



LEARNING BRIEF

SUSTAINABILITY OF THE EARLY GRADE READING STUDY

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basic education
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INTRODUCTION

South Africa, like other developing countries, has low literacy learning levels particularly in the early grades. The 2016 Progress in International Reading Literacy Study (PIRLS), which benchmarks reading in Grades 4 and 5, ranked South Africa last in reading out of 50 participating countries. The Annual National Assessments (ANAs), and the Education Evaluation and Development Unit (NEEDU) National Report, found similar problems with learners' ability to read further signalling to a serious reading challenge in the country.

Why is this important? Reading is the foundation upon which all other learning takes place. Learners cannot excel in mathematics and other subjects without being able to comprehend, with meaning, the underlying text. Teachers who do not have the content knowledge, pedagogic knowledge, and materials required to teach the foundational skills of reading cannot be expected to teach learners to 'read to learn'.

The next generation of skilled workers should come from this very cadre of learners, three quarters of whom currently cannot read for meaning in any language (PIRLS, 2016). This places the country in a position where skills will not be in place to produce the economic growth needed to sustain the South African economy.

Considering the importance of reading within the national narrative, this learning brief presents the results of the South African Department for Basic Education's (DBE) Early Grade Reading Study (EGRS) – the largest known and most rigorous reading study in South Africa to date.

THE EARLY GRADE READING STUDY

Reading is a complex issue that requires a systemic approach to improving learners' foundational skills. All the available evidence to date shows that discrete or episodic project-based interventions will not solve this crisis in isolation. Part of the problem is the significant time it takes to build the human capacity necessary for sustainable change. These interventions consequently have not amassed to lead to improvement at a systems level.

To address this challenge, in 2015, the DBE initiated the EGRS in collaboration with academics at the University of the Witwatersrand, the Human Sciences Research Council (HSRC), and Georgetown University (USA). The EGRS compares the effectiveness of three promising systemic interventions to improve reading outcomes in learners' home language.

The three EGRS interventions include:

1. A **teacher training intervention**: The first intervention provides teachers with lesson plans aligned to the National Curriculum Statement Grades R-12 (NCS) including the Curriculum and Assessment Policy Statements (CAPS), as well as additional quality reading materials and training at centralized workshops twice a year;
2. An on-site **teacher training and coaching intervention**: The second intervention provides teachers with the same set of lesson plans and reading materials as the first but additionally provides ongoing support to teachers through specialist on-site coaching and small cluster training sessions; and
3. A **parental intervention**: The third intervention involves weekly meetings with parents to discuss the importance of learning to read in the early grades and to empower parents with the knowledge and tools to enable them to become more involved in their child's literacy development.

The first two EGRS teacher support interventions are grounded in the educational theory of reading acquisition. To start, a child needs to develop vocabulary and master decoding. Decoding relies on phonological and phonemic awareness and letter-sound knowledge, which underpin word recognition and Oral Reading Fluency (ORF). Letter recognition, knowing the sound associated with letters, and phonemic awareness do not come naturally and need to be taught: they are mastered through systematic teaching and consistent practice.

Learning the basics of decoding, following the CAPS balanced approach, requires a teacher who is present, capable, and motivated to deliver systematic reading instruction. For decoding to become fluent, the child requires suitable, graded materials and the opportunity to practice both at school and at home.

The EGRS teacher interventions address these needs in various ways:

- **Scripted lesson plans** provided to teachers in both intervention groups to promote systematic teaching practice based on sound pedagogical theory;
- **Learning and Teaching Support Materials (LTSM)**, including graded reading materials, for learners to practice decoding and reading at their level of development. Teachers assign learners appropriate graded readers and assign them to smaller reading groups based on ability. Group Guided Reading allows the teacher opportunities to provide individualized attention to learners; and
- **A reading coach**, for the ‘training and coaching’ intervention only, who provides teachers with intensive ongoing training and support in the classroom to improve their capacity.

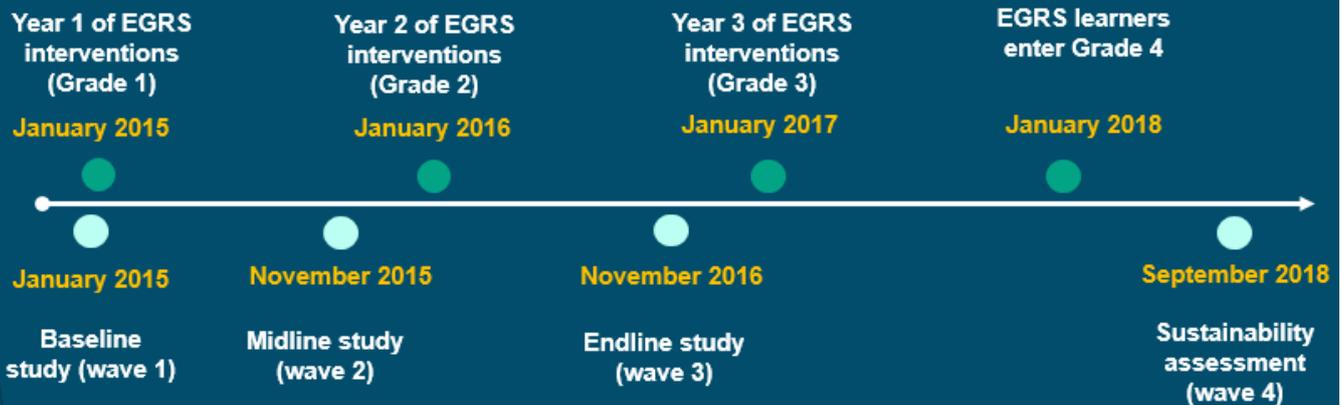
Both EGRS support interventions applied the same set of instructional practices in the teaching of Home Language literacy in Grade 1, 2, and 3 classrooms. They also provided teachers with clearly scripted lesson plans aligned to the curriculum as specified in the CAPS for Home Language literacy in the Foundation Phase. The teachers in the ‘teacher training’ intervention were trained on how to use the lesson plans and materials through central training sessions, each lasting two days, and occurring twice per year. The ‘training and coaching’ teachers received one-day cluster training sessions at the start of each term and additionally received ongoing support consisting of regular (monthly) in-school coaching from specialist reading coaches. They also attended occasional needs-based training sessions.

The EGRS interventions were implemented by an organisation called Class Act in 150 quintile 1- 3 schools across two districts in the North West province of South Africa. Each intervention was implemented in a separate group of 50 schools with a further 80 control schools where ordinary schooling continued. They were implemented with the teachers and parents of Grade 1 learners in 2015, the teachers and parents of the same learners in Grade 2 in 2016, and the first two teacher interventions were extended to the teachers of the same learners in Grade 3 in 2017, covering the Foundation Phase of schooling.

The DBE used a formal impact evaluation methodology known as a Randomised Control Trial (RCT), complemented by a 60-classroom observation study and eight detailed case studies, to understand where, how and why each of the interventions worked or did not work. The HSRC collected baseline data (wave 1) on learner reading ability at the start of 2015 when the learners had just begun Grade 1. Midline data (wave 2) was collected at the end of 2015 when the same learners had completed Grade 1 and endline data (wave 3) was collected at the end of 2016 when most of the learners were in Grade 2.

Timeline

EGRS Intervention



EGRS Evaluation

LOOKING BACK: INITIAL RESULTS

The study found, after one year of implementation, that both the ‘teacher training’ and ‘training and coaching’ interventions had a small positive impact on learner reading performance. The impact translates to approximately 20% of a year of learning. The impact of the parental involvement intervention was small but non-significant. There was a stronger impact for boys than girls, and urban schools (33% of the sample) had larger gains than rural schools.

After two years of implementation, the ‘training and coaching’ intervention had the highest impact, with learners who had received two years of the coaching intervention being approximately 40% of a year of learning ahead of the learners in the schools that received no intervention (control schools). The ‘training and coaching’ intervention also had a positive effect on English and helped boys “catch up” to some degree to girls. The ‘teacher training’ and ‘parental involvement’ interventions both had small positive impacts, but these were not significantly different from zero. By the end of the second year, the impacts of all three interventions were larger in urban township settings. No measurable impacts were found in deep rural settings. Furthermore, both the ‘teacher training’ and the ‘training and coaching’ interventions benefitted relatively large classes (38 to 45 learners) whereas in very large classes (50+ learners) the impact lessened.

In the ‘training and coaching’ and ‘teacher training’ intervention schools, more teachers reported experiencing professional support than teachers in the control schools. Similarly, more teachers in both the ‘teacher training’ and ‘training and coaching’ interventions reported that they used Group Guided Reading and that their learners used the graded readers provided than teachers in the control schools. These practices were observed more frequently in the ‘training and coaching’ intervention relative to the ‘teacher training’ intervention.

TAKING STOCK: SUSTAINABILITY RESULTS

To evaluate the sustainability of the EGRS, a fourth wave of data was collected in 2018 with a focus on measuring two types of sustainability:

- Whether the results from the original cohort of learners who received the interventions would be **sustained into Grade 4** in 2018, one year after they had the benefit of being taught by teachers who had received the EGRS¹.
- Whether a **new cohort of learners in Grade 3** in 2018, whose teachers had received the EGRS interventions a year earlier, would benefit from a **sustained change in teacher instructional practices**.

The data was collected by Khulisa Management Services (Khulisa) and analysed by the DBE in collaboration with the Research on Socio Economic Policy unit (ReSEP) at the University of Stellenbosch.

GRADE 4 SUSTAINABILITY RESULTS

The study found that the impacts on the original cohort of learners persisted into Grade 4, with learners whose teachers received the ‘teacher training’ and ‘training and coaching’ interventions performing better in their Home Language than those in the control group. The magnitude of the advantage held by learners in the coaching group in 2018 was similar to that after two years of intervention.

Figure 1 below presents the results of an ORF test for learners in each of the three intervention groups and the control group. In this test, each learner was asked to read a Setswana text passage out aloud. The assessor stopped the learner after one minute and recorded all of the words read accurately within that timeframe. This test is an important indicator of reading ability as learners need to be able to read words accurately and at a sufficient rate to make meaning of the text.

In all four groups, at least 86% of learners could read at least one word correctly in a minute (although 14% of learners could not). Considering an arbitrary threshold of 40 words read correctly², approximately 60% of the learners in the control and ‘parental intervention’ groups could read at this level. In the ‘teacher training’ intervention group, this percentage was slightly higher at 65% and in the ‘training and coaching’ group, 70% of the learners could read at this level. Learners in the ‘training and coaching’ intervention group, followed by learners in the teacher training group, were consistently able to read more words correctly per minute than learners in the other groups. The impact of the ‘training and coaching’ intervention was largest for learners in the mid to lower range of the performance distribution.

¹ Some learners were held back a year and were assessed in their repeat Grade

² This is an arbitrary threshold set for the purposes of interpreting the graph. Once reading norms have been developed for Setswana, a more meaningful threshold may be used.

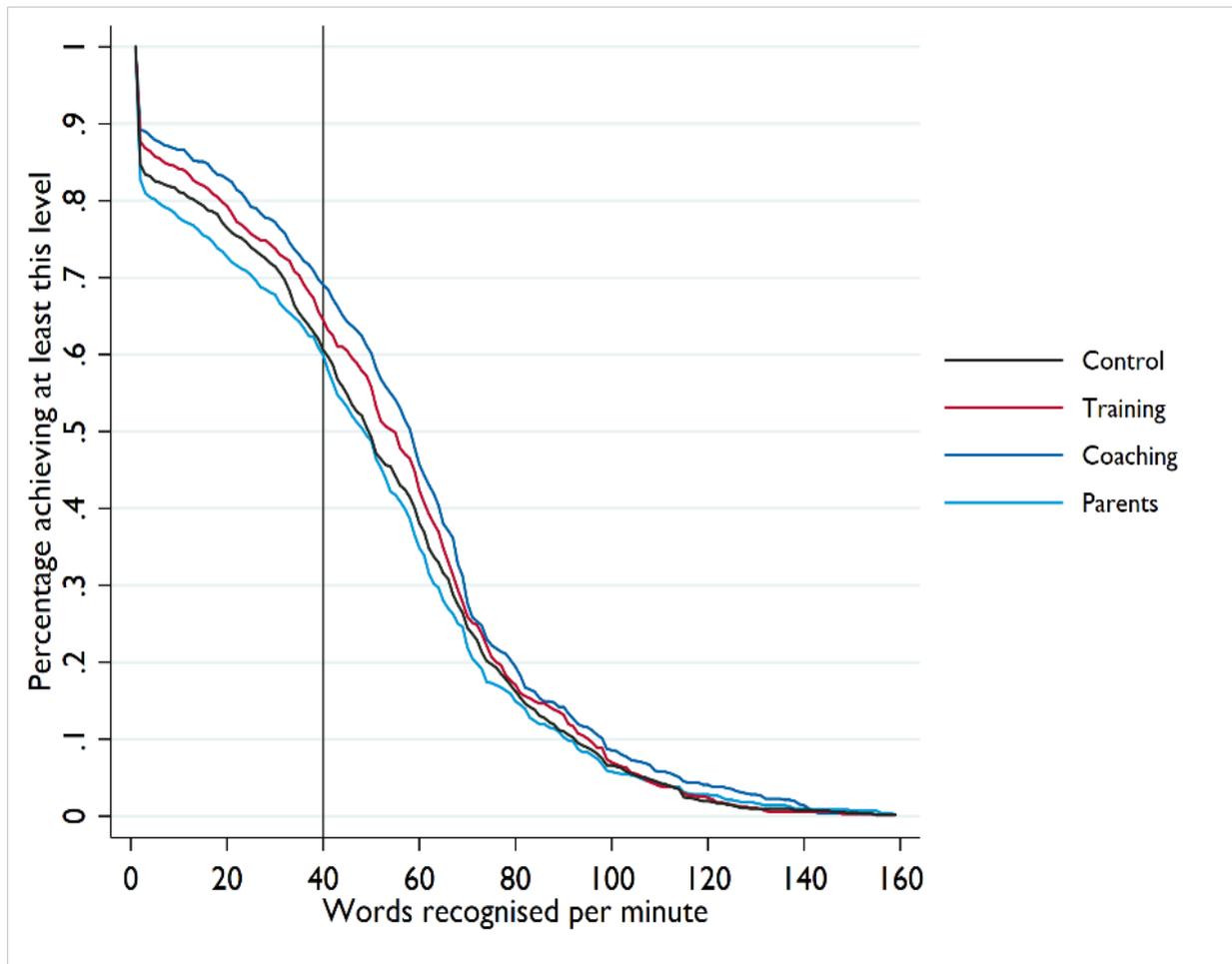


Figure 1: Setswana Text Oral Reading Fluency

Whilst in 2016, the ‘training and coaching’ intervention was estimated to be about twice as effective as the ‘teacher training’ intervention (and therefore most cost-effective), by 2018 the gap had narrowed. Overall, there was a more positive impact on the learners of the ‘training and coaching’ intervention than the ‘teacher training’ intervention. A positive spillover impact on English was also observed, confirming the initial evaluation findings.

Controlling³ for learner gender, the district in which the school was located, learner performance on the baseline sub-tests, the school’s average performance on the 2014 ANAs and some community-level controls, did not affect the ‘training and coaching’ intervention results. However, the controls affected the ‘teacher training’ intervention results quite remarkably. The inclusion of controls led to a significant impact of the ‘teacher training’ intervention on most of the Setswana reading sub-tests as well as the composite measure of the sub-test scores.

Figure 2 breaks down performance per intervention group on the composite measure of the Setswana reading sub-test scores. The graph shows the results for the full sample of learners

³ Control variables are variables that may affect the relationship between two other variables. For example, a study may find a positive statistical relationship between coffee drinking and lung cancer. However, coffee drinking is not known to cause lung cancer. Whether the person smokes or not (third variable), may be driving this false relationship. You want to make sure that the effects of this third variable are removed from the equation (or ‘controlled’) so that you can get a clear picture of the real relationship between your variables of interest.

and for a sample restricted to include only the learners that successfully progressed to Grade 4 by 2018 (maximum dosage sample). In both cases, the ‘teacher training’ and ‘training and coaching’ interventions showed sustained impacts that were significantly different from zero (i.e. it is likely that there is a real difference between these groups). As expected, the maximum dosage sample showed stronger impacts than the full sample of learners.

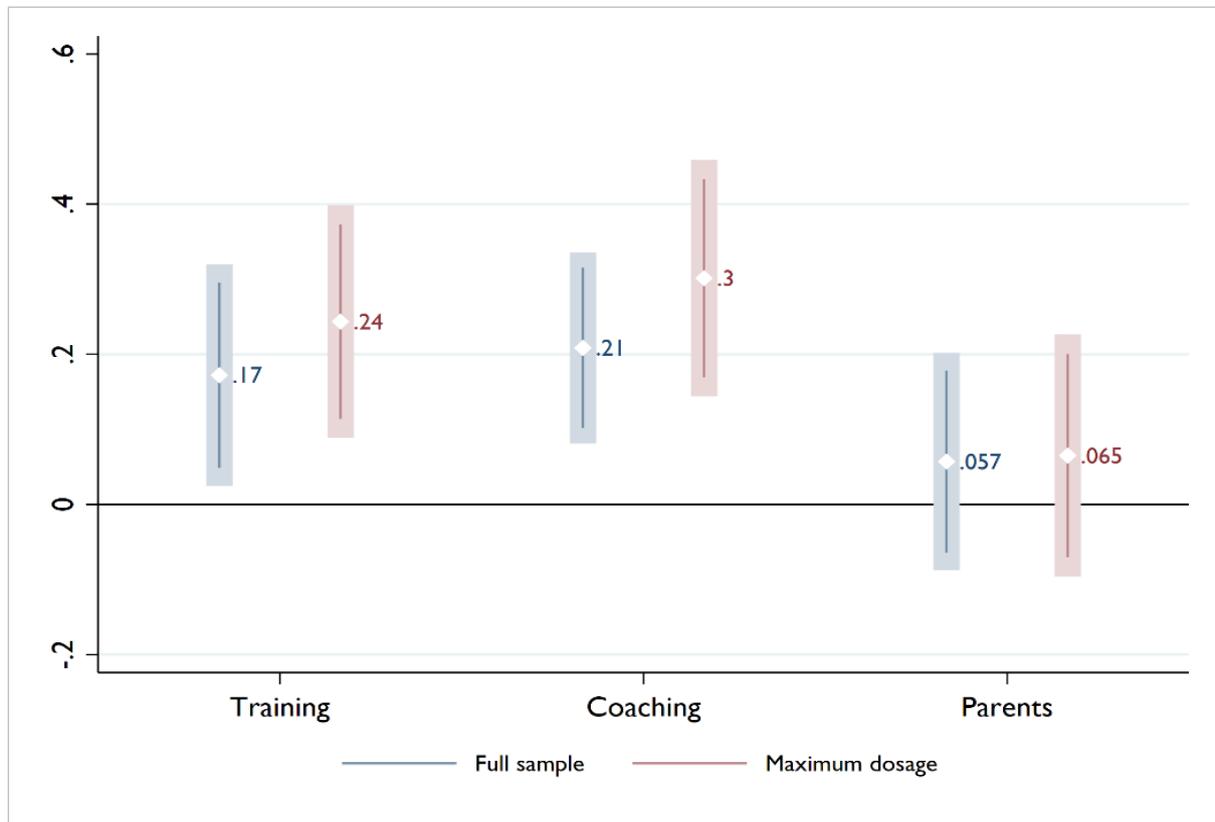


Figure 2: Graphical Representation of Estimated Intervention Effects (Grade 4 Sample)

To determine the change in the size of the gap between the different interventions groups and the control group in Grade 4 relative to the gap when they were in Grade 2, the results were compared across the two points of data⁴. At the end of Grade 2, learners in the control group could, on average, read 18.9 words per minute. In the Grade 4 assessment, the same learners read an average of 29.8 words per minute, which meant that they could identify 11 words more per minute than they could in Grade 2. Over and above the gains of the control group, the learners in the ‘teacher training’ group read approximately 2.3 words more per minute than the control group (approximately 22 words) at the end of Grade 2, and about 3.3 words more per minute (approximately 33 words) at the end of Grade 4. Learners whose teachers were in the ‘training and coaching’ group read approximately 3.7 words more per minute than the control group (approximately 23 words) at the end of Grade 2, and 3.8 words more per minute (approximately 34 words) at the end of Grade 4. This suggests that the learning gains of the learners in the two teacher support interventions were sustained into Grade 4.

Learners whose teachers were in the ‘training and coaching’ intervention did not increase or decrease in their performance from Grade 2 to Grade 4. By contrast, by the end of Grade 4, learners in the training intervention gained more relative to learners in the control group. The

⁴ The sample was restricted to only include those learners who were present at both assessments. Some learners had moved schools, were held back, or were absent on the day of the assessment.

small gain in the parental involvement intervention had eroded by half at the end of Grade 4. The learners in the ‘teacher training’ group caught up to some degree to learners in the ‘training and coaching’ group on word recognition, paragraph reading, and comprehension, although the effects remained smaller overall.

GRADE 3 SUSTAINABILITY RESULTS

The evaluation of the new Grade 3 sample also found positive impacts of both the ‘teacher training’ and ‘training and coaching’ interventions on learner reading outcomes, although the effect sizes were smaller than those seen in the original cohort of EGRS learners and not consistently statistically significant across various reading domains. These positive estimates were larger and more robust for the ‘training and coaching’ group compared to the ‘teacher training’ group. There were also positive spillover effects on English outcomes in the Grade 3 sample.

Figure 3 below shows the performance per intervention group on the composite measure of the Setswana reading sub-test scores. The graph shows the results for the full sample of learners and for a sample restricted to exclude multi-grade classes and include controls. Grade 3 learners in schools whose teachers received the ‘training and coaching’ intervention had a 0.12 to 0.15 standard deviation advantage in Setswana reading and literacy (as expressed in a composite score) over their peers in control schools.

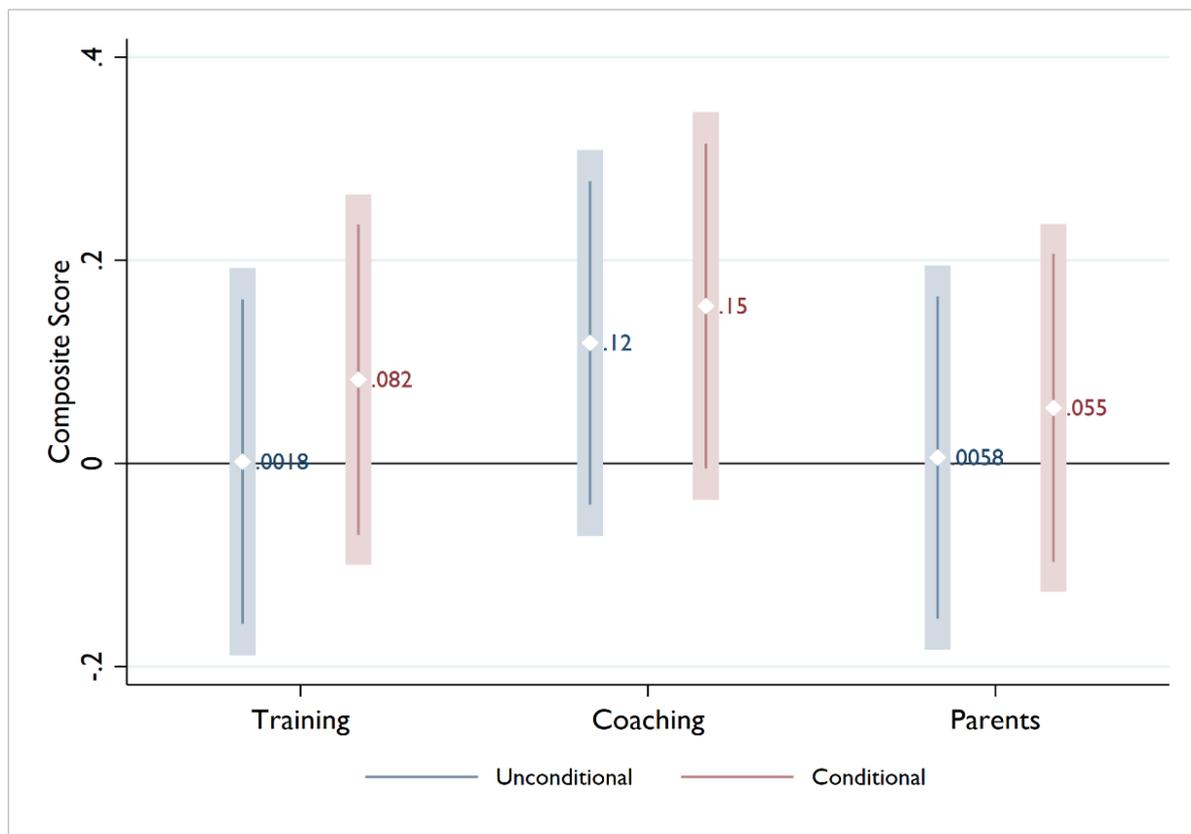


Figure 3: Graphical Representation of Estimated Intervention Effects (Grade 3 Sample)

To determine whether teachers are still implementing what they were training and coached on a year following the intervention, Grade 3 teachers were asked to report on their weekly classroom and other activities.

Grade 3 teachers in the intervention schools were almost three times more likely to use lesson plans and were 72 - 76 percent more likely to use the Vula Bula graded readers than teachers in the control schools. Compared to teachers in the control schools, teachers in the 'teacher training' group were three times more likely, and teachers in the 'training and coaching' schools were one and a half times more likely, to use lesson plans and both groups were over four times more likely to use the Vula Bula graded readers. These findings are encouraging for sustainability.

On the other hand, teachers in both the 'teacher training' and 'training and coaching' interventions were *less* likely to have received professional in-service teacher training on how to teach Setswana in 2018. It is possible that the provincial government is prioritising non-intervention schools to receive training in the years following the EGRS intervention. If control schools were exposed to other useful training following the EGRS, this may decrease the size of the differences in learning and teacher practice between the control and intervention schools a year after the intervention. Any estimates should, therefore, be interpreted as a *lower bound*.

Teachers that received 'training and coaching' were more likely to implement Group Guided Reading and Shared Reading at the appropriate level of frequency. There were no impacts on these indicators for teachers that received the 'teacher training' intervention. However, both the 'teacher training' and 'training and coaching' intervention teachers were far more likely to respond correctly to questions about phonics than the other groups.

LOOKING FORWARD: LESSONS AND IMPLICATIONS

The primary finding of the sustainability assessment is that the impacts on the original cohort of EGRS learners have persisted, with both the 'teacher training' and 'training and coaching' groups of learners continuing to perform better in their Home Language than those in the control group. The magnitude of the advantage held by children in these groups is roughly similar to that observed after two years of intervention. Using one method of benchmarking the effect size, one can say that those learners in the 'training and coaching' group are approximately 40% of a year of learning ahead of those in the control group. A positive spillover impact on English was observed, confirming what was found after two years of implementation.

Whilst in 2016, the 'training and coaching' intervention was estimated to be about twice as effective as the 'teacher training' intervention (and therefore most cost-effective), by 2018 the gap between 'teacher training' and 'training and coaching' narrowed placing the two interventions in a similar range of cost-effectiveness. On balance, the 'training and coaching' intervention provided more evidence of a positive impact than 'teacher training' did. For instance, in 2018, the 'training and coaching' intervention showed significant positive effects on all Setswana sub-tests whereas the 'teacher training' intervention did not show significant effects on letter sound recognition or the written comprehension test.

Looking at the sustainability of the interventions on teacher practices one year after receiving the interventions, the Grade 3 sample showed positive impacts for the 'teacher training' and 'training and coaching' interventions, although the effect sizes were smaller than the original EGRS learner groups and were not consistently statistically significant across the learning domains. The 'training and coaching' group again saw larger impacts than the 'teacher training group'. As with the original EGRS sample, there were also positive spillover effects on English outcomes. There was no clear and consistent evidence of any differential effects on specific sub-groups of children or schools within the Grade 3 sample (e.g. on urban versus rural schools, or large versus medium sized classrooms).

Interviews with Grade 3 teachers provided some insight. Firstly, teachers in the ‘training and coaching’ and ‘teacher training’ schools were almost three times more likely, compared to the control group, to report using external lesson plans and the Vula Bula reading series. This indicates a sustained use of the materials provided through EGRS or at the very least a sustained awareness of the materials they should be using. Teachers in intervention schools were significantly more likely to say they conducted Group Guided Reading on a daily basis and were also more likely to follow the correct routines for Group Guided Reading and creative writing. Supporting teachers to implement these activities was a core element of the EGRS teacher interventions.

A first policy implication of these findings is that effective early interventions in reading may have benefits that last and can contribute to long-term improvements in educational outcomes. Secondly, the provision of support to teachers through a structured learning programme with integrated materials can make a significant difference. In the absence of rigorous impact evidence of what makes a positive impact in South Africa’s primary schools, this is an important finding. It also confirms that DBE’s initiatives, such as the Primary School Reading Improvement Project and the work done by the National Education Collaboration Trust, which makes use of similar structured lesson plans, are on the right track.

Both the ‘teacher training’ and the ‘training and coaching’ interventions included substantial direct additional support to teachers, whether through four days of residential training per year or through monthly on-site coaching visits. This level of support is often lacking in existing initiatives provided through district officials and the School Management Team, and in other external initiatives. Although district-level subject advisors have an important role to play in providing systemic support to schools, the low ratio of subject advisors to schools and their wider range of job responsibilities means that more direct forms of support will need to be explored. The critical importance of addressing the reading challenge in South Africa means that this is crucial, particularly in light of the evidence produced through the EGRS.

WAY FORWARD

The positive findings of the EGRS evaluation led the DBE to decide to implement a second phase to the first EGRS, called the Reading Support Project (RSP). The DBE will evaluate whether the results hold if the interventions are rolled out at scale. In addition to the Grade 3 and 4 data collected in 2018, Grade 1 baseline data for the RSP was collected during the same period. In 2019 and 2020, the two EGRS teacher interventions will be rolled out to all quintile 1 – 3 Setswana schools (263 schools) in the two EGRS districts of the North West province. Instead of staggering the roll-out (as was done in the first phase), the interventions will be rolled out to all Foundation Phase teachers from Grade 1 – 3 at the same time, and will focus on the teaching of both Home Language (Setswana) and English as First Additional Language (EFAL).

All schools in the sample will receive the scripted lesson plans, with the integrated learning and teaching materials, as well as quarterly training on the use of the lesson plans. More than half of the schools (n = 140) will receive regular on-site coaching by a specialist reading coach. Eighty-two (82) of the ‘training and coaching’ intervention schools will additionally receive professional development of school principals and the heads of department for the Foundation Phase. Finally, as a layer of cross-randomization, classroom libraries will be randomly assigned to 110 schools across the two districts. The RSP will be evaluated using an impact evaluation design.



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