general recovery.

Figure 1: Decline and recovery: Language & Mathematics (2019=0)

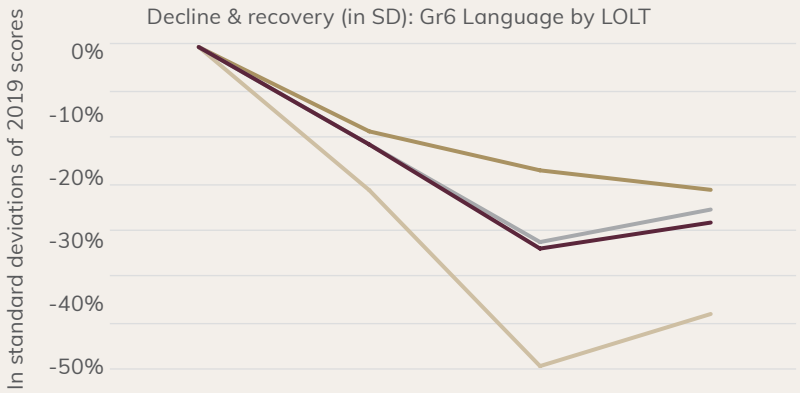


	2019	2021	2022	2023
Gr3 Lang	0%	-23%	-18%	-7%
Gr6 Lang	0%	-15%	-31%	-27%
Gr9 Lang	0%	-16%	-10%	-11%



	2019	2021	2022	2023
Gr3 Maths	0%	-30%	-20%	-17%
Gr6 Maths	0%	-17%	-16%	-17%
Gr9 Maths	0%	-18%	-16%	-13%

Figure 2: Decline and recovery: Gr6 Language by LOLT (2019=0)



	2019	2021	2022	2023
All	0%	-30%	-20%	-17%
Afrikaans	0%	-17%	-16%	-17%
English	0%	-18%	-16%	-13%
isiXhosa	0%	-22%	-49%	-41%

The impact of the 2023 interventions in grades 4 and 7

Sampling

The grade 4 and grade 7 interventions were aimed at small samples of enrolled learners who had written the Systemic Tests in 2022. Table 2 shows that this number for the grade 4s was only 3.4% of all learners who had written the Systemic Tests the previous year and that only around 2% of the cohort had participated in more than half of the nine Saturday sessions. For grade 7, the percentages were even lower at 1.9% and 1.1%, respectively, for attending at least once or five or more times.

Table 2: Sample of learners benefiting from interventions by LOLT, grades 4 &7

	Language		Mathematics	
	Attended at least one session	Attended more than half the sessions	Attended at least one session	Attended more than half the sessions
Gr4 sample				
Afrikaans LOLT	1 213	802	1 208	817
English LOLT	904	362	926	372
isiXhosa LOLT	1 080	643	1 052	658
Total	3 197	1 807	3 186	1 847
Sample as % of the almost 95 000 who wrote the 2022 Gr3 Systemic Tests:	3.4%	1.9%	3.4%	2.0%
Gr7 sample				
Afrikaans LOLT	453	293	453	284
English LOLT	353	122	353	128
isiXhosa LOLT	1 019	603	999	602
Total	1 825	1 018	1 805	1 014
Sample as % of the almost 94 000 who wrote the 2022 Gr6 Systemic Tests:	1.9%	1.1%	1.9%	1.1%

One data constraint was that it was impossible to link individual learners to the teachers who taught them, as different teachers may have been taking different school classes for the same subject. Thus, we cannot determine the number of learners reached through the teachers that taught them. The learners in the schools targeted by the teacher interventions ranged between 21 000 and almost 25 000, thus constituting a much larger potential reach of the teacher interventions of 22%-26% compared to the individual learner interventions.

Methodology

Learners could participate in the programme on 10 Saturdays, of which one session was cancelled due to stormy weather. Barely half of the participating learners attended more than half the sessions. Teachers participated in a '1+9' programme, spending the first day of a two-week cycle being coached on teaching language or mathematics, followed by applying the coaching in the next two weeks. Teachers were required to attend six '1+9' coaching sessions.

"Barely half of the participating learners attended more than half the sessions."

The impact of grade 4 and grade 7 interventions was measured by comparing performance in the School-Based Assessments (SBAs) in term 4 of 2023 with the Systemic Tests, written in 2022 (when these learners were in grade 3 or grade 6, respectively). These school-based assessments were weighted averages of all the assessments done during the year

Comparing school-based assessments between schools is difficult due to variability in assessment difficulty. This necessitated using **school-level fixed effects** regression models. That means that performance was measured **relative to other learners in the same school**, considering their Systemic Test scores.

In functional form, the fixed effects regression equations could be presented as

$$SBA_{i,2023} = \beta_0 + \beta_1 ST_{i,2022} + \gamma_j + \epsilon_{it}$$

(Equation 1)

where:

- $SBA_{i,2023}$ is the school-based assessment score for learner i in Term 4 of 2023 (the weighted score across the year)
- β_0 is the intercept term
- β_1 is the coefficient for the Systemic Test score of learner i in 2022
- $ST_{i,2022}$ is the Systemic Test score of learner i in 2022
- γ_j are the fixed effects for school j where learner i is enrolled. This term captures the effect of the school on the test scores, particularly greater or lesser leniency in the SBA tests.
- ϵ_{it} is the error term, representing the variation in test scores of learner i over the two tests not explained by the model. It is assumed to be normally distributed with a mean of zero, and errors are assumed to be independent.

When adding a random effect at the teacher level, the functional form of the equation can be represented as follows:

$$SBA_{i,2023} = \beta_0 + \beta_1 ST_{i,2022} + \gamma_j + u_k + \epsilon_{it}$$

(Equation 2)

where:

- u_k is a random effect that captures the impact of teacher k on test scores. This term is assumed to be normally distributed with a mean of zero and errors are independent.
- The other variables are as described in Equation 1.

This multi-level regression model captures the hierarchical structure of the data, recognising that learners are nested within schools. It allows the analysis of the impact of previous test scores while accounting for school-specific effects. Teacher interventions were measured with error, because it was **unknown which learners were taught by which teachers**, likely

leading to the measured effects of teacher participation on learners' performance being downwardly biased.

The **initial tests** were the 2022 Systemic Tests. Not all children wrote the same test; half the learners were given Book A and half Book B in each school and classroom for both mathematics and language. Although the difficulty levels of Books A and B were not identical, this was acceptable for the Systemic Tests, which assess system and school performance rather than individual learners. However, evaluating the impact of interventions required considering whether an individual was part of sample A or B. The **outcome variable** was school-based assessments from Term 4 in 2023.

Treatment Types

Two types of treatment were defined to measure learner participation:

1. **Continuous Treatment**: This approach measured the incremental effects of attending fractions of the nine intervention sessions (e.g., attending 1/9th, 2/9ths, etc.). The coefficient represents the projected impact of full participation (all nine sessions). The gains from attending only one session would then be 11% of the calculated estimate for the gains from full treatment. Attending three of the 9 sessions will be worth three times as much as attending only one session, and attending more than half the sessions would bring further gains.
2. **Binary Treatment (students):** Learners attending at least five sessions were categorised as "treated," while those attending fewer were considered "untreated." This threshold acknowledges that a certain minimum level of participation may be required for meaningful impact. If a student attends too few sessions, there may be no real benefits. On the other hand, if a student attended enough sessions, we may consider such a learner as having benefited fully from the treatment. The coefficient here represents the average impact on learners who participated sufficiently to be classified as treated, assuming diminishing returns beyond the threshold.
3. **Binary Treatment (teachers):** As with students, there was possibly a minimum threshold that may be required for teachers to gain from attending the training sessions and thereby to improve their teaching. Thus, attending at least 4 out of the 6 sessions was regarded as reaching that threshold.

Regression Models

Two regression models were employed to analyse programme impacts:

- **Fixed Effects Model** (see Equation 1 above): This model compared treated and untreated learners within the same school, controlling for differences in baseline performance measured by the 2022 Systemic Tests. It accounted for school-level variations in assessment practices.
- **Multilevel (Hierarchical) Model** (see Equation 2 above): This model accounted for learners nested within schools and incorporated random effects for teacher participation. Teacher-level random effects captured variability in teaching effectiveness, though estimates were likely attenuated due to the inability to link learners directly to specific teachers.

As these results using the fixed or the multilevel models gave virtually the same answer for the fixed effects coefficients so derived, we do not show the fixed effects as derived from the multilevel models.

Conversion to Days of Learning

Impacts were measured in standard deviations (SD) and converted into days of learning. A gain of 0.40 SD was considered equivalent to one academic year (200 school days). For instance:

- 0.20 SD = 100 school days (half a year)
- 0.10 SD = 50 school days (a quarter-year)

The choice of using 0.40 SD as the equivalent of a year of learning was made on purpose, to ensure **conservative conversion** of effect sizes to school days. A smaller estimate of a year of learning, which may seem warranted by the low learning trajectories in South Africa, would mean that the effect sizes would be converted

at a different rate. For instance, if a year of learning was assumed to be only 0.20 SD, it would mean that each 1% of a SD converts to 10 school days, rather than five. It would also mean learning losses or deficits would convert to an even larger fraction of a school year.

"Learners transitioning from an African language to English require separate analysis. They face a greater challenge, having written their grade 3 Systemic Tests in isiXhosa and then transitioning to English from grade 4 onward"

LOLT (Language of Learning and Teaching)

The LOLT is the instructional language used. Most children are taught in their home language until grade 3. After grade 3, schools that initially use an African language typically switch to English for most subjects except the home language. Consequently, these learners are considered to have English as their LOLT while continuing with an African home language and English as their first additional language (EFAL).

- ✓ For analytical purposes, however, learners transitioning from an African language to English require separate analysis. They face a greater challenge, having written their grade 3 Systemic Tests in isiXhosa and then transitioning to English from grade 4 onward. In grade 6, Systemic Tests are administered in either English or Afrikaans. For this reason, we will continue to regard them as a separate isiXhosa LOLT group, which is not strictly true.
- ✓ There is a distinction between schools where English is the home language and those where English is the first additional language (EFAL), yet the LOLT is English from grade 4 onwards. To capture this differentiation, we categorise schools by LOLT: Afrikaans, English, or isiXhosa, primarily based on the home language offered. Therefore, **we still refer to them as having isiXhosa as their LOLT, despite English being the instructional language from grade 4 for learners in historically African language schools.**

Results: Learner interventions

An asterisk within a bar indicates that the measured impact meets or exceeds statistical significance at the 5% level.

Grade 4 Language:

CONTINUOUS EFFECTS

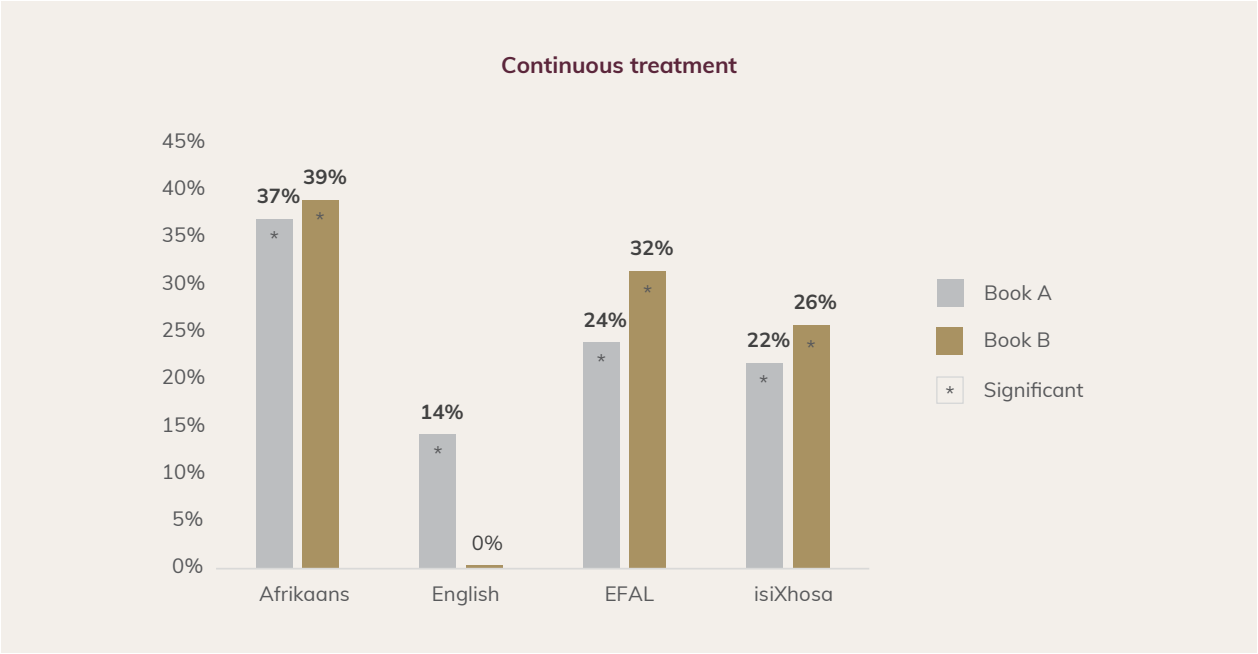
In Afrikaans LOLT schools, continuous treatment effects reached 0.37–0.39 SD, equivalent to 185–195 school days. For isiXhosa LOLT learners, EFAL performance improved by 0.24–0.32 SD (120–160 school days), with comparable spillover effects in isiXhosa (110–130 school days). English LOLT learners gained 0.14 SD (70 school days) in the A sample, but no effects were measurable for the B sample.

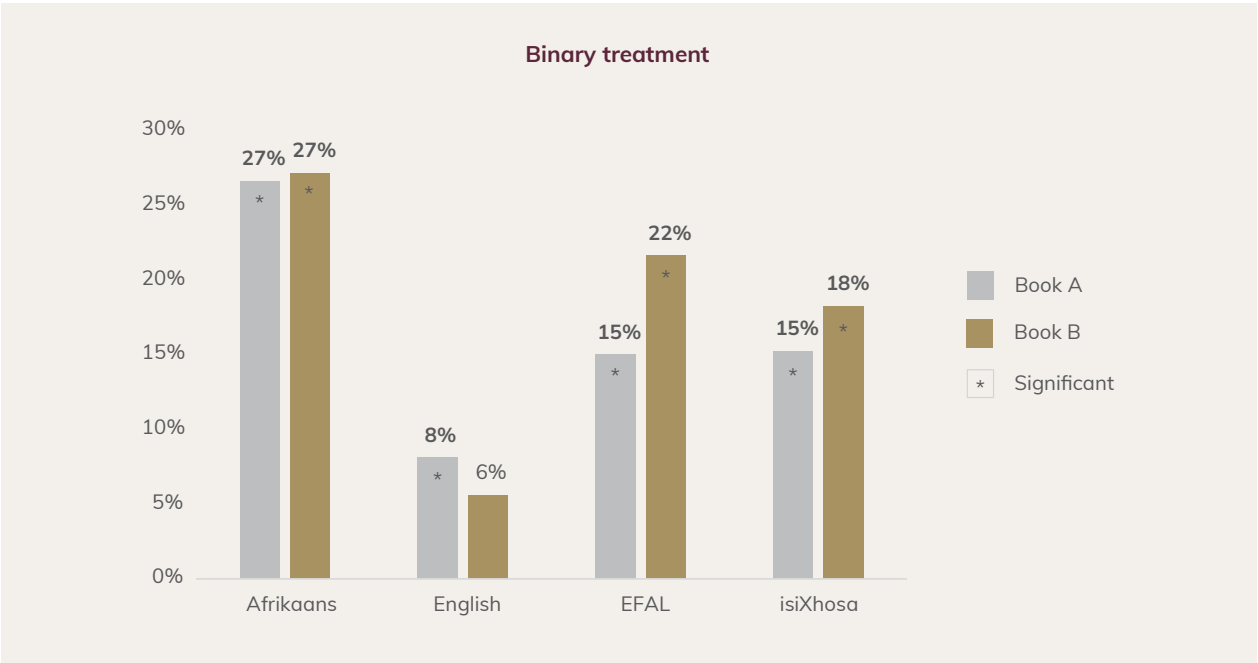
BINARY EFFECTS

Binary treatment for Afrikaans LOLT learners resulted in gains of 0.27 SD (135 school days). In isiXhosa LOLT schools, gains were slightly lower at 0.24–0.32 SD (120–160 school days) in EFAL and 110–130 school days in isiXhosa. Interestingly, binary treatment required attending only five of nine sessions, highlighting significant impacts even with partial participation.

The effect for English LOLT schools was only 14% of an SD (though significant!) or 70 days for learners who had written the Book A test, and there was no measurable effect for those who had been tested through Book B.

Figure 3: Fixed effects of learner interventions in grade 4 Language by LOLT & treatment (continuous or binary)





Grade 4 Mathematics

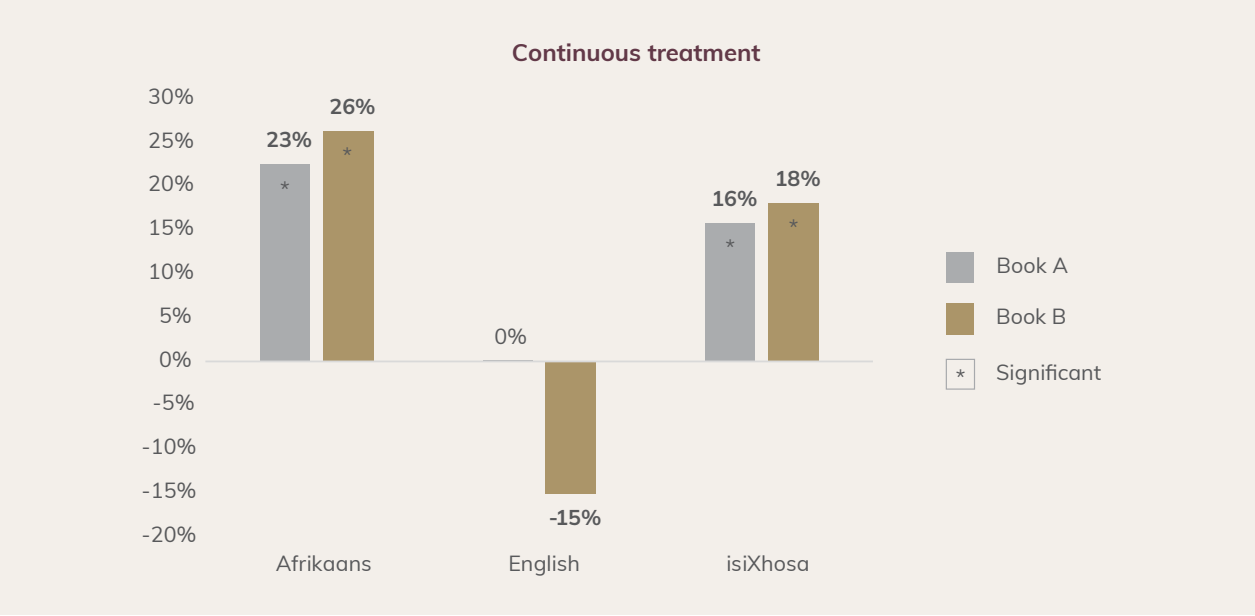
CONTINUOUS EFFECTS

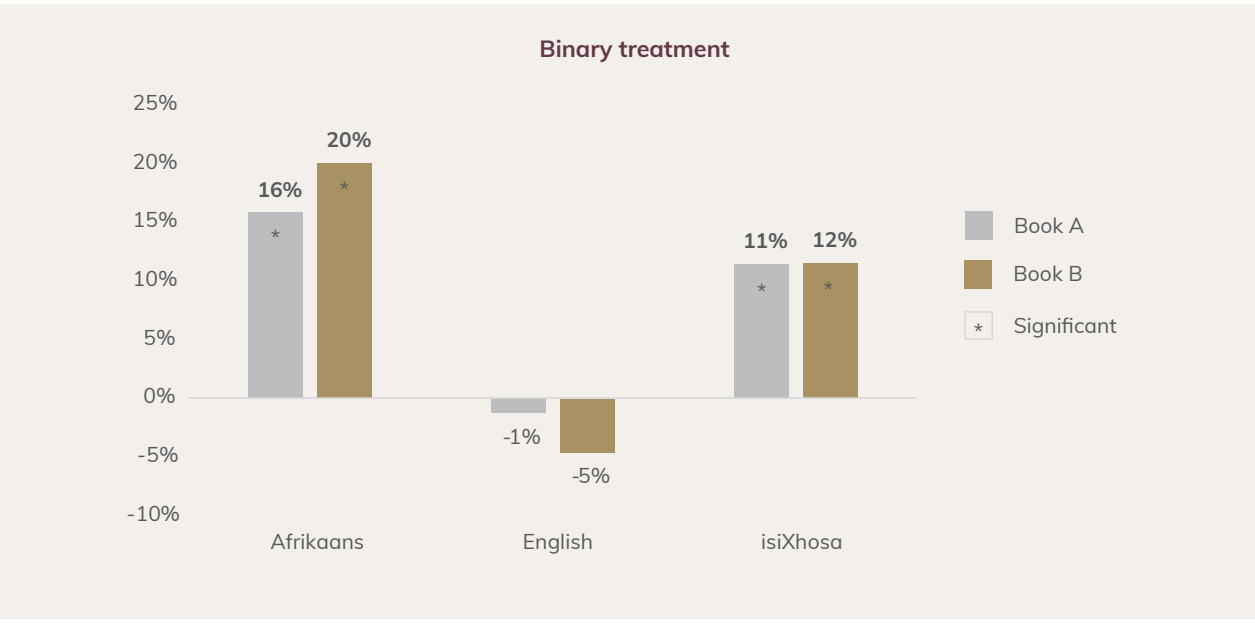
In Afrikaans LOLT schools, continuous treatment effects were 0.23-0.26 SD, equivalent to 115-130 school days. For isiXhosa LOLT schools, continuous treatment yielded gains of 80–90 school days. No measurable effects were observed for English LOLT schools.

BINARY EFFECTS

Binary treatment in Afrikaans LOLT schools resulted in gains of 80–100 school days. For isiXhosa LOLT schools, binary treatment effects ranged from 55 to 60 school days. English LOLT schools showed no statistically significant effects under binary treatment.

Figure 4: Fixed effects of learner interventions in grade 4 Mathematics by LOLT & treatment (continuous or binary)





Grade 7 Language

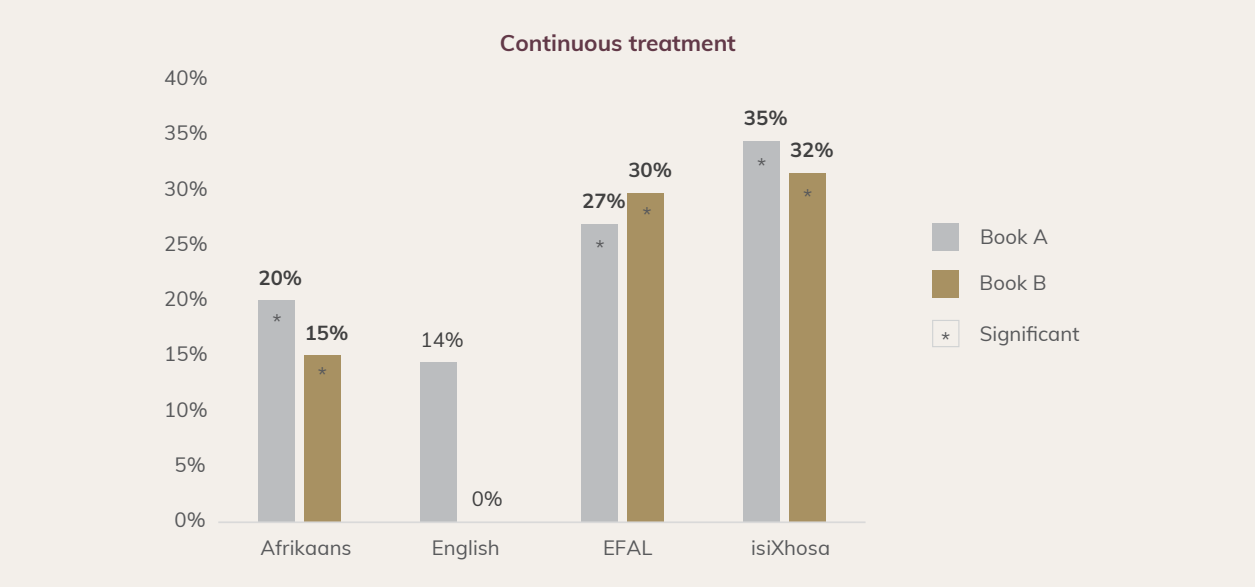
CONTINUOUS TREATMENT

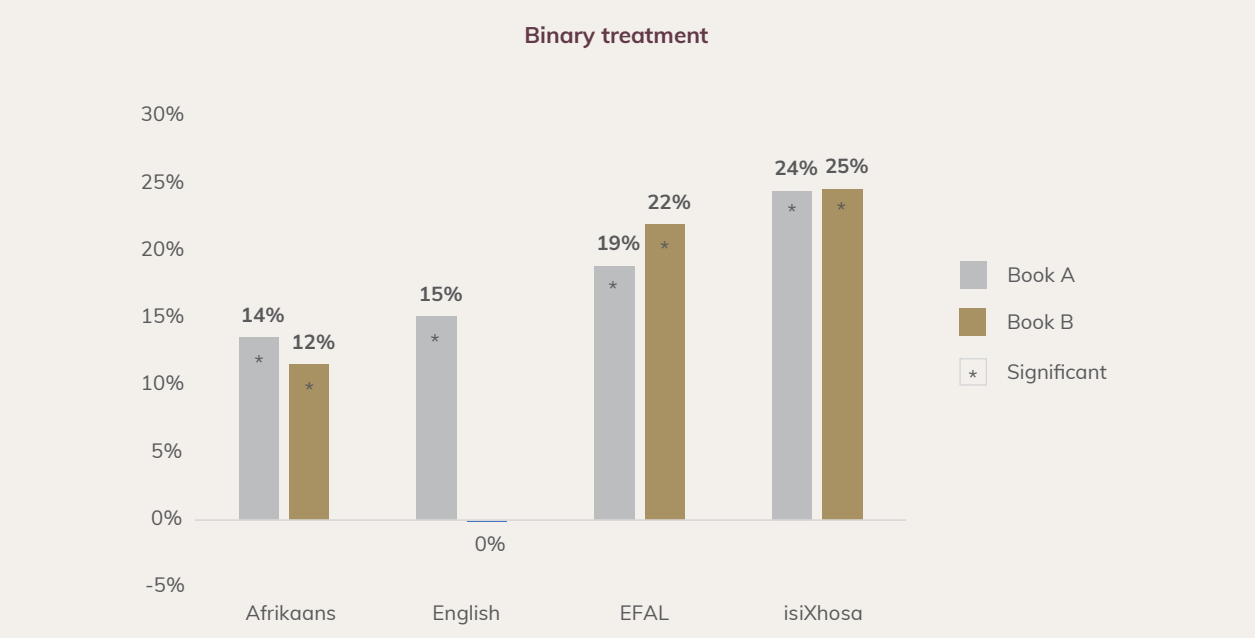
In Afrikaans LOLT schools, continuous treatment effects ranged from 0.15–0.20 SD (75–100 school days). For isiXhosa LOLT learners, the schools that experienced the greatest learning losses in this school phase, EFAL scores improved by 135-150, with spillover gains in isiXhosa of 160-175 school days, more than three-quarters of a school year. No measurable continuous treatment effects were observed for English LOLT learners.

BINARY TREATMENT

Binary treatment for Afrikaans LOLT learners yielded gains of 60-70 school days. In isiXhosa LOLT schools, binary treatment resulted in gains of 95–110 school days for EFAL and an even larger 120–125 school days for isiXhosa. For English LOLT learners, binary treatment showed gains of 75 school days in the A sample, but no effects in the B sample.

Figure 5: Fixed effects of learner interventions in grade 7 Language by LOLT & treatment (continuous or binary)





Grade 7 Mathematics

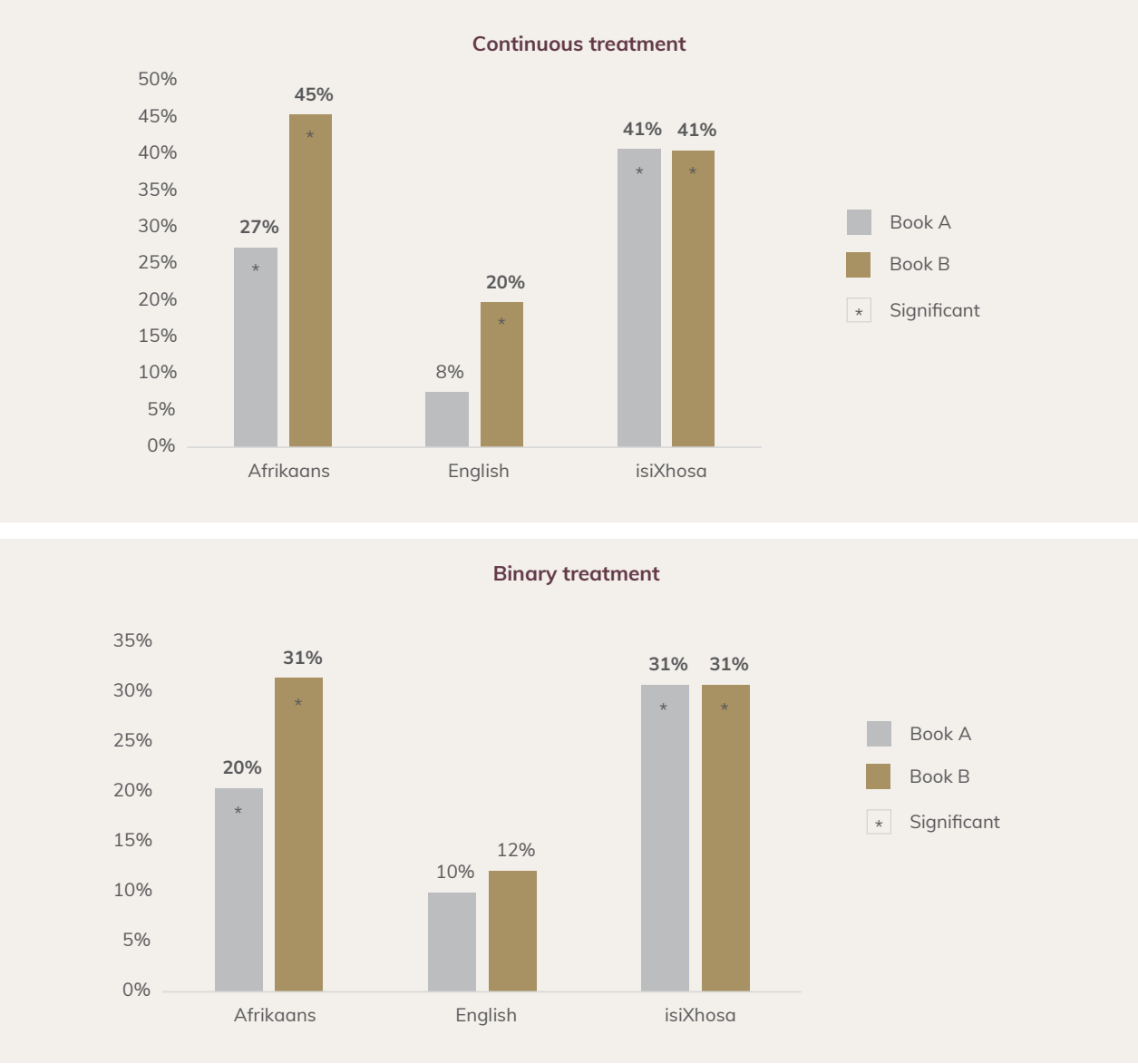
CONTINUOUS TREATMENT

In Afrikaans LOLT schools, continuous treatment effects ranged from 0.27 to 0.45 SD (135–225 school days). For isiXhosa LOLT learners, continuous treatment effects were 0.41 SD for both samples (205 school days), more than a school year. English LOLT learners in Sample B showed gains of 0.20 SD (100 school days), though Sample A did not yield significant results.

BINARY TREATMENT

Binary treatment yielded smaller but still very large effects, especially for isiXhosa LOLT schools, of 155 school days for both samples. This is very large if one considers that binary treatment requires a learner to have simply attended at least 5 of 9 Saturdays. In the case of Afrikaans schools, there were quite large differences between the measured effects for sample A (100 days) and for sample B, 155 days (the same as for both the isiXhosa LOLT samples). No significant effects were detected for English LOLT learners under binary treatment.

Figure 6: Fixed effects measures from learner interventions in grade 7 Mathematics by LOLT & treatment (continuous or binary)



Effects of interventions targeting teachers

Now, we turn to the second part of the multilevel regression models. What is shown now is the effect of the **teacher interventions**, as derived from the multilevel models. In this case, all the effects shown are random effects at the school/teacher level. In the various parts of Figure 7, these effects are set out. The impact varied across grades, subjects and LOLT groups, as well as continuous versus binary treatment measurements. It is again important to note that these effects are probably under-estimated since the individual learners are not linked to the teachers that taught them, thus rendering the teacher-intervention variable inaccurate, which leads to attenuation of measured effects, i.e. the coefficients would be biased downwards.

The results for all the teacher effects are shown in the various graphs constituting Figure 7, distinguishing in each of the four graphs between the samples (whether children wrote Book A or Book B of the Systemic Tests in the previous year), types of treatment (continuous or binary) and the LOLT groupings.

Grade 4 Language:

English LOLT schools significantly improved learner outcomes by 105 school days in the language in Sample B if one uses the continuous measure of treatment. Neither Afrikaans nor isiXhosa LOLT schools saw significant effects in the language (EFAL or isiXhosa), whether using a continuous or binary treatment variable. For English LOLT schools, the binary effect (teachers attending at least 4 sessions) was 0.10-0.14 SD, i.e. it had an effect on the children in those schools of a gain of 50-70 school days. Considering that more learners are reached in this way, this is an encouragingly large effect; it is unfortunate that it seems to have been positive only for the English LOLT group.

Grade 4 Mathematics:

English LOLT schools gained the most in terms of **continuous** treatment (0.31-o.33 SD or 155 to 165 days). Gains in isiXhosa LOLT schools were also large and significant for continuous treatment (0.19-0.23 SD or 95-115 school days). Afrikaans schools did not see any statistically significant gains from the teacher interventions, whether measured as continuous or **binary** treatment. As far as binary treatment is concerned, isiXhosa LOLT schools also did not gain.

"The only group of students who gained in terms of performance in Mathematics as a result of the teacher interventions were those in English LOLT schools, who gained 125-135 days when treatment is measured continuously "

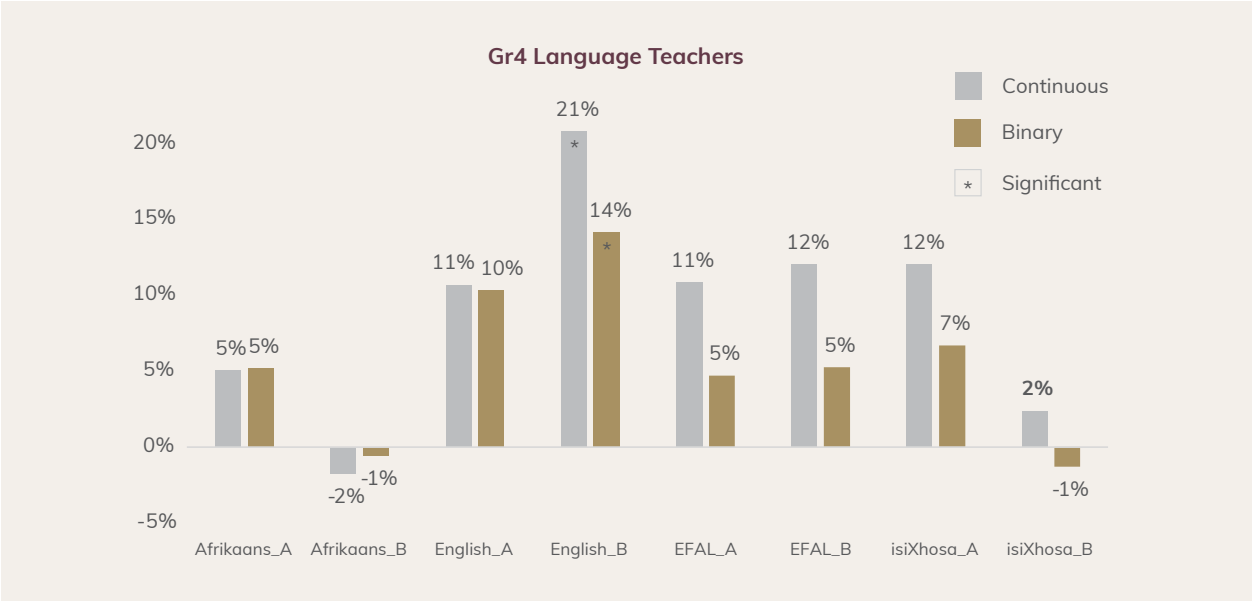
Grade 7 Language:

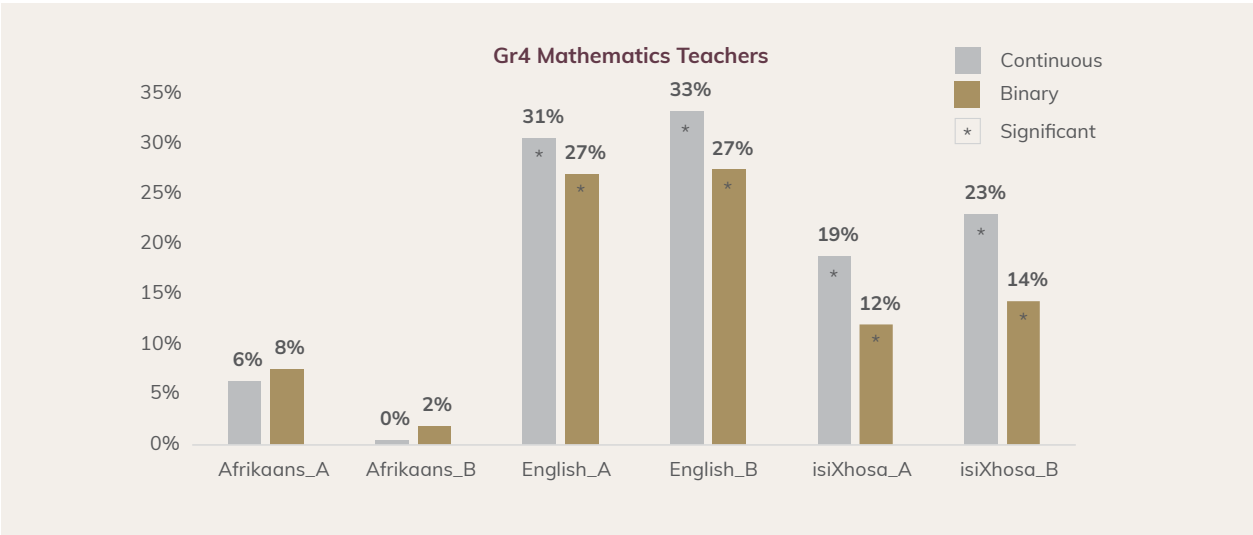
The only students that gained from the teacher interventions in grade 7 Language were isiXhosa LOLT schools, and in that case, only for continuous treatment. In isiXhosa LOLT schools, teacher interventions improved EFAL performance by 90–100 school days for continuous treatment. In this case, interestingly, the gains did not spill over to performance in their isiXhosa home language marks.

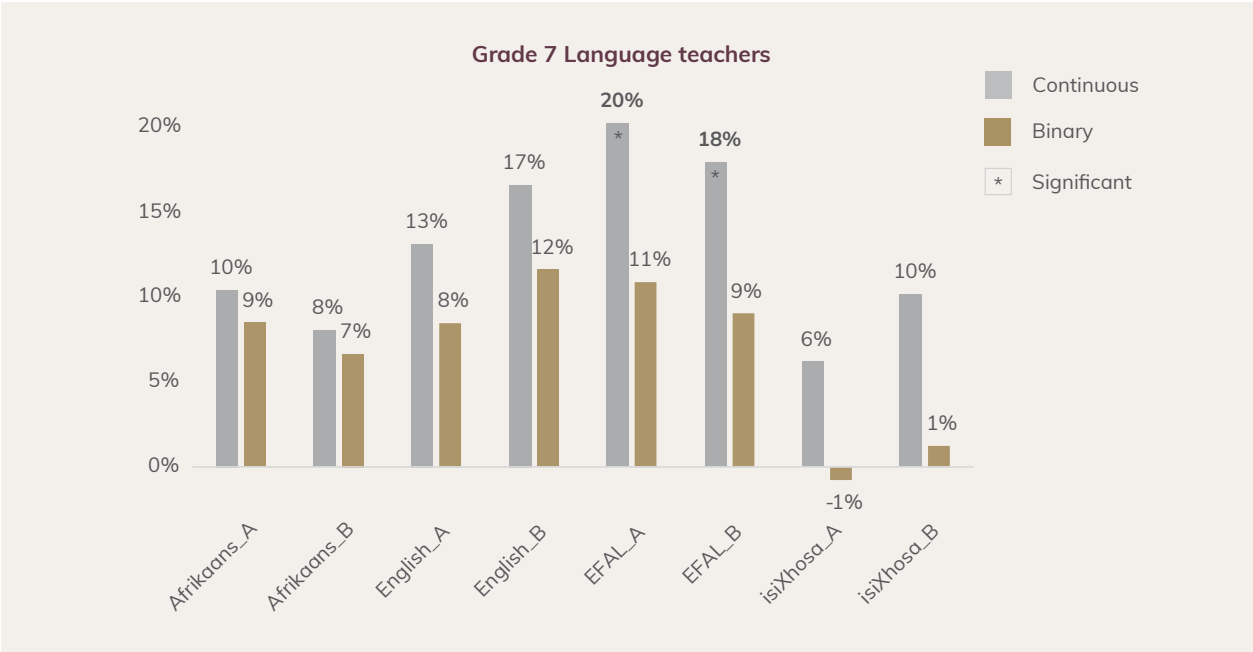
Grade 7 Mathematics:

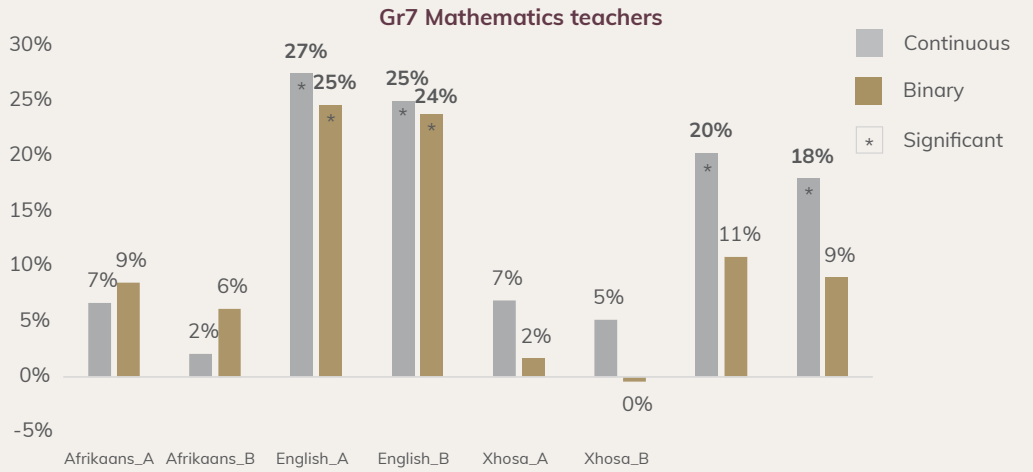
The only group of students who gained in terms of performance in Mathematics as a result of the teacher interventions were those in English LOLT schools, who gained 125-135 days when treatment is measured continuously and 120-125 days if using the binary measurement of treatment. Gains for the other two LOLT groups were not statistically significant, i.e. we would not be able to state that there were measurable gains that were not simply the effect of random variation.

Figure 7: Random effects of teacher participation in BoT programme on learner performance









"In grade 4 mathematics, isiXhosa LOLT schools demonstrated substantial effects of 95-115 school days for continuous treatment"

So, summarising, the effects of teacher participation in the BoT programme varied significantly across different subjects, LOLT groups and types of treatment measurement. In Afrikaans LOLT schools, only one significant positive effect was observed for either subject or grade. For English LOLT schools, substantial effects were seen in grade 4 language performance, while no significant effects were noted for grade 7 language performance. In mathematics, English LOLT schools showed large gains in grade 4, approximately three-quarters of a year of learning, with smaller yet substantial effects of 120-135 school days in grade 7.

In isiXhosa LOLT schools, no significant effects were observed for grade 4 language performance. However, for grade 7 EFAL performance, there were considerable gains equivalent to 90-100 school days for continuous treatment, though no significant effects were noted for isiXhosa. In grade 4 mathematics, isiXhosa LOLT schools demonstrated substantial effects of 95-115 school days for continuous treatment, while no significant effects were found in grade 7 mathematics.

These findings indicate that teacher participation in the BoT programme has a varied impact, with notable improvements in some contexts and subjects, particularly in mathematics for English and isiXhosa LOLT schools, but with limited effects in others.

The impact of the Back-on-Track intervention: An assessment

It is impossible to evaluate the full effect of the BoT interventions as set out in Table 1, nor to determine its role in the learning recovery shown in Figures 1 and 2. What is certain is that this programme had some specific positive effects on the learners and the schools targeted through the grade 4 and grade 7 interventions

The Back-on-Track programme demonstrated significantly positive impacts on learner performance in both language and mathematics, particularly in Afrikaans and isiXhosa LOLT schools, while the teacher interventions were especially strong in their impact on English LOL schools. **The approach of including both learner and teacher interventions showed promising results** in improving educational outcomes, despite challenges in participation and measurement.

The BoT programme demonstrated significant success in mitigating learning losses caused by the COVID-19 pandemic. Key achievements include:

1. Substantial gains in both language and mathematics, **with some interventions resulting in nearly a full year of learning recovery through attendance of only 9 Saturday sessions.**
2. Dual-language benefits for isiXhosa LOLT learners, indicating broader language development.
3. Positive impacts of teacher participation, particularly in mathematics for English and isiXhosa LOLT schools.

"Participation rates were low, with barely half of targeted learners attending more than half of the sessions"

Despite these successes, challenges remain. Participation rates were low, with barely half of targeted learners attending more than half of the sessions. Additionally, the inability to directly link learners to their teachers likely led to an underestimation of teacher impacts. Future efforts should focus on increasing participation and improving data linkages to better measure programme effectiveness.

Appendix

To test the model's results for grade 4, in another set of regressions the SBA performance in Term 1 of 2024 for grade 5 was used as the outcome variable instead of the SBA in Term 4 of 2023 for the same learners. These results show remarkable similarity to the results described above and enhance the confidence in these results. Quite similar but somewhat weaker results were obtained for the Afrikaans and isiXhosa LOLT schools in language, whereas English LOLT schools did not show any significant results. For mathematics, only Afrikaans LOLT schools showed any significant effects.

Appendix Table: Effects confirmed in some cases even when using Gr5 Term 1 rather than grade 4 Term4 (weighted) as the outcome measure (bold indicates effects are significant at the 5% level)

	Language				Mathematics		
	Afrikaans	English	isiXhosa	EFAL	Afrikaans	English	isiXhosa
Grade 3 in 2021 Systemic Test: Outcome SBA in G4, Term 4							
FE, Continuous, Book A	**37%**	**14%**	**24%**	**22%**	**23%**	0%	16%
FE, Continuous, Book B	**39%**	0%	32%	**26%**	**26%**	-15%	18%
MM, Continuous, Book A	**37%**	**14%**	24%	**22%**	**26%**	-15%	18%
MM, Continuous, Book B	**39%**	0%	32%	**26%**	**28%**	-14%	17%
FE, Binary, Book A	**27%**	8%	15%	**15%**	**16%**	-1%	11%
FE, Binary, Book B	**27%**	6%	22%	**18%**	**20%**	-5%	12%
MM, Binary, Book A	**27%**	8%	15%	**16%**	**17%**	-1%	11%
FE, Binary, Book B	**28%**	5%	22%	**19%**	**21%**	-4%	11%
Grade 3 in 2021 Systemic Test: Outcome SBA in Gr5, Term 1							
FE, Continuous, Book A	**15%**	-8%	**12%**	**17%**	**11%**	-3%	5%
FE, Continuous, Book B	**18%**	-12%	**13%**	9%	**14%**	-14%	4%
MM, Continuous, Book A	**15%**	-11%	**12%**	**16%**	**11%**	-3%	5%
MM, Continuous, Book B	**18%**	-13%	**13%**	8%	**15%**	-13%	4%
FE, Binary, Book A	**13%**	0%	**8%**	**11%**	**7%**	1%	4%
FE, Binary, Book B	**13%**	4%	**9%**	7%	**12%**	-7%	2%
MM, Binary, Book A	**13%**	-2%	**7%**	**10%**	**8%**	1%	4%
FE, Binary, Book B	**13%**	3%	**9%**	7%	**13%**	-7%	2%

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