What ELOM data tell us about the school readiness of South African children

Andy Dawes

Andrew.dawes@uct.ac.za

adkinloch1@gmail.com

RESEP Quantitative Education Research Conference 5-6 September 2023

OUTLINE

1. School readiness? Who / what should be ready?

2. What does ELOM 4&5 data from *Thrive by Five 2021 Index* tell us about SA children's readiness?

3. Key pre-school predictors of foundation phase performance Language and Maths.

4. What does ELOM Learning Programme Quality Assessment(LPQA) data tell us about the quality of our Early Learning Programmes?

5. Implications for programme quality improvement.

What is School Readiness (pertains historically to Grade 1)?

Two elements (Ricciardi et al 2017):

1. <u>children</u> prepared to attend and be successful in primary school based on an array of competencies;

2. <u>schools</u> prepared to receive and adequately teach and support a diversity of children with different skills.

Ready children have specific skills

Van Zyl (2011, p. 84). "Specific qualifying criteria for successful entry into the formal school (Grade 1) include:

1.   Cognitive skills that relate to language and literacy abilities;

2.   Physical skills such as gross, fine and perceptual motor skills;

3.   Social skills: motivation to learn and emotional stability.

Normative school readiness, includes *self-regulation skills that influences learning behaviour such as persistence, paying attention, the intentionality to want to learn, following instructions and inhibiting inappropriate actions….*"

<u>*All*</u> *are important for enabling children to transition to Grade R and benefit from the curriculum.*

An holistic perspective on *readiness*

Amod & Heafield (2013). "*School readiness does not reside solely <u>within</u> the child, <u>nor</u> is it completely <u>external</u> to the child.*

Instead, it is an intricate tapestry of the child's own genetic make-up, skills and abilities, interwoven with the experiences and teachings received from surrounding social and cultural groups."

And: Nota Bene: DBE Education White Paper 6 (2001):

Schools, and the education system <u>have the responsibility of providing adequate support structures</u> to accommodate *a range of children* and to *promote optimal learning and development*.

So: Instead of *just* asking whether the *child is ready* for school (a 'maturational' orientation),

<u>we should also ask whether *schools (Grade R in this case) are ready for all learners*.</u>

Pre-school predictors of foundation phase performance Language and Maths

- SES and home learning environment.
- Social & Emotional functioning: interpersonal skills, and confidence.
- Perceptual-motor skills and visual-spatial abilities (e.g. copy shapes and patterns).
- Executive Functioning: self-regulation, active manipulation of information using rules, working memory, and cognitive flexibility
- IQ

Early literacy skills:

- Large vocabulary, phonological awareness, letter-sound recognition, oral language (explanatory talk), demonstrating some letter identification, narrative comprehension, print knowledge

Mathematics:

- Oral counting fluency.
- Number identification
- Discriminate between two quantities as represented by sets or numerals.
- Perform addition and subtraction.
- Classification in sets (by colour and shape).
- Spatial abilities,
- Mathematics vocabulary (biggest, smallest, longest shortest).
- Patterning knowledge.

South African Studies: Preschool predictors of academic performance

- No SA research on the relationship between pre-Grade R cognitive and non-cognitive skills and primary school performance.

- Only research on the relationship between school readiness (ASB test) measured at Grade 1 and performance in Grade 1 and Grade 4 (van Zyl, 2011); ASB scores were correlated with <u>language</u> and <u>mathematics</u> performance in Grades 1 and 4.

- But watch the *Roots and Shoots* findings to come.

How ready are our children (for Grade R)? The Thrive By Five 2021 Index 2021 of children enrolled in ELPs

Reports: https://thrivebyfive.co.za

Data: https://www.datafirst.uct.ac.za/

Team: Sonja Giese (PI), Colin Tredoux, Frankie Mattes, Andy Dawes (UCT), Jan Shenk (Ikapadata), Servaas van den Berg & Grace Bridgeman (US), & Janeli Kotze (DBE) with Stephen Taylor

Thrive by Five High-level Questions

1. **Readiness**: What % of children aged 50-59 months attending ELPs in SA are developmentally *On Track* for Grade R, *Falling Behind* and *Falling Far Behind* the expected **ELOM** standard?

2. **SES quintiles:** What % On Track, Falling Behind and Falling Far Behind the standard?

3. **Social and Emotional Functioning** (SEF): What % On Track?

4. **Growth**: What % normal, stunted or severely stunted?

5. **What predicts** *On Track* for Grade R?

Methods: Sampling

SAMPLING STRATEGY	Multistage cluster sampling: 1: Primary Schools (stratified by quintile); 2: ELPs in same ward; 3: children attending selected ELPs (4 each).
SAMPLE **n = 5 222** Mean age 54.74 mo.	**Males**: 2 525 (48%) **Females**: 2,697 (52%) All national languages

WEIGHTED SAMPLE n= 5 139

- Accounts for variations in child populations in each school quintile, and each province;
- Grade 3 enrolment in each ELP cluster school used to estimate the population size corresponding to areas where ELP sites were located;
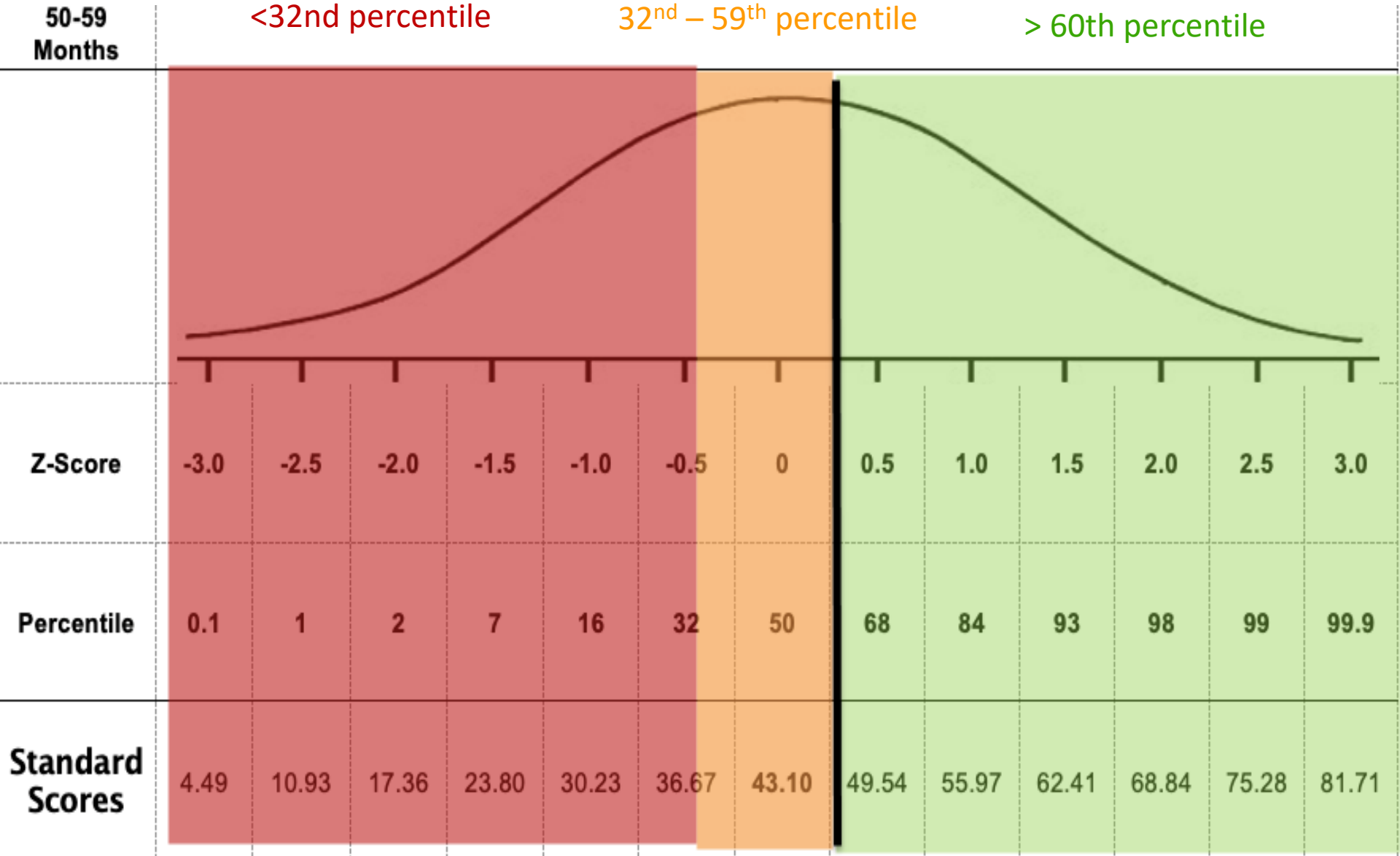
Permits disaggregation of findings by province, school quintile (SES) & sex; roughly representative for SA and each province.

THE ELOM 4&5 (Total) Standards Profiles
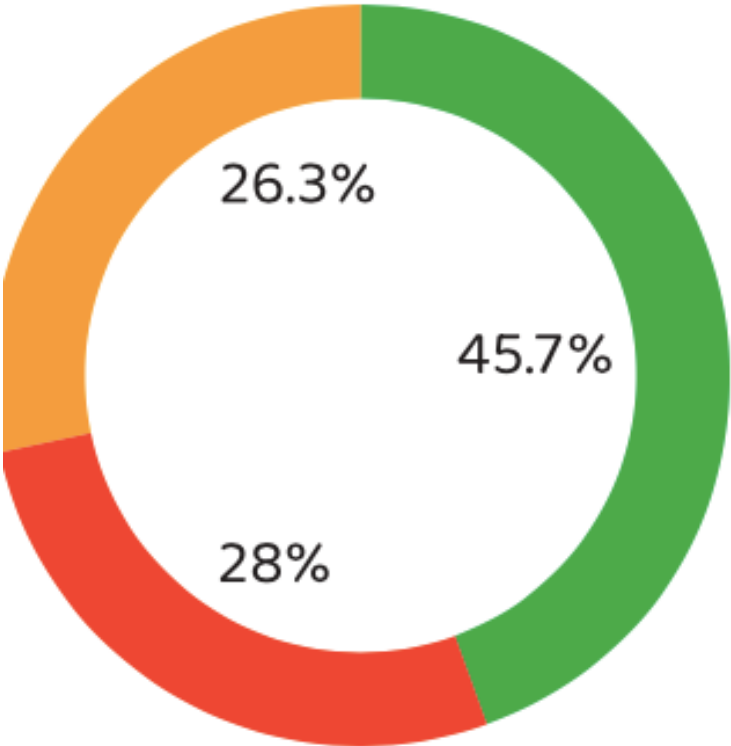
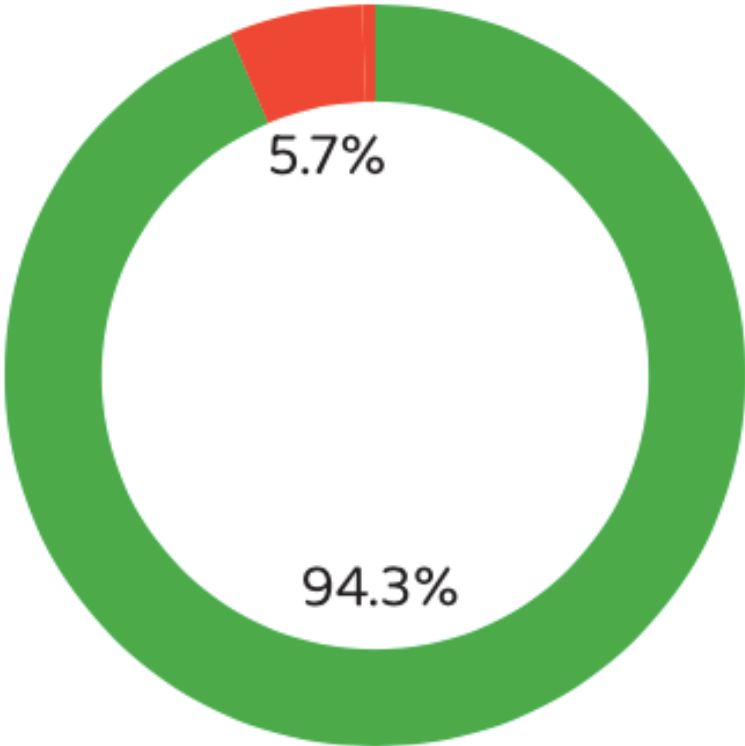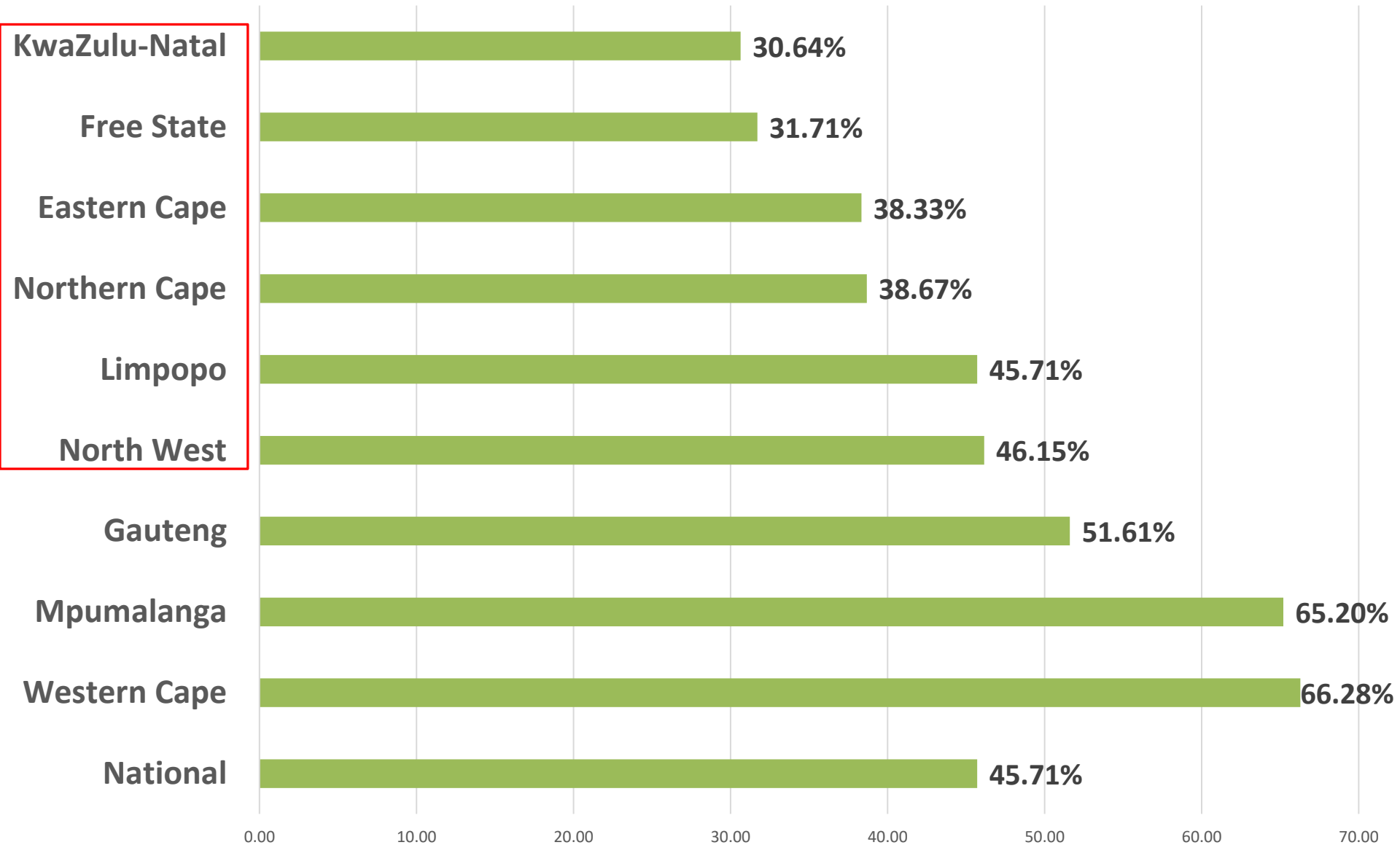| 50-59 Months	FALLING FAR BEHIND <32nd percentile						FALLING BEHIND 32nd – 59th percentile	ON TRACK > 60th percentile					
Z-Score	-3.0	-2.5	-2.0	-1.5	-1.0	-0.5	0	0.5	1.0	1.5	2.0	2.5	3.0
Percentile	0.1	1	2	7	16	32	50	68	84	93	98	99	99.9
Standard Scores	4.49	10.93	17.36	23.80	30.23	36.67	43.10	49.54	55.97	62.41	68.84	75.28	81.71

National : % Children in ELPs On Track for Grade R

ELOM Total

GROWTH (HFA)

% On Track (ELOM): Provinces

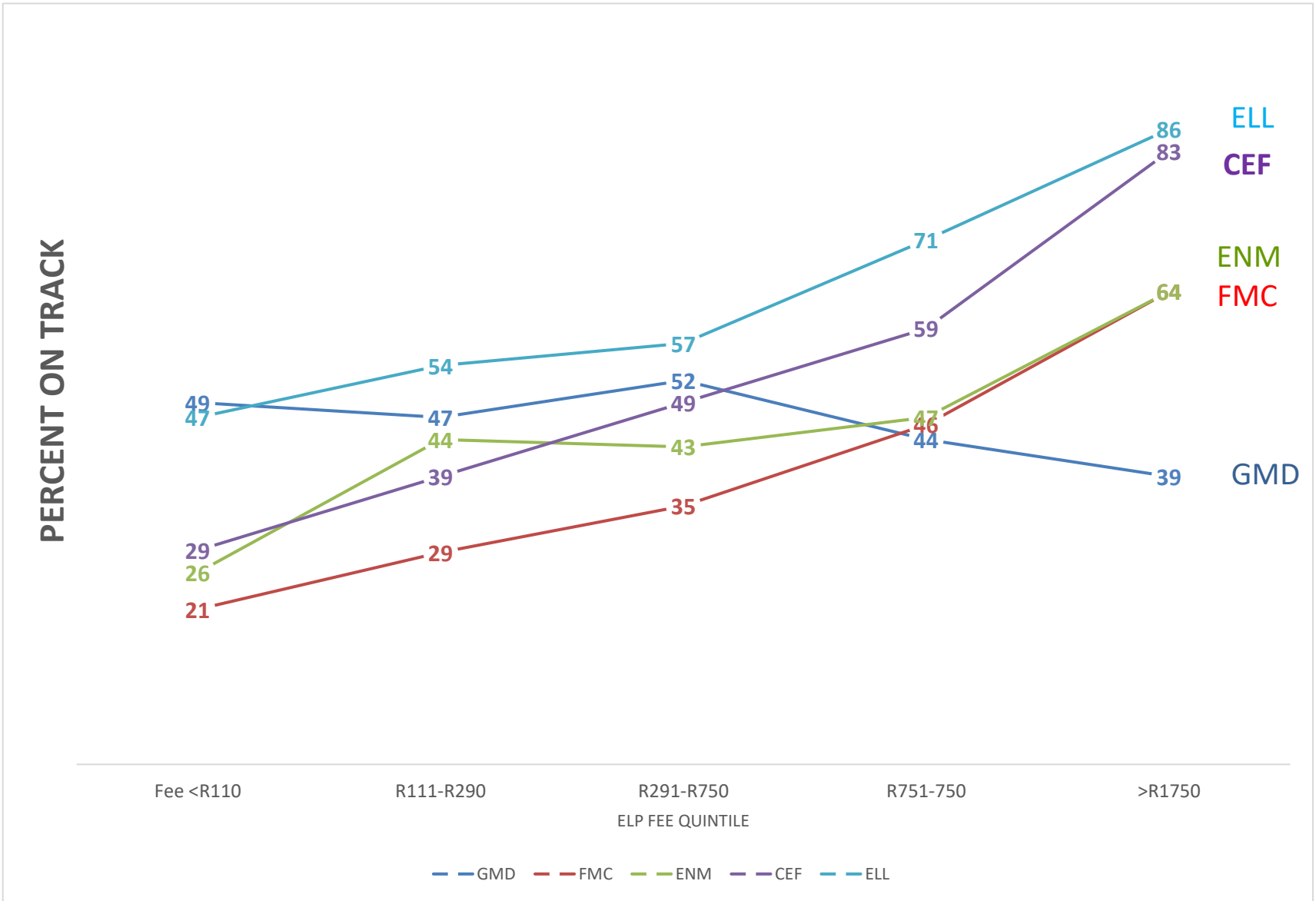| Province	% On Track
KwaZulu-Natal	30.64%
Free State	31.71%
Eastern Cape	38.33%
Northern Cape	38.67%
Limpopo	45.71%
North West	46.15%
Gauteng	51.61%
Mpumalanga	65.20%
Western Cape	66.28%
National	45.71%

% On Track / NOT BY PRESCHOOL FEE LEVEL

ELOM DOMAINS: % ON TRACK

Domain	%
SEF EMOTIONAL	66.7
SEF SOCIAL	72.5
ELL	54.7
CEF	41.4
ENM	38.43
FMC	30.4
GMD	48.3
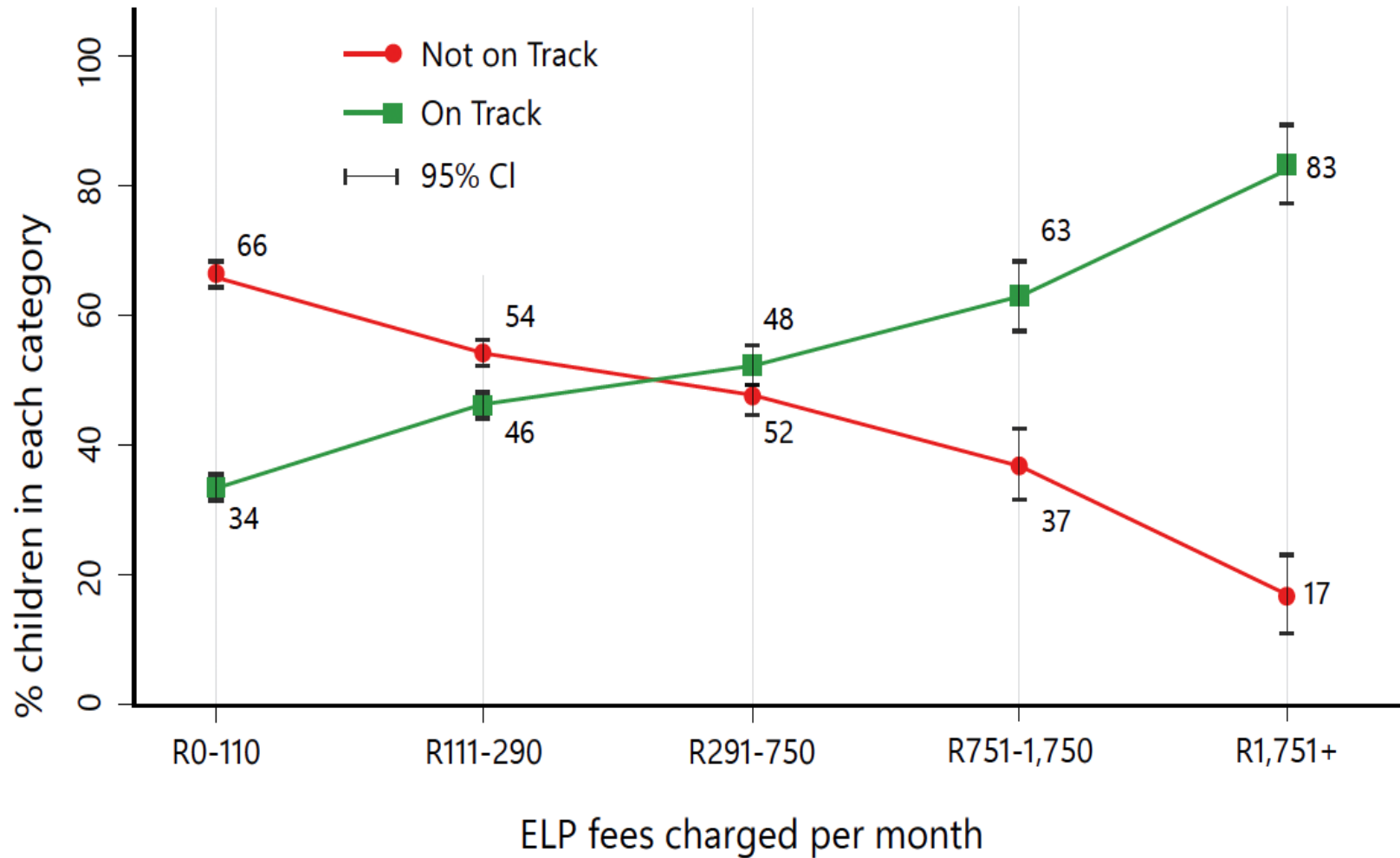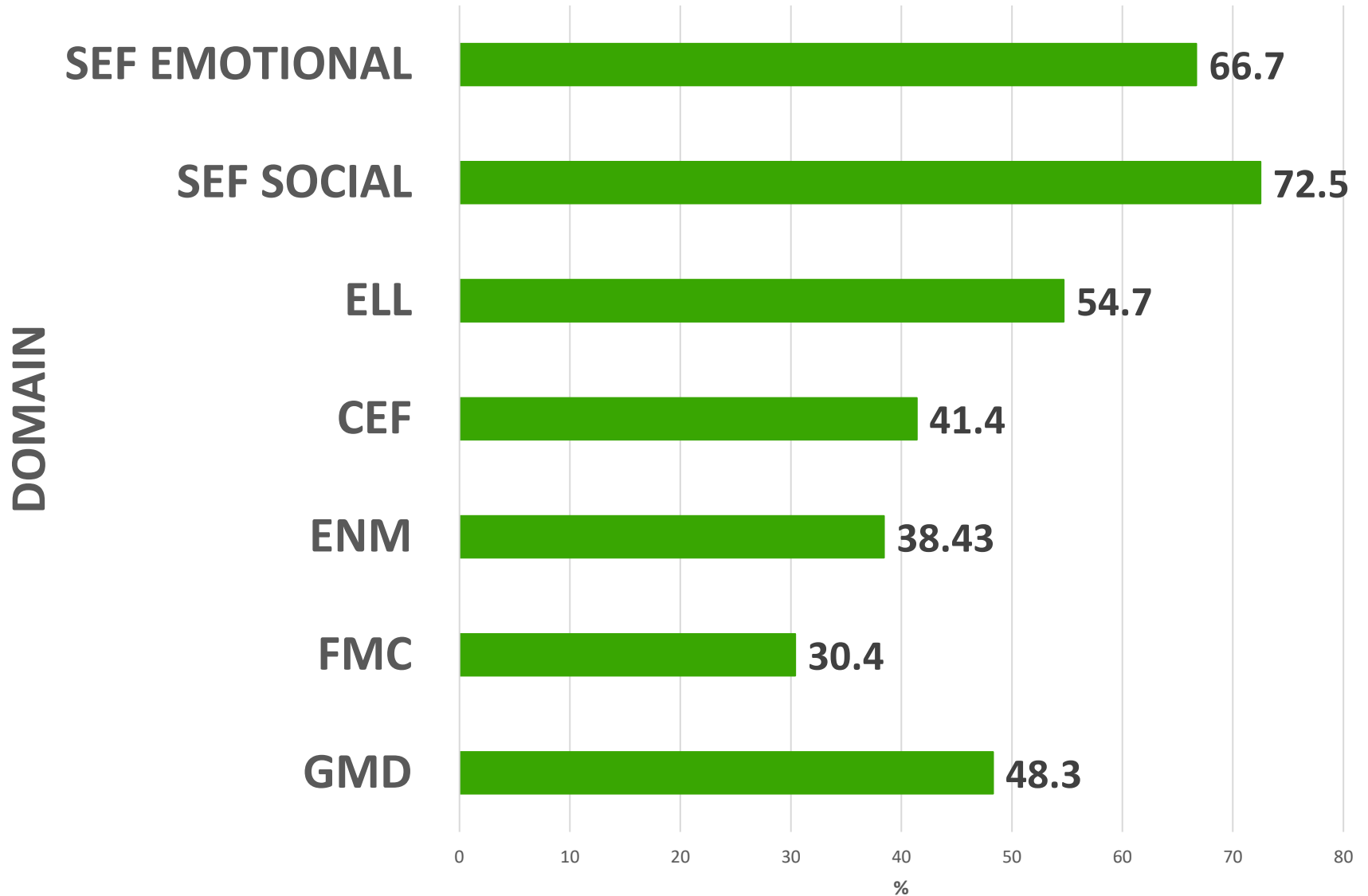
ELOM DOMAINS (ex. SEF): % ON TRACK BY ELP FEE QUINTILE

PERCENT ON TRACK

	Fee <R110	R111-R290	R291-R750	R751-750	>R1750
ELL	47	54	57	71	86
CEF	29	39	49	59	83
GMD	49	47	52	44	39
ENM	26	44	43	47	64
FMC	21	29	35	46	64

ELP FEE QUINTILE

— GMD — FMC — ENM — CEF — ELL

PREDICTORS OF *On Track* (ELOM Total)
(MIXED LINEAR REGRESSION MODEL)

For these variables: R^2 = 0.21

1: Growth Status:

- Moderate Stunting: β = -0.37

- Mild Stunting: β = -0.17

2: School Quintile:

- Q1 & Q4: β = 0.33

- Q1 & Q5: β = 0.61

3: Social-Emotional Functioning (comb. score): β = 0.32

4: Sex: β = 0.13 (girls)

So how ready are SA children for Grade R?

1. **Stunting**: Nationally: **5.7%**; Provincial variation e.g.: EC: **9%**; Mpumalanga: **5%**;

2. **ELOM ∑** Nationally **< 50%** are ready for Grade R (On Track)

3. **ELOM ∑** Nationally Children in Q 1, 2 & 3 are **Falling Behind** the expected standard for their age.

4. **ELOM Domains:**

- CEF, FMC & VMI & ENM **< 50%** Children in Q 1, 2 & 3 On Track .

- ELL**:** On Track (not Q1); SEF**:** On Track**.**

- Significant SES gradient (except SEF).

Ready ELPs?
How well are SA ELPs preparing low SES children for school?

Reducing the 'achievement gap' in low SES children

1. It starts before birth: Reduce early risks to healthy brain development;

2. Support families (esp. primary caregivers) to provide nurturant and attentive care;

3. Strengthen school readiness skills prior to Grade R (moderates low SES effect).

- Cognitive skills (ENM and ELL) plus FMC& VMI.

How? Provide access to **high quality pre-Grade R and Grade R** programmes *particularly* for Q1-3.

SA studies of ECD and Grade R Quality 1: WC ECD audit 2009 (HSRC team LB AD)

<u>Sample</u>: Random of both registered and unregistered West Cape ECD centres.

<u>Measures</u>: ECERS-R; Management Quality tool.

<u>Main findings</u>:

- On average, ECDs were rated '*minimal*' quality (ECERS-R scale).

- Strongest predictors of quality: *weekly fees* and *management quality*.

- **-** Relationship between level child deprivation in the surrounding community and programme quality.

SA studies of ECD and Grade R Quality 2: PETS ECD 2010 (RESEP team) (3 provinces)

<u>Main findings:</u>

"Good Quality" rating:

- Public Grade R programmes 45%

- Registered ECD: 29%

- Unregistered ECD: 11%

- Better Grade R and ECD facilities had better *Learning and teaching support materials* (LTSM).

Recent surveys of ELP Access & Quality

1. DBE and Lego national ELP audit 2021-2022: mainly structural variables (n = 42 420 ELPS): https://datadrive2030.co.za/wp-content/uploads/2022/09/ecdc-2021-report.pdf

2. DBE and Datadrive 2030 Baseline Assessment 2021 (structural and learning environment variables n= 522 ELPs; 2088 children). Same sample as Thrive by 5: https://datadrive2030.co.za/wp-content/uploads/2022/10/Baseline-Assessment-Report.-2022.pdf

DBE Baseline Assessment 2021
ELP quality tool: ELOM LPQA (Biersteker et al, 2022)

1. **Learning environment.** 5 items : the range of interest areas; developmentally appropriate learning equipment;

2. **Curriculum.** 5 items: Holistic age-appropriate programme; NCF aligned; daily & weekly plans; literacy and numeracy activities etc.

3. **Assessment for Learning and Teaching.** 2 items : monitoring of child progress for individualised attention.

4. **Relationships and interactions.** 4 items : social and emotionally supportive relationships; promotion of positive relationships and positive discipline.

5. **Teaching Strategies.** 5 items: mediated caregiver/child interaction; opportunities for child-initiated activities individual and with peers as well as adult-led individual and small and whole group activities.

Baseline Assessment 2021 Selected Findings

Structural:

Average Class size

- National = **23**
- Provincial: Range from **16** (WC) to **34** (EC)
- Size >30: **18.8%** of ELPs
- Q 1-3 bigger classes, less varied LTSM

Multiple age classes: **23%** of ELPs

Process: LPQA:

1. Quality of ELP teaching and learning process is associated with ELOM Total.

2. Fees and Quintile. Children in higher SES ELPs are doing better.

Quality Community-based ELPs <u>can</u> make a difference to the readiness of low SES children for Grade R: ELPO Study
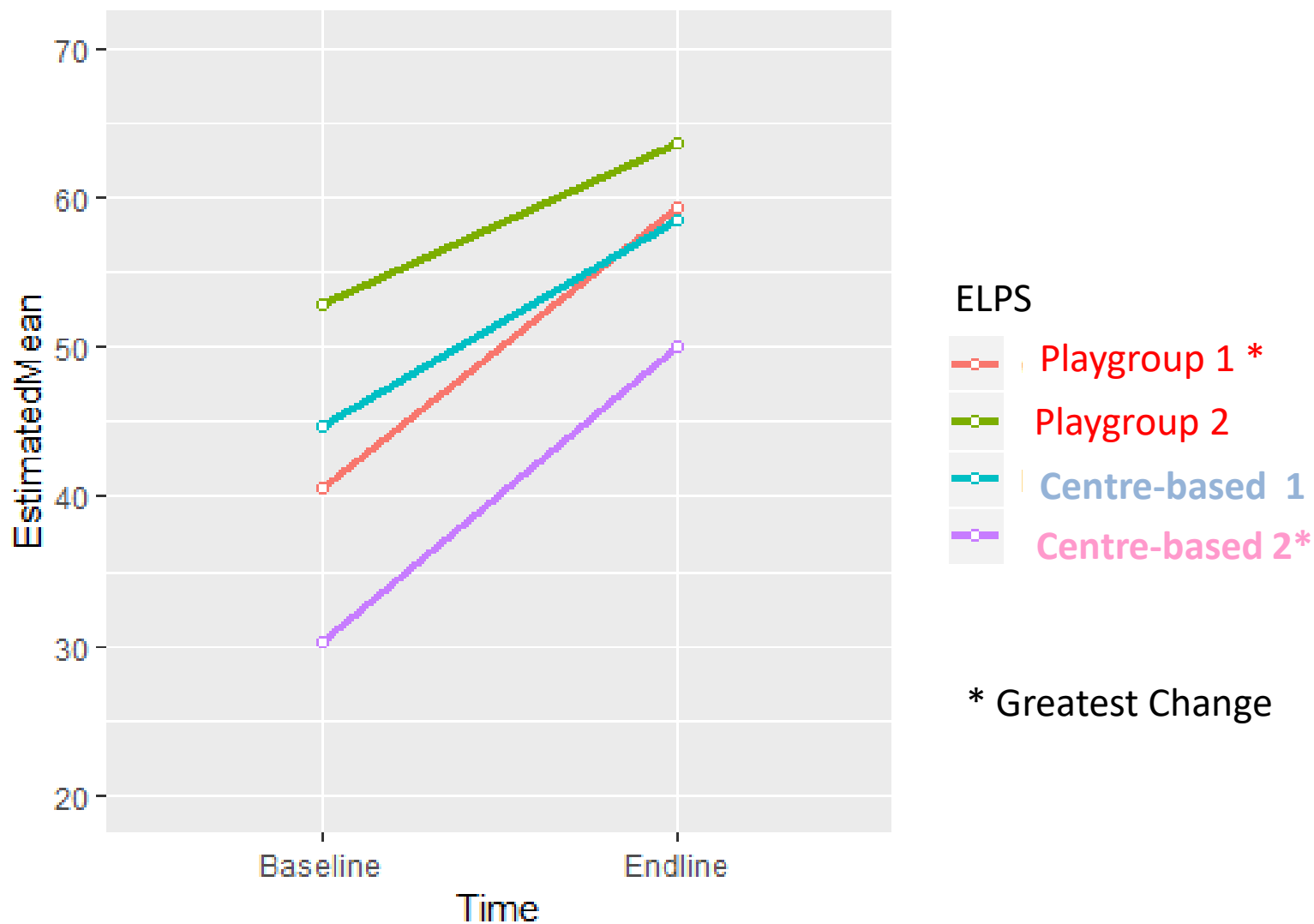
SA STUDIES: SUMMARY RECOMMENDATIONS

- Increase financial resources to community-based ECD.

- Improve management and administration.

- Increase the cadre of trained ECD personnel, and the numbers trained at higher levels. Pay them a living wage!!!

- Appoint more specialist staff in DBE to deal specifically with ECD (particularly at district level).

- Ensure minimum acceptable levels of LTSM in ECD facilities.

- Improve provision of educational activities.

- Train practitioners to scaffold learning during individual activities.

Note: Current studies are providing pointers to system and programme improvement (Unicef CAPS for parents); DBE Lego Deep Dive, DataDrive Positive Deviance)

Pointers for ELP Quality Improvement

- Use Thrive results to inform adjustments ELP and Grade R curricula and pedagogy.

- Significantly strengthen programme quality in the areas assessed in the ELOM LPQ: particularly for Q1-3 ELPs.

- Programmes informed by (*LMIC*) evidence on what works to improve both programme quality and learning outcomes

- DBE to enable:

  - Provision of ongoing in-service training and support for ELP leaders and practitioners.

  - regular, supportive monitoring through a Quality Assessment and Support System (QASS)

  - Education Districts to guide and support ELPs and Grade R to improve quality in partnership the non-profit and private sectors.

THANK YOU

Readiness and Quality: Useful papers

Biersteker, L., Dawes, A., Hendricks, L. & Tredoux, C. (2016). Center-Based Early Childhood Care and Education Program Quality: A South African Study. *Early Childhood Research Quarterly, 36*, 334-344. Doi: 10.1016/j.ecresq.2016.01.004

Britto, P., Yoshikawa, H. & Boller, K. (2010) Quality of early childhood development programs in global contexts. Rationale for investment, conceptual framework and implications for equity. *Society for Research in Child development. Social Policy Report,* 25 (2).

Burchinal, M., Zaslow, M. & Tarullo, L. (2016). (Editors).Quality thresholds, features, and dosage in early care and education: Secondary data analyses of child outcomes. Monographs of the Society for Research in Child Development,, 81(2), Serial No. 321.DOI 10.1111/mono.12248

Dawes, A., Biersteker, L. & Giese, S. (2022). Policy Brief: Improving the quality of teaching and learning in South African early learning programmes, at scale. https://datadrive2030.co.za/wp-content/uploads/2022/11/Datadrive2030_Policy-Brief_24_Nov_final2.pdf

Henry, J. & Giese, S. (2023). Reviewing the Socio-Economic Gradient in Learning Outcomes for Children who Participated in the Thrive by Five Index https://datadrive2030.co.za/wp-content/uploads/2023/08/Data-insights-Reviewing-the-Socio-Economic-Gradient-TECHNICAL-Aug-23.pdf

Kagan, S. L. (1990). Readiness 2000: Rethinking Rhetoric and Responsibility. *The Phi Delta Kappan, 72* (4), 272-279.

Munnik, E. & Smith, M., 2019. Contextualising school readiness in South Africa: Stakeholders' perspectives', *South African Journal of Childhood Education 9(1*), a680. https://doi.org/ 10.4102/sajce.v9i1.680

National Academies of Sciences, Engineering, and Medicine (2023). *Closing the Opportunity Gap for Young Children.* Washington, DC: The National Academies Press. https://doi.org/10.17226/26743.

Ricciardi, C., Manfra, L., Hartman, S., Bleiker, C., Dineheart, L., and Winsler, A. (2021). School readiness skills at age four predict academic achievement through 5th grade. Early Childhood Research Quarterly, 57, 110–120. doi:10.1016/j.ecresq.2021.05.006

Thomas, K. (2021). Developing High-Quality Pre-Primary Programs: USAID Education How-To Note. United States Agency for International Development (USAID).

Yoshikawa, H., Wuermli, A.J., Raikes, A., Kim, S. and Kabay, S.B. (2018). Toward High-Quality Early Childhood Development Programs and Policies at National Scale: Directions for Research in Global Contexts. *Society for Research in Child development. Social Policy Report, 31*(1).

Van Zyl (2011). The relationship between school readiness and school performance in Grade 1 and Grade 4. *South African Journal of Childhood Education, 1(1), 82-94.*