

Edulution Programme Efficacy Report in South Africa

Reporting Period: 1st March 2021 to 31st December 2023

1. Introduction

In March 2021, the Edulution team opened the first of 30 learning centres with the aim of improving numeracy and ICT skills at selected primary schools. The team faced numerous challenges over 3 years and learned many lessons but was able to fulfil on the objectives laid out by Department of Basic Education (DBE).

After an extended period of negotiations starting in 2019, a Memorandum of Agreement (MOA) between the Department of Basic Education (DBE) and the Sesego Foundation (Sesego) was signed on 12 November 2020. The purpose of the MOA was to collaborate and pilot the Edulution programme in public sector primary schools for a period of 3 years.

Edulution Learning South Africa, NPC was the service provider for this pilot project under a back-to-back agreement with the Sesego Foundation.

The Edulution programme was first rolled out in KwaZulu Natal (KZN) in the 2021 and then into Mpumalanga.

The 4 objectives of the MOA were:

1. **To provide extra-curricular foundational numeracy and literacy** in a “catch up” programme to primary school learners, initially targeting grades 4 to 6.
2. **To improve educational outcomes for learners** who participate in the programme through regular testing and tracking individual progress and results.
3. **To reduce unemployment and promote enterprise development** in rural communities by providing jobs for young people to become coaches who facilitate learning.
4. **To demonstrate how the programme can be successfully scaled up** to reach thousands of learners in all nine provinces across the country.

Objective 1: Edulution successfully provided extra-curricular foundational numeracy

- By the end of 2023, Edulution had 7 Hub employees and 62 coaches and had delivered 1 738 322 hours of numeracy learning to 9 357 Grade 4 to 7 learners across 25 Quintile 1 & 2 primary schools.
- A decision was made by the DBE early in the programme not to introduce Edulution’s literacy content during the 3 year pilot given the need to focus on addressing the numeracy learning losses exacerbated by the Covid-19 pandemic.
- Over the course of the pilot, Edulution invested R30.6 million in donor funding into improving learner outcomes and providing job opportunities for previously unemployed youth.

Objective 2: Edulution improved educational outcomes for learners

- In internal assessments, 32% of learners were working on content at their Grade level at the end of the pilot, a substantial increase from 3% at the start of the pilot in March 2021.
- In an independent external evaluation, Edulution learners outperformed the control group of learners in the same schools by an average of 34%.

- 6 414 learners who participated in a survey said the Edulution programme had a very positive impact on them.
- In addition to numeracy skills, the Edulution programme enhanced the learners technology skills.

Objective 3: Edulution reduced unemployment and promoted enterprise development

- Over the course of the pilot, R9.5 million was invested in providing 82 previously unemployed youth (average age of 26) with employment on the Edulution programme. 62 or 76% of these coaches remained with Edulution throughout the programme.
- Coaches were recruited from the areas around the schools, based on their ability to satisfy the selection criteria. 90% of coaches were selected from communities within 20km of the schools.
- Coaches attended extensive training programmes for personal and professional development.

Objective 4: Edulution demonstrated how the programme could be successfully scaled

- To scale, any programme must first demonstrate its efficacy and Edulution has done so.
- The speed at which the team was able to open centres at 30 schools across two provinces and serve over 9 000 learners with over 80 coaches bears testament to the scalability and robustness of Edulution's operating model and platform.
- To scale, organisations need to be resilient and adaptable and Edulution was able to be both.
- To scale, key stakeholders need to first adapt to and then adopt the programme. Positive feedback from various stakeholders indicates that the programme was well received. Some of these key stakeholders include the DBE, DoE, SMT's and educators, partners and funders.
 - The DBE praised and acknowledged the efficacy of the programme
 - In a qualitative survey, 97% of educators indicated they want the programme to continue
 - Funders continue to support Edulution's vision and mission

2. Programme efficacy

2.1 Qualitative feedback from School Management Teams

Feedback from the SMT's was welcomed throughout the programme. Feedback was either anecdotal or through the two educator surveys that were conducted at the schools. While there were issues that some of the SMT's felt the programme should address, such as timetabling, aligning aspects of the Edulution programme to what was being taught by the teachers and educators receiving further training, the overall response from the SMT's was positive. In a survey completed in October 2023 with 20 of the 25 schools, 97% of the educators said that they wanted the programme to continue after the pilot.

Anecdotal feedback from educators as a result of the introduction of the Edulution Programme

- Improvement in the Mathematics and English test results of learners
- Improvements in learner attendance and discipline
- An increase in the number of new learner applications at the school because of the programme
- The Edulution programme should be compulsory for all learners

Feedback from the internal educator survey conducted at 8 schools in KZN in October 2021

- 100% of educators
 - would recommend Edulution to another school
 - agree the Edulution programme demonstrates that e-learning can be integrated within a school
 - agree the programme helps educators better deliver their curriculum objectives
- 83% of educators
 - agree the attitude of learners to maths and their school attendance has improved
 - agree learners maths skills have improved since the program started

Feedback from the external educator survey conducted at 20 schools in SA in October 2023

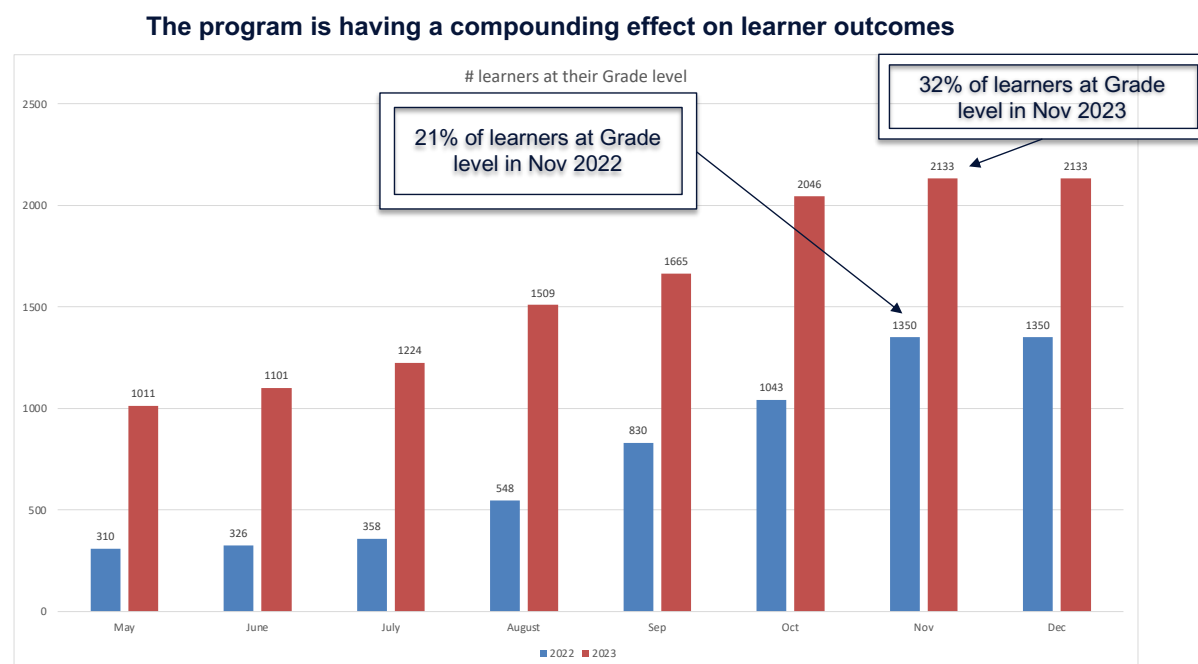
An independent survey was conducted by Povaddo. Feedback was constructive and confirmed the positive impact of the pilot programme.

- Key issues raised and opportunities for improvement
 - Offer support to schools to address the timetabling issue as it can be resolved
 - Train teachers on how the Edulution programme can be used to further support them
 - Create some alignment of the programme to the teachers ATPs (Annual Teaching Plan)
- Some of the responses
 - 97% of educators think the program could add value in their classroom
 - 70% say that enrollment at the schools has improved
 - 65% say that there has been a big improvement in maths marks at the school

2.2 Internal testing: % of learners engaging in content at their Grade level

Learners working on content that is at their Grade level enables teachers to better deliver their curriculum objectives.

At the end of the pilot, the percentage of learners working on content that was ahead, at or behind their Grade level is shown below. When the programme started in March 2021, baseline tests revealed that 3% of learners were at their Grade level.



2.3 External testing : Results of Brombacher and Associates Independent Evaluation

SA		
	Goal	2023 Actual - November
# Baseline evaluations conducted	20	25
# Baseline evaluation reports	20	23
# Year one (midline) evaluations conducted	20	21
# Year one (midline) evaluation reports	20	20
# Year two (end line) evaluations conducted	20	10
# Year two (end line) evaluation reports	20	9

Over the 3-year duration of the pilot, Brombacher and Associates conducted annual assessments of learners in schools participating in the Edulution programme. The purpose of the assessments was to independently measure the impact of the Edulution programme on learner progress in mathematics.

7 879 learners were assessed. 6 036 learners were enrolled on the programme and formed the treatment group. 1 843 learners in the same grades at the same schools but *not on the programme* formed the comparison group.

The final analysis was conducted on a group of schools that had been on the programme for two years and another group who had been on the programme for three years.

The assessments for each grade had an equal distribution of items at four different grade levels: the grade level of the learner and the three grades that precede that grade.

The value of this design was that it accounts for possible floor effects that may occur if the items of the assessment were only at the grade level of the learner. This design made it possible to determine of the effective grade level of the learner.

In their final report, Brombacher and Associates used four different lenses to analyse the data. A brief summary is presented below:

- **Difference in difference analysis**
- **Time on programme**
- **Edulution performance bands**
- **Analysis by content, cognitive demand and grade level equivalence**
- **Average gross test score analysis for Grade 6 and 7 learners**

Difference-in-difference analysis

Difference-in-difference represented how much the average score of the treatment group had changed in the period between the start and end of the treatment. This was compared to what would have happened to the same group had the intervention not happened. The change in the average score over the treatment period of the comparison learners represented what one would expect to have happened had there been no intervention. Any increase in the change of the average score of the treatment group that was greater than the change of the average score of the comparison group was then attributed to the intervention.

In the context of an intervention such as the Edulution programme, a difference-in-difference analysis was attractive since its focus was on change, rather than the absolute levels, the groups being compared can start at different levels.

Two difference-in-difference analyses were conducted for each cohort of learners. The first was based on the items that are common to the assessment that learners in each cohort wrote at the start of the treatment period and again at the end of the treatment period. The second was based on all the items in the assessment that learners wrote at the start of the treatment period and again at the end of the treatment period.

The following trends were observed:

Irrespective of the nature of the analysis (common-item or all-item), the difference-in-difference is positive, proving that the programme has had an impact. The table below shows how learners who had been on the programme for two years (two year schools) and three years (three year schools) outperformed the comparison learners. The learners in cohort 45 for example represent the same treatment and comparison learners who in year 1 were in Grade 4 and in Grade 5 in year 2. Expressed as a percentage of the baseline score, the difference-in-difference value represented the following significant percentage increases:

	Cohort	Percentage increase (difference-in-difference as a proportion of the baseline score)	
		Common-items	All-items
Two-year schools	45	42,9%	25,5%
	56	34,4%	21,9%
	67	22,9%	18,2%
Three-year schools	456	37,5%	22,3%
	567	33,2%	25,3%

Across all cohorts with the common items, the average percentage increase was 34% for the Edulution learners. The analysis also suggested that the learners who start the programme earlier in their school career benefit more from the intervention than those who start later.

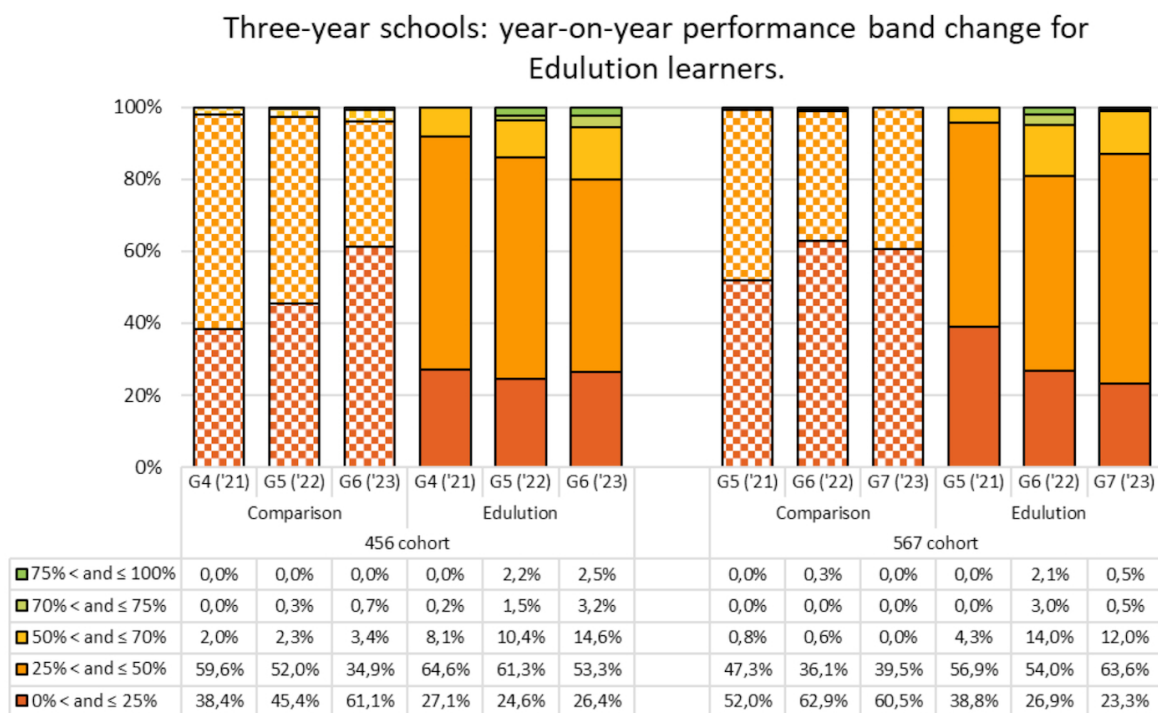
Time on programme

Analysing the data for time on the programme for each learner, it was possible to explore the impact of dosage on the increase in learner performance. The average learner on the Edulution programme received just under 11 hours per month.

- Learners who are on the programme for less than 40 hours do not appear to receive any significant benefit from the programme.
- Between 40 and 80 hours, learners gain an average of 3 to 4% for every additional 20 hours.
- In the case of the three-year school learners, of whom more than 50% had been on the programme for more than 100 hours, on average, every additional 20 hours after 80 hours also contributed to an additional increase in score of 3%.
- Duration on the programme is at least as important as dosage.

Edulution performance bands

The Edulution programme established and used five different performance bands to classify learner performance. The figure below for learners who had been on the programme for 3 years illustrates their distribution by performance band over the duration of their participation.



In all instances, the comparison learners fall further behind as they progress up the grades while the opposite is true for the Edulution learners. There was a clear shift from one year to the next with the

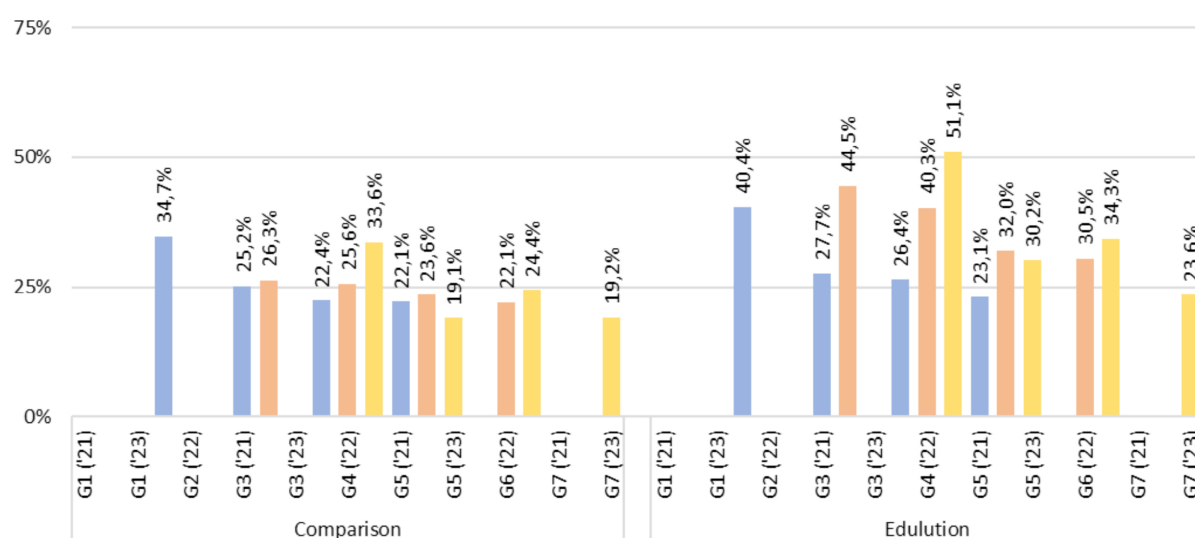
proportion of Edulution learners in the lowest 2 bands decreasing and the proportion in the higher three bands increasing. This was particularly evident when comparing the Edulution cohorts with the corresponding comparison cohorts where there was little or no evidence of similar shifts.

Analysis by content, cognitive demand and grade level equivalence

Learners performed better on Numbers, Operations and Relationships than they did on Patterns, Functions and Relationships, and better on Patterns, Functions and Algebra than they did on Space and Shape (Geometry). This was probably on account of the time allocated to these topics both in class in general and on the Edulution programme. As well as their relative cognitive demand.

Learners do better on items that focus on knowing than on the items that assess their ability to apply that knowledge.

The figure below disaggregates the assessment data for each cohort by the grade level equivalent performance for learners who had been on the programme for 3 years.



Learners performed better on items associated with earlier grades than on items that assess performance at their grade level. Almost all the learners in the programme were not ready for the mathematical demands of the grade in which they are.

In all cases the Edulution learners performed better in the second (and third) years than they responded to the common items in the earlier years. This too was in contrast with the trend in the comparison data. This showed that Edulution learners were improving on the earlier content preparing them better to benefit from the learning opportunities of the grade in which they are.

Average gross test score analysis for Grade 6 and 7 learners

The average learner on the Edulution programme was able to move their maths results from failing mathematics (average of 24-25%) to passing mathematics (35-41%). The pass mark for mathematics in South Africa being 30%. This being as a result of the benefit they realised from attending school and the Edulution programme. The Grade 6 learners showing an improvement of 59% and the Grade 7 learners an improvement of 47%.

