

# Policy Brief: Estimating the impact of five Early Childhood Development programmes<sup>1</sup>

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Little is currently known about the quality and impact of early childhood development (ECD) programmes in South Africa. The development and benchmarking of a culturally appropriate test, the Early Learning Outcomes Measure (ELOM), offer new possibilities for expanding our understanding of this important issue. In 2016, the ELOM test was “...age-validated on a sample that is very likely to be representative of the range of socio-economic backgrounds of South African children and for children speaking different languages” (DataFirst, no date; Innovation Edge 2019: 10). The ELOM team also evaluated performance of Grade R learners against these benchmarks in 2019. These two studies will be referred to as ELOM2016 and ELOM2019. Subsequently, in 2018, the ELOM test was used to test participants in five ECD programmes at baseline and endline (Dawes et al. 2020a); this will be referred to as ELOM2018, and is also sometimes known as the ELPO (Early Learning Programme Outcomes) study.



**This brief will show that the gains in the five programmes constituting ELOM2018 were substantially greater than the gains that commonly occur as children grow older, using evidence from ELOM2016 and ELOM2019. Findings from the current paper will be contrasted with the disappointing impact found by Van der Berg et al. (2013) in an investigation into the effect of the introduction of Grade R on subsequent learning outcomes in schools.**

## **Main findings**

- Children (about 4½ years old) participating in five early childhood development (ECD) programmes in 2018, showed considerable learning gains over eight months on the Early Learning Outcome Measure (ELOM) test.
- Comparing gains experienced in the programme to gains typically experienced from children growing older, provides an indication of surprisingly large learning effects (between 9% and 72% of a standard deviation under conservative assumptions).
- These learning gains were achieved despite these five programmes serving mainly poor children, who would typically attend no-fee schools, and contact time being limited (only 2½ to 8 hours per week in three playgroups and 15 to 22 hours per week in two ECD centres).
- This suggests that good ECD programmes can have large effects even with limited exposure.

<sup>1</sup> This Policy Brief is based on a working paper written for the Ilifa|Resep ECD Working Paper Series.

## Data and Methodology

The ELOM benchmarking test is a well-designed test developed for South African circumstances, context and languages. The ELOM total score is the sum of scores on 23 direct assessment items, created to provide “a reliable, age valid tool that provides a fair assessment of children from across ethnolinguistic groups” (Dawes et al. 2020b: 16), across five domains (Gross Motor Development, Fine Motor Development and Visual Motor Integration, Emergent Numeracy and Mathematics, Cognition and Executive Functioning and Emergent Literacy and Language). Benchmarking occurred through the ELOM2016 and ELOM2019 tests on samples of children broadly in line with the national distribution of learners across Department of Basic Education school quintiles. The five programmes evaluated in the ELOM2018 data focused on a younger (average age 4 ½ years) and poorer sample, drawn from

ECD programmes aimed at poorer children (children likely later to attend mainly non-fee paying schools).

The only possible way to evaluate programme gains is to compare them to the typical gains for children not participating in the intervention programmes, i.e. gains from children growing older. Ageing gains are at least 1 to 1¼ ELOM points per month, or 8 to 10 ELOM points over the eight months between the baseline and endline tests in the five programmes that were evaluated.<sup>2</sup> If we consider 16 ELOM points as one standard deviation (SD), ageing in the programmes is associated with an annual improvement in ELOM scores of 77% to 92% of a SD. This is much larger than the normal learning and ageing effect of about 22% of a SD for children aged 5 in five developing countries reported by Evans and Yuan (2019: 35).

## Learning gains from five programmes

The ELOM2018 study was undertaken to determine “the relative effectiveness of different programmes in improving early learning outcomes for young children” (on average 4½ years old at baseline in March 2018) (Dawes et al 2020a: ii). The study involved 369 children from low income households in three playgroups

and two centre-based programmes. Children in the playgroups were exposed to an early learning programme between 2½ and 8 hours per week and those in the two centre-based programmes 15 to 22 hours per week. Table 1 summarises the main features of the five groups.

**Table 1: Participating programmes main features**

	Playgroup 1	Playgroup 2	Playgroup 3	Centre development 1	Centre development 2
<b>Delivery model</b>	Playgroup model directly managed by PG1	Mobile playgroup model directly managed by PG2	Playgroup franchise model designed for scale (minimum critical specification for efficient replication)	Centre development programme for practitioners in independent ECD sites; no direct intervention with children	Centre development programme for practitioners in independent ECD sites; no direct intervention with children
<b>Programme target</b>	2 to 4 year old children	3 to 5 year old children	3 to 4 year old children	Practitioners of Pre-Grade R children (4 to 5 years)	Practitioners of Pre-Grade R children (4-5 years)
<b>Child sessions per week</b>	2 to 3 sessions per week of 4 hours each	1 session per week of 2.5 hours	2 sessions per week of 3 hours	5 sessions per week of 4.5 hours	5 sessions per week of 3 to 4.5 hours
<b>Practitioner qualifications</b>	Minimum NQF Level 4 ECD qualification	Minimum NQF Level 4 ECD qualification	Minimum: 5 day training and accreditation; some have NQF Level 4 ECD qualification	Depends on the site	Depends on the site

**Source:** Dawes et al. 2020b: Table 1, 10

<sup>2</sup> Regression analysis confirms that age is the main factor explaining test scores, though gender also plays a role (girls perform about 20% of a SD better than boys). Socio-economic factors play only a minor role in explaining performance differences.

Statistically significant gains in ELOM scores of between 13 and 21 ELOM points were observed in all the programmes over the eight month period. Comparing the learning gains in the five programmes to ageing gives gains that range between just over 1 to more than 13 ELOM points, or 8.5% to 82% of a SD (Table 2). The ELOM team ascribed these changes largely to programme participation rather than stimulation at home, inter alia

because a large proportion of parents “never engaged in activities likely to improve early learning outcomes (reading, telling stories, or singing to children)” (Dawes et al. 2020a: ii). Children who attended more sessions showed most improvement in ELOM scores. The ELOM team concluded that “(w)ell designed and closely monitored playgroup programmes can perform as well as more expensive centre-based models.”

**Table 2: Estimating impact from five ECD programmes**

	Playgroup 1	Playgroup 2	Playgroup 3	Centre Development 1	Centre Development 2
Baseline score	30.3	40.0	31.6	49.4	35.2
Endline score	51.6	51.2	46.1	63.9	55.9
Gain (ELOM points)	21.3	11.2	14.5	14.5	20.7
Low estimates of programme ‘impact’ assuming 8.16 ELOM points gain from ageing 8 months					
Impact in ELOM points	11.46	1.36	4.66	4.66	10.86
Programme ‘effect’ (in % of a standard deviation)					
Impact in % of a SD	71.6%	8.5%	29.1%	29.1%	67.9%
High estimate	82.1%	19.0%	39.6%	39.6%	78.4%

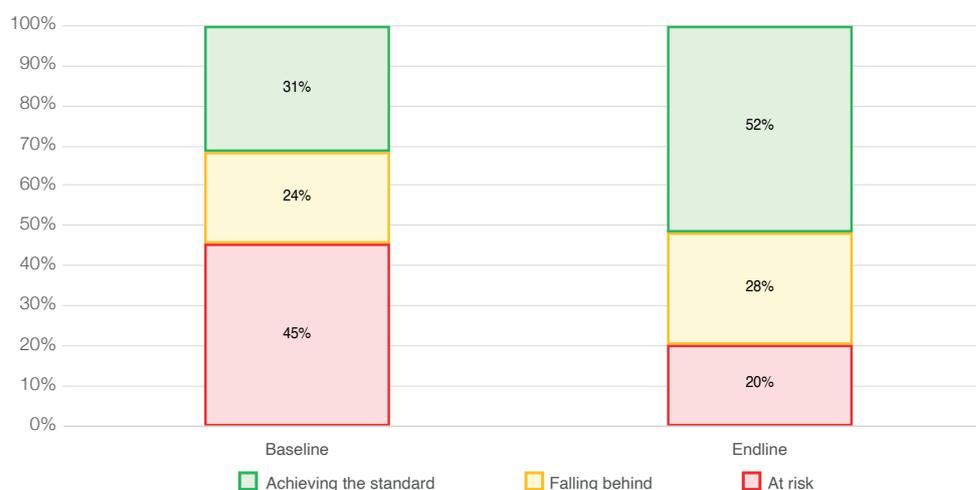
**Note:** Programmes arranged by ELOM point gains. Low estimates assume monthly gains from ageing alone to be 1.23 ELOM points; high estimates are shown in the initial paper. Conversion to standard deviations assumes a standard deviation of 16 ELOM points.

**Source:** Own calculations from ELOM2018 using a balanced panel, i.e. children tested both at baseline and at endline.

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The effect of the five programmes was to reduce the proportion of children ‘at risk’ across the five programmes from 49% to 23%, and to increase those ‘achieving the ELOM standard’ from 28% to 48% (Figure 1). The latter is especially meaningful: those ready to enter Grade R increased from far less than one third to more than one half amongst these relatively poor children.

**Figure 1: Changes in meeting ELOM standards between baseline and endline in ELOM2018**



**Note:** Red indicates children at risk, orange children falling behind the standard, and green children achieving the ELOM standard. Baseline measured against ELOM standard for 50-59 months, endline against 60-69 months standard. Balanced panel used, i.e. children with both a baseline and an endline score. The interval of eight months between the baseline and endline is smaller than the ten months difference between the ELOM benchmark age categories, which implies that the endline is measured against a higher standard.

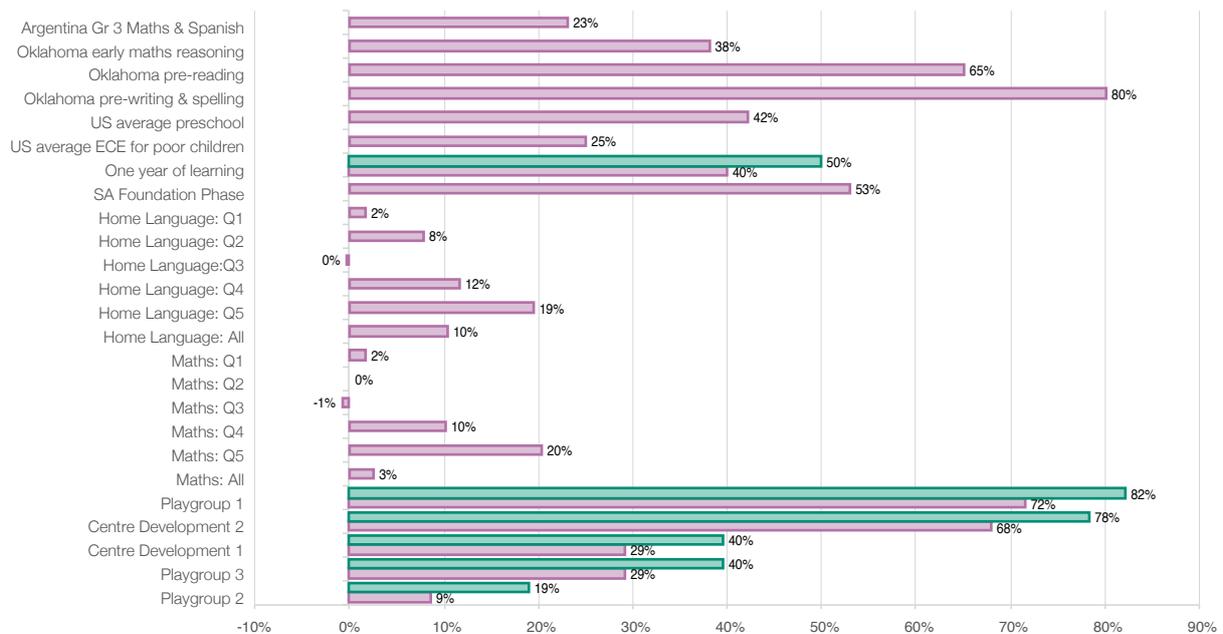
**Source:** Own calculations from ELOM2018.

## Evaluating impact in context

Compared to effect estimates for other interventions, ELOM2018 effects are large (Figure 2), for instance compared with the 2% to 20% of a SD in the Grade R study (Van der Berg et al., 2013), and they are more similar in size to those in the Oklahoma study. Some possible reasons for the large differences in effect sizes may relate to data issues in the Grade R study, while effect size estimates from small studies tend to be larger

(Evan and Yuan 2020: 1; Kraft 2020). A meta-analysis of South African school interventions found an average effect of 53% of a SD in the Foundation Phase (Besharati et al. 2021), with larger effects more common at lower age ranges and in studies of individual programmes. **Thus the effects observed in the five programmes evaluated in 2018 are exceptionally large.**

**Figure 2: Comparing effect sizes of five programme interventions with other estimated effects of ECD interventions**



**Notes:** The blue bars show higher estimates where more than one impact was estimated.

**Sources:** See Van der Berg (2021).

### Lessons for Policy

- The programmes where children were assessed for the ELOM studies were selected because they were deemed high-functioning. **Similar outcomes may not have been achieved if programmes had been poorly delivered.**
- Nevertheless, existing evidence suggests that at least some well-functioning **low cost ECD programmes and playgroups performed extremely well in raising children's learning outcomes** to levels appropriate for children who would soon be entering Grade R.
- **Impacts were large despite the low intensity** (limited hours) of all the programmes. This means that treatment was limited and focused on children from the poorer segments of our society, yet impacts were large.
- This study makes it possible, in principle, to start making assumptions about possible gains in cognitive outcomes that may be associated with various scenarios for ECD expansion. But this needs to be done with careful consideration of the limits to what we know.

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