

The use of early grade reading benchmarks to improve the efficacy of assessment in African languages

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Background

- Formative assessment is crucial in effective teaching
- Teachers need to be able to understand learner progress in relation to curriculum expectations:
 - ① Identify learners at risk of falling behind
 - ② Adapt instruction to meet learning needs & bridge learning gaps
 - ③ Implement parts of the curriculum that require differentiated instruction (e.g. GGR)
- Evidence on formative assessment in South Africa suggests that there are inefficiencies in the assessment process [Kanjee & Bhana, 2022, Kanjee, 2020, Kanjee & Mthembu, 2015, Kanjee & Sayed, 2013, Mkhwanazi et al., 2014]
- Teachers lack understanding of formative assessment, how to interpret assessment results into learning needs and how to adapt instruction to meet these needs [Kanjee, 2020, Kanjee & Mthembu, 2015, Mkhwanazi et al., 2014]
- Research mainly conducted in small samples, not in foundation phase and focused on specific assessment strategies

- First step in the formative assessment process is to know the learning levels of learners
- In the literature, teacher knowledge of learning levels is proxied by teacher judgement accuracy
- Evidence suggests that teacher judgement accuracy is **low** and teachers tend to **overestimate** the performance of learners
[Djaker et al., 2022, Maunganidze et al., 2008, Hadjidemetriou & Williams, 2001, Ardington & Meiring, 2020, Van der Berg & Shepherd, 2015, Lam et al., 2011].
- Teachers face challenges in conducting assessment: inadequate training and support, limited reading resources, large class sizes and time constraints [Kanjee & Bhana, 2022]
- In summary: **Assumption that teachers know the learner levels of their learners is strong**
- **Constraints and poor formative assessment practices do not allow for teachers to use assessment to adapt their instruction**

Research Aims & Questions

- Reading benchmarks are numerical measures of reading proficiency
- Intended uses of benchmarks in the classroom [Ardington et al., 2020]:
 - ① Standard against which to measure learner skills
 - ② Identify learners at risk of not being able to read
 - ③ Adapt instructional focus to meet learner needs
- Benchmarks potentially enable teachers to interpret assessment results, enhancing teachers' understanding of learning levels

RQ1:

What is the level of teacher judgement accuracy?

RQ2:

What is the effect of providing training on benchmarks and assessment resources on teacher judgement accuracy?

Research Design

- Pilot RCT in 40 schools across 4 provinces
- Grade 2 & 3 Teachers in schools with at least 3 classes per grade
- Randomly assigned 2 teachers to invite to receive the intervention training (treatment) and the remaining teacher to be control

	Invited to training			Not invited		
Province	Attended	Did not attend	% Attending	Attended	Did not attend	% Attending
Eastern Cape	32	4	89%	4	16	20%
Limpopo	32	4	89%	5	14	26%
Mpumalanga	32	7	82%	1	18	5%
North-West	33	7	83%	3	16	16%
Total	129	22	85%	13	64	17%

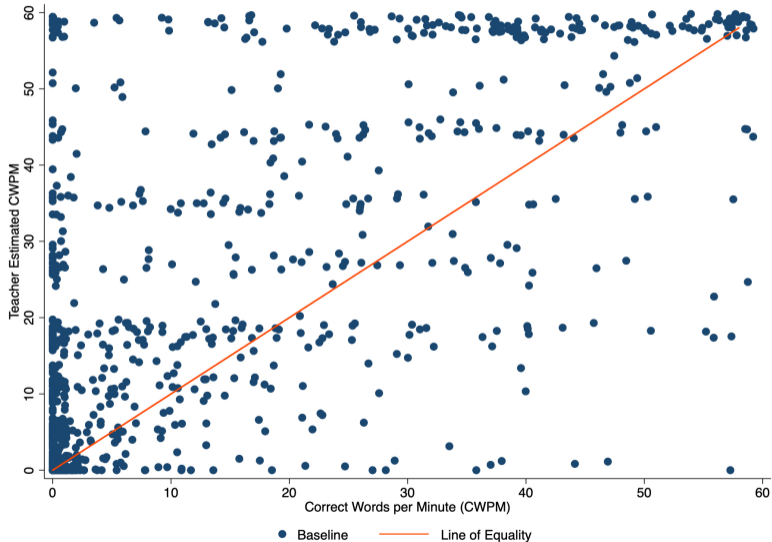
Data

- Data Collection: Baseline (May) and 6-month follow-up
- Intervention: Benchmarks Orientation, EGRA Training, Assessment Text & Resources
- Sample Size:

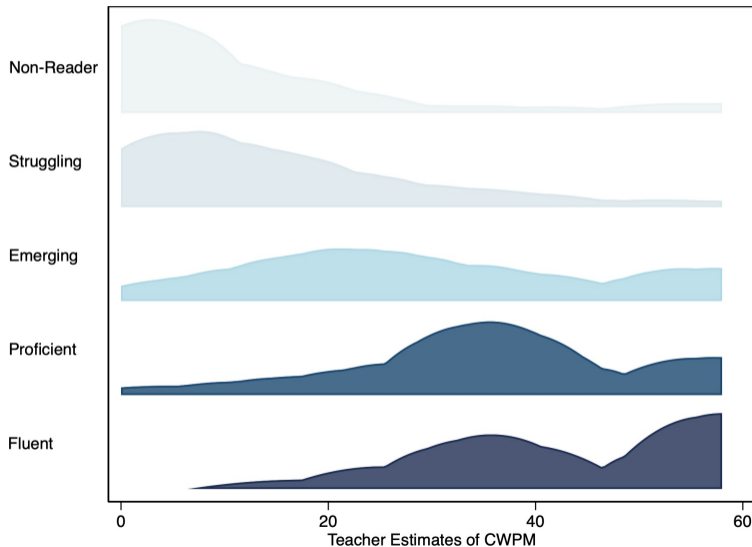
Province	Teachers	Learners
Eastern Cape (isiXhosa)	49	451
Mpumalanga (isiZulu)	47	463
Limpopo (Sepedi)	53	472
North West (Setswana)	48	472
Total	197	1858

- Learner Performance: Letter Sound Knowledge & Oral Reading Fluency Sub-Tasks
- Teacher Interview: Demographic Characteristics, Experience, Estimating Learner Performance

Teacher Estimate vs Measured Performance



Estimated vs Actual Benchmark Categories



Measuring Teacher Judgement Accuracy

Prediction Accuracy

$$Accuracy_{it} = \frac{TP_{it} + TN_{it}}{TP_{it} + TN_{it} + FP_{it} + FN_{it}}$$

Point and Rank Correlation

$$Corr(x_{ijt}, \hat{x}_{ijt})$$

Judgement Error

$$Error_{ijt} = abs(x_{ijt} - \hat{x}_{ijt})$$

Quadratic Kappa

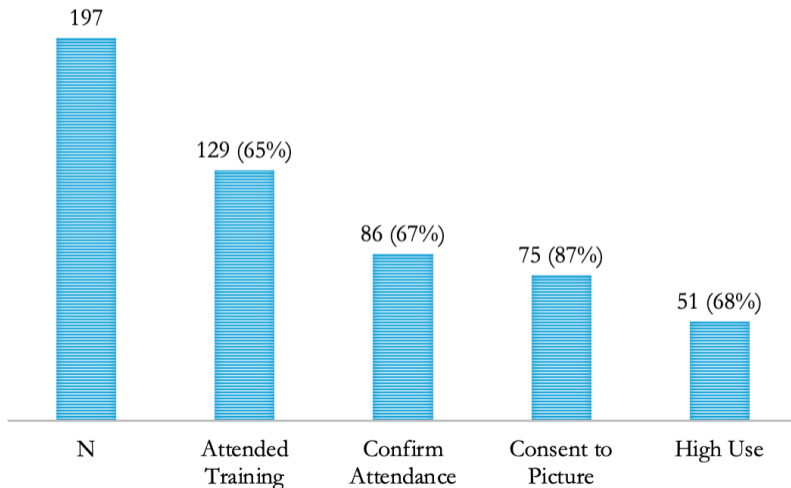
$$QWK_{it} = \frac{\sum_{i,j} w_{i,j} O_{i,j}}{\sum_{i,j} w_{i,j} E_{i,j}}$$

Estimated Impact of the Intervention: Full Sample

Variables	(1) ITT	(2) LATE	(3) ATT	N
Rank Correlation	0.0343 (0.0382)	0.0418 (0.0397)	0.0995** (0.0434)	197
Pearson Correlation	0.0359 (0.0431)	0.0437 (0.0452)	0.0520 (0.0540)	197
Judgement Error	-0.417 (0.783)	-0.516 (0.831)	-0.235 (1.020)	197
Prediction Accuracy	0.00450 (0.0115)	0.00554 (0.0121)	0.0144 (0.0144)	197
Quadratic Weighted Kappa	0.0142 (0.0377)	0.0176 (0.0400)	0.0560 (0.0448)	197
Controls	Yes	Yes	No	

Note: Controls are strata fixed effects, years of experience and the baseline outcome. *, **, *** indicate significance at the 10-percent, 5-percent and 1-percent significance level respectively. Robust standard errors in parentheses.

Intervention Usage



Estimated Impact of the Intervention: Restricted Sample

Variables	(1) Rank Correlation	(2) Pearson Correlation	(3) Judgement Error	(4) Prediction Accuracy	(5) Quadratic Kappa
Endline	-0.00138 (0.0286)	0.0312 (0.0370)	-0.504 (0.653)	0.0103 (0.0114)	0.0567* (0.0320)
Treat x Endline	0.110** (0.0534)	0.0944 (0.0657)	-0.547 (1.412)	0.000106 (0.0188)	0.0595 (0.0558)
Constant	0.524*** (0.0152)	0.621*** (0.0187)	11.49*** (0.400)	0.736*** (0.00526)	0.454*** (0.0158)
Observations	176	176	178	178	177
R-squared	0.101	0.095	0.017	0.015	0.125
Number of Teachers	100	100	100	100	100

Note: Models include individual fixed effects. *, **, *** indicate significance at the 10-percent, 5-percent and 1-percent significance level respectively. Standard errors in parentheses

Summary of Findings

- Teacher judgement accuracy is low
- Teachers tend to overestimate the performance of learners across the performance distribution
- The size of the misestimation is relatively large
 - 12 words
 - Correctly classify 4 of 10 learners
 - But: *Non – readers* < *Struggling* < *Emergent* < *Proficient* < *Fluent*
- Take-up rates of the intervention were fairly low and variable
- Intervention improved knowledge of relative reading proficiency of intervention-trained teachers relative to their non-trained counterparts

Implications & Conclusion

- Initial evidence on how the newly established benchmarks can be used productively in classrooms
- If teachers do not know the learning levels of their learners, it is unlikely that they are able to adapt their instruction effectively
- Strategies or programs that require the targeting of instruction are unlikely to realise their full potential
- Formative assessment practices need to be strengthened
- Importance of enhancing the resources, training, and support provided to teachers for the formative assessment process
- Reading benchmarks could augment such support

References



Ardington, C., Wills, G., Pretorius, E., Deghaye, N., Menendez, A., Mohohlwane, N., Mtsatse, N. & Van der Berg, S. 2020. *Technical Report: Benchmarking early grade reading skills in Nguni languages*. Stellenbosch: ReSEP, Stellenbosch University. Cape Town: SALDRU, University of Cape Town. Chicago: NORC at the University of Chicago. Pretoria: Department of Basic Education



Ardington, C. & Meiring, T., 2020. Impact Evaluation of Funda Wandé Coaching Intervention Midline Findings. SALDRU, University of Cape Town, Cape Town.



Djaker, S., Ganimian, A. & Sabarwal, S. 2022. Primary- and middle-school teachers in South Asia overestimate the performance of their students. [Manuscript]








Hadjidemetriou, C. & Williams, J. 2001. Evaluating teachers' knowledge in relation to their children's learning. In *Proceedings of the British Society for Research into Learning Mathematics*. 1st ed. V. 21.



Kanjee, A. & Bhana, J. 2022. Lessons learner and evidence of impact: Formative assessment in an integrated reading and mathematics intervention. In *Early grade reading and mathematics interventions in South Africa*. N. Spaul & S. Taylor, Eds. Cape Town, South Africa: Oxford University Press Southern Africa (Pty) Limited

References

-  Kanjee, A. 2020. Exploring primary school teachers' use of formative assessment across fee and no-Fee Schools. *South African Journal of Childhood Education*. 10(1). DOI: 10.4102/sajce.v10i1.824.
-  Kanjee, A. & Mthembu, J. 2015. Assessment Literacy of Foundation Phase Teachers: An exploratory study. *South African Journal of Childhood Education*. 5(1):26. DOI: 10.4102/sajce.v5i1.354.
-  Kanjee, A. & Sayed, Y. 2013. Assessment policy in post-apartheid South Africa: Challenges for improving education quality and learning. *Assessment in Education: Principles, Policy & Practice*. 20(4):442–469. DOI: 10.1080/0969594x.2013.838541.
-  Kolovou, D., Naumann, A., Hochweber, J. & Praetorius, A.-K. 2021. Content-specificity of teachers' judgment accuracy regarding students' academic achievement. *Teaching and Teacher Education*. 100:103298. DOI: 10.1016/j.tate.2021.103298.
-  Lam, D., Ardington, C. & Leibbrandt, M., 2011. Schooling as a lottery: Racial differences in school advancement in urban South Africa. *Journal of development economics*, 95(2), pp.121-136.

References



Maunganidze, L., Ruhode, N., Shoniwa, L., Nyanhongo, S., M. Kasayira, J. & Sodi, T. 2008. Teacher ratings and standardised test scores: How good for predicting achievement in students with learning support placement? *Journal of Psychology in Africa*. 18(2):255–258. DOI: 10.1080/14330237.2008.10820194.



Mkhwanazi, H.N., Joubert, I., Phatudi, N.C. & Fraser, W.J. 2014. Teachers' use of formative assessment for the teaching of reading comprehension in grade 3. *Mediterranean Journal of Social Sciences*. DOI: 10.5901/mjss.2014.v5n7p468.



Van der Berg, S. & Shepherd, D. 2015. Continuous Assessment and Matriculation Examination Marks – an empirical examination. *South African Journal of Childhood Education*. 5(2):17. DOI: 10.4102/sajce.v5i2.391



Van Geel, M., Keuning, T., Frèrejean, J., Dolmans, D., van Merriënboer, J. & Visscher, A.J. 2018. Capturing the complexity of differentiated instruction. *School Effectiveness and School Improvement*. 30(1):51–67. DOI: 10.1080/09243453.2018.1539013.