Does Enrolment in Early Learning Programmes Improve Child Cognitive Outcomes?

Evidence from three South African Provinces

Early Childhood Systems: Perspectives and Research Webinar Series

Jesal Kika-Mistry

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Outline

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SECTION 01

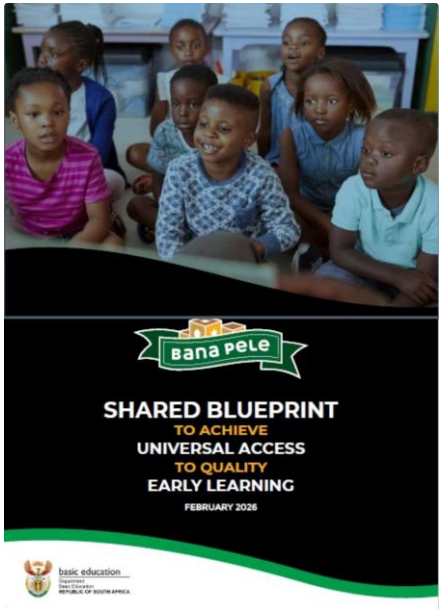
Motivation

Context, evidence base, and research questions

Context

South Africa has made meaningful strides in expanding access to Early Learning Programmes (ELPs), yet **nearly a third of 4-year-old children remain excluded** *(Hall, 2025)*. These non-enrolled children are disproportionately from poorer and more vulnerable households *(Moses, 2021)*.

As government advances the **2030 Strategy for Early Childhood Development Programmes** and implements the **Bana Pele Shared Blueprint**, expanding access to quality programming remains a central policy objective.



What does the literature tell us?

Overall positive impacts in LMICs

Centre-based childcare is broadly associated with positive child development outcomes in low- and middle-income countries. *(Evans et al., 2024)*

Impacts vary at scale

Despite the overall trend, effects of large-scale ECE expansion vary substantially across countries and implementation contexts. *(Attanasio et al., 2022; Nores et al., 2019; Baker et al., 2009, 2015)*

Domain-specific benefits

Enrolment may not affect all development domains equally - benefits tend to accrue most to higher-order cognitive skills. *(Evans et al., 2024; Sosu & Pimenta, 2023)*

Equity effects are mixed

Programmes are not consistently more or less beneficial for the poorest children. *(Berlinski et al., 2009; Bouguen et al., 2021; Van der Berg, 2023)*

Quality is the critical moderator

Enrolment does not guarantee gains. Where programme quality is low relative to the home counterfactual, developmental benefits may be minimal. *(Blimpo et al., 2022; Jakiela et al., 2024)*

Duration matters – but only in quality settings

Longer exposure is often associated with stronger outcomes, but extended participation in low-quality settings yields limited benefits. *(Zaslow et al., 2016; Melo et al., 2022)*

What remains unclear in South Africa...

> Does enrolment in an ELP itself improve children's cognitive development, and under what conditions do these benefits materialise?

Research questions

01

Enrolment and cognitive differences

Is enrolment in an ELP associated with measurable cognitive differences among children from disadvantaged backgrounds?

02

Duration of enrolment

How does the duration of enrolment relate to children's cognitive outcomes?

03

Programme quality

Under what conditions do enrolment advantages emerge, and does programme quality shape their magnitude?

SECTION 02

Data and sample

Thrive by Five Index 2024 and the analysis sample

Data – Thrive by Five Index 2024

Enrolled sample

- Nationally representative
- 5 001 children aged 50-59 months across 1 388 ELPs

Non-enrolled sub-study sample

- Purposively selected
- 272 children aged 50-59 months in 262 households

Instruments

- ELOM 4&5 assessment tool (both samples)
- Primary caregiver interview (77% enrolled; 100% non-enrolled)
- Learning Programme Quality Assessment (LPQA)- instructional quality (enrolled)
- Facility observation form, principal and practitioner interviews (enrolled)

Outcomes

Early learning, socio-emotional functioning, and physical growth- for children aged 50-59 months.

Non-enrolled sub-study sample

Coverage

- **Three provinces:** Gauteng, KwaZulu-Natal, Western Cape
- Proxy for disadvantage: bottom 3 weighted school quintiles
- ~22,000 households visited
- **272 children**

Eligibility Criteria

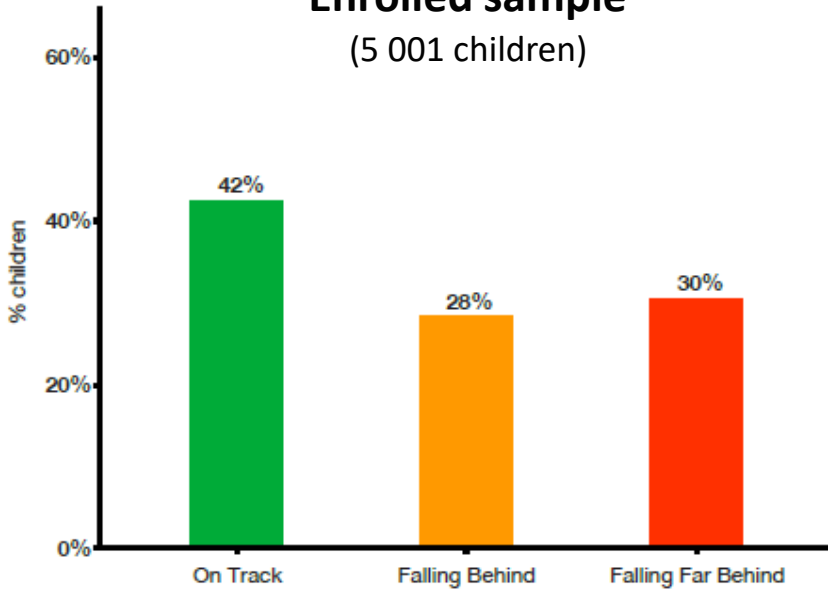
Households with a child who was:

1. Aged 50–59 months at time of survey
2. Not enrolled in any ELP in 2024
3. Free from reported vision, hearing, or mobility difficulties, or challenges in understanding spoken language.

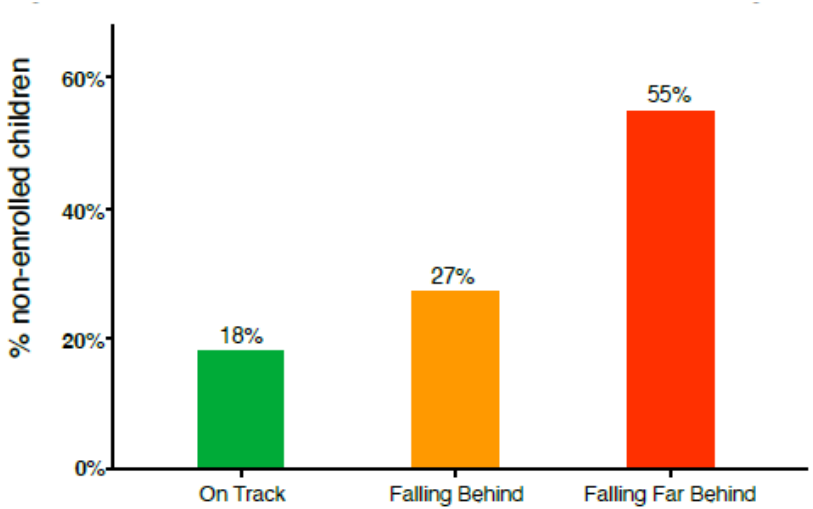
Each eligible child completed the **ELOM 4&5** assessment; their primary caregiver completed the **PCG interview**.

Enrolled vs. Non-Enrolled: ELOM Snapshot

Enrolled sample
(5 001 children)



Non-enrolled sample
(272 children)



⚠ Raw comparisons with non-enrolled children suggest a gap, but these differences are not directly comparable without adjustment for sampling and household characteristics.

The gap is clear, but we cannot say enrolment alone caused it

The two samples were collected differently

The enrolled sample was large and nationally representative. The non-enrolled sample was smaller and targeted.

The groups differ in ways we can observe

Enrolled and non-enrolled children differ on things we can measure, such as household background, caregiver education, and learning support at home. The raw comparison does not yet account for these differences.

Other differences we cannot fully measure

Families who enroll their children may differ from those who do not in ways we cannot fully measure, and these differences may also affect children's development.

Analysis Sample

272

Non-Enrolled

Children in purposively selected sub-study

1,050

Enrolled

Children drawn from nationally representative enrolled sample

Restricted to three provinces (Gauteng, KwaZulu-Natal, Western Cape), children in the bottom 3 weighted school quintiles, and those with a completed primary caregiver interview.

But these children are still very different

Even within the matched provinces and quintile bands, enrolled and non-enrolled children come from households with starkly different profiles.

Characteristic	Enrolled	Non-enrolled
Caregiver has Matric or higher	**54%**	**16%**
Caregiver in paid work	**45%**	**13%**
Household owns a fridge	**92%**	**63%**
Household owns a car	**32%**	**8%**
Household has Pay TV	**72%**	**33%**
At least one children's book in the home	**70%**	**23%**
Caregiver drew/painted with child (past 3 days)	**45%**	**11%**
Caregiver sang songs with child (past 3 days)	**69%**	**38%**
Caregiver read books with child (past 3 days)	**37%**	**12%**
Sample share — Gauteng	**44%**	**47%**
Sample share — KwaZulu-Natal	**37%**	**13%**
Sample share — Western Cape	**19%**	**40%**

SECTION 03

Methodology

Coarsened Exact Matching

What would ELOM outcomes look like for non-enrolled children if they were enrolled in an ELP?

To answer this, we need to construct a credible comparison by matching non-enrolled children to enrolled peers who are similar on key characteristic.

Creating a fairer comparison

We compare non-enrolled children with enrolled children who look similar on key background characteristics.

1. Choose key characteristics

2. Find similar enrolled children

3. Compare matched children only

Method used: Coarsened Exact Matching

Why use matching?

Matching helps us move beyond a simple raw comparison by comparing children who are more similar to each other.

What matching cannot fix

Matching only accounts for things we can measure. Other household or community factors that we cannot fully observe may still affect results

Matching variables

Child Age & Gender

Children are compared with others of a similar age and the same gender, because both are linked to ELOM performance.

Province

Children are matched within Gauteng, KwaZulu-Natal, and the Western Cape to account for differences in access, services, and context.

Primary Caregiver Education

Caregiver education is used as a stable measure of household background and the home learning environment.

Other factors included later

Language of assessment, caregiver relationship, household assets, and home learning activities are included as additional controls after matching.

What happened after matching?

BEFORE MATCHING

1,050
Enrolled children

272
Non-enrolled children

AFTER MATCHING

59
Shared child profiles (Same age, gender, province and caregiver education)

767
Enrolled children kept for comparison

272
Non-enrolled children kept for comparison

Note: Enrolled children without a similar non-enrolled comparison child were excluded.

SECTION 04

Results

Average enrolment effects, by individual domains, and differences by programme features

After matching, enrolled children score about 6 ELOM points higher

How much lower are non-enrolled children's ELOM scores?

Specification	Estimated Gap	Standard Error
Baseline	−6.06***	(1.01)
+ Child demographics	−5.87***	(0.96)
+ Province	−6.25***	(1.03)
+ SES and home environment	−5.77***	(1.21)

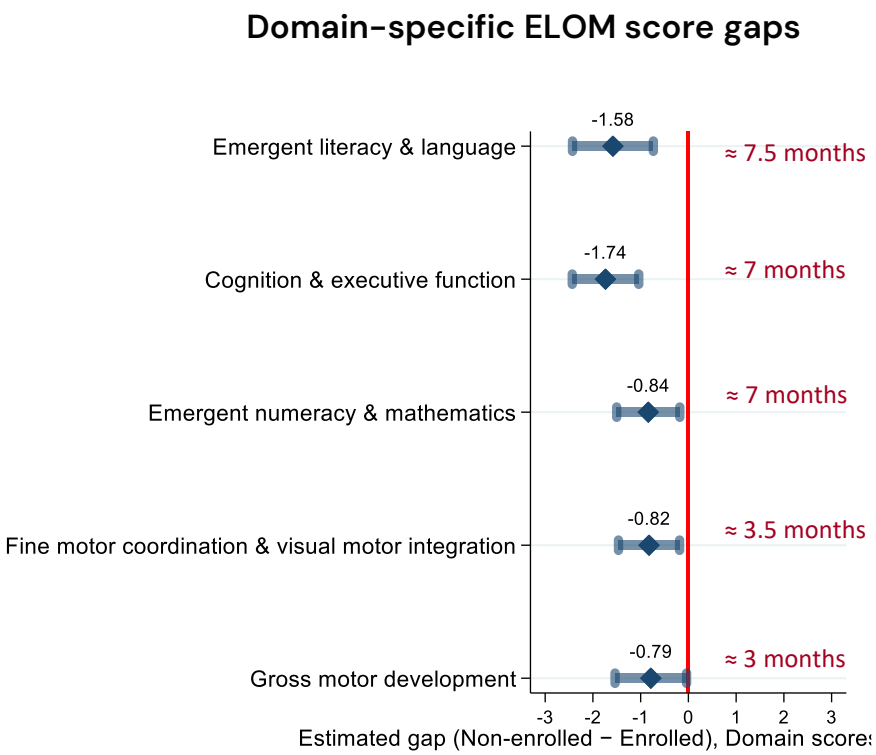
What does this mean?

Across different ways of adjusting the comparison, non-enrolled children score about 5.8 to 6.3 ELOM points lower than comparable enrolled children.

For children aged 50–59 months, this is roughly equivalent to **five to six months** of typical developmental progress.

The estimate remains stable even after accounting for child, province, household, and home-learning differences. This suggests the finding is not driven by one particular adjustment.

The largest gaps are in language, numeracy, and cognitive skills



Where are the gaps largest?

After matching, non-enrolled children score lower than comparable enrolled children across all five ELOM domains.

The largest gaps are in:

- Emergent literacy and language
- Cognition and executive function
- Emergent numeracy and mathematics

These gaps are equivalent to roughly seven to eight months of typical developmental progress.

Smaller, but still meaningful, gaps are also seen in motor development.

Do enrolment-related gaps differ by programme features?

We compare non-enrolled children with enrolled children in different types of ELPs

Duration of enrolment
Short (0-12 months), medium (13-24 months), and long-term (25 months +) exposure to ELPs

Registration status
Children in unregistered vs. fully registered ELPs

Subsidy receipt
Children in subsidised vs. unsubsidised

Infrastructure compliance
Facilities meeting regulatory standards – children in ELPs with low, medium and high infrastructure compliance

Practitioner qualifications
Children with practitioners at different qualification levels

Instructional quality
Children in ELPs with inadequate, basic and good instructional quality

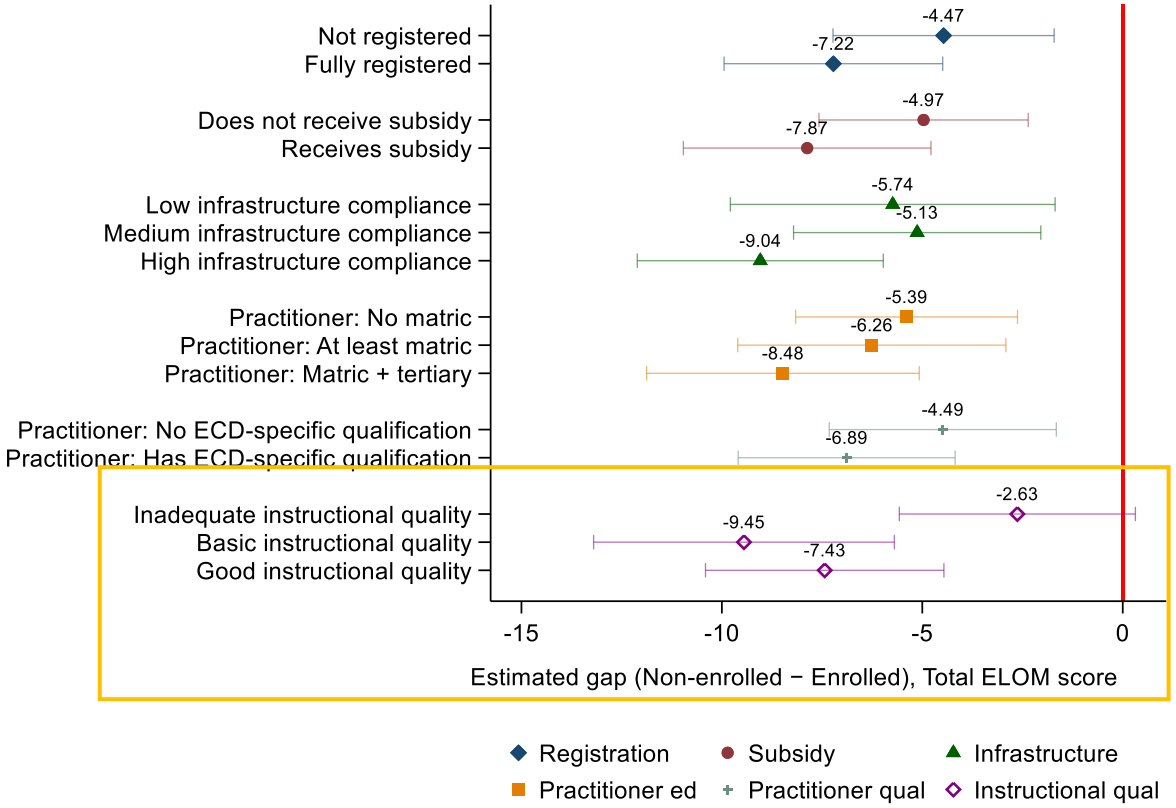
These are separate comparisons. In each case, non-enrolled children are matched to similar enrolled children in a specific type of ELP. The results should be read as descriptive patterns, not as formal tests of whether one category is better than another.

The gap is larger when children have been enrolled for longer

The difference between enrolled and non-enrolled children is smallest for short-term enrolment and largest for longer enrolment. This suggests that sustained participation matters, but the results do not prove that longer enrolment alone caused the difference.

Instructional quality is where the enrolment gap changes most

For most programme features, enrolled children score higher than comparable non-enrolled children.
The clearest change appears when we look at instructional quality.



When instructional quality is inadequate, the enrolment gap is small and uncertain. When instructional quality is basic or good, the gap is much larger.

SECTION 05

Implications

Policy implications and study limitations

Policy implications

1

Access matters, but quality shapes the size of the gains.

Non-enrolled children score about 5–6 months lower than comparable enrolled peers, with larger gaps where instructional quality is at least basic.

2

Sustained participation should be supported.

The enrolment gap is larger for children with longer exposure, especially two or more years in an ELP.

3

Quality improvement must go beyond compliance.

Registration, subsidy access, infrastructure, and practitioner qualifications matter, but children's daily learning experiences depend on instructional practice, practitioner support, and continuous quality improvement.

Important caveats

- The estimates show associations, not causal impacts.
- The non-enrolled sample is small and not nationally or provincially representative.
- Matching reduces measured differences between groups, but unmeasured family or community factors may still matter.
- Because the data are cross-sectional, we cannot track children’s development over time.

Thank you

jesal05@gmail.com