



LEADERSHIP
FOR LITERACY

Can we meaningfully measure school leadership and management in South Africa? The case of 60 township and rural schools.

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basic education

Department:
Basic Education
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PROJECT OBJECTIVES

1

Identify the number of exceptional rural and township primary schools in South Africa. Information on exceptional primary schools previously anecdotal.

2

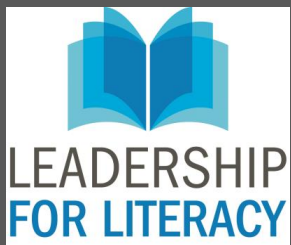
Gain new insights into school leadership and management (SLM) practices in high achieving schools relative to average or low-achieving schools in challenging contexts using case-studies.

3

The development of a scalable SLM instrument that captures the practices and behaviours of school leaders and managers in challenging contexts in Africa.

4

Establish predictive validity - how predictive is this SLM instrument of academic achievement in these schools?



BACKGROUND



3 PHASES OF QUANT. RESEARCH ON SLM LINKAGES WITH LEARNING IN SA

1 Shifting out attention from resources to efficiency dimensions.

School input resources explain very little of the difference in learning across poorer schools.

Is unexplained variation in school performance due to 'efficiency dimensions' (i.e. how resources are used) including SLM?

Crouch &
Mabogoane (1998)

Case & Deaton
(1999)

2 Proxies or 'emergent' indicators of SLM are incorporated into models of learning levels.

Positive associations with learning found with increased management of time on task, opportunity to learn (OTL) & monitoring curriculum coverage.

Gustafsson (2007)
Van der Berg &
Louw (2006)
Taylor & Prinsloo,
(2005); Spaul
(2012); Van der
Berg (2008);
Shepherd (2011)



3 PHASES OF QUANT. RESEARCH ON SLM LINKAGES WITH LEARNING IN SA

3 Proxies or 'emergent' indicators of SLM are incorporated into models of learning gains.

- Time on task, OTL and monitoring curriculum coverage.
- But OTL is likely mediated through the capacity of teachers to deliver the curriculum.
- Presence of books, management of books, administrative functionality, governance (SGB indicators)
- Stability of principal leadership matters for matriculation outcomes.

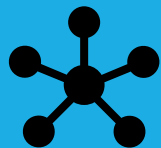
Taylor, S. (2011)

Carnoy et al. (2015)

Kotze (2017)

Hoadley et al (2009)

Wills (2016)



NO causal evidence SLM relationship with learning outcomes yet in SA.

Exception: Casual links between provincial administrative functionality and matriculation results (Gustafsson & Taylor, 2016/8).



All use 'emergent variables' or indicators to proxy for a much larger SLM construct.

This is problematic: Assuming book coverage as a indicator for a whole management construct?



INCONVENIENT TRUTHS: RIGHT SIZING THE CONTRIBUTION OF LEADERSHIP TO LEARNING

Too often SLM indicators are NOT significant

Gustafsson, 2005; Van Staden & Howie, 2014

Leadership indicators are more likely to be significant & positively related to learning in wealthier fee-paying schools than in no-fee schools.

2015 TIMSS – No associations between indicators of instructional leadership & mathematics in no-fee schools. (Zuze & Juan 2018)

School factors explain far less of learning gaps than home background factors

SLM may matter for raising learning outcomes but it is highly unlikely to overcome **large** inequalities in learning.

Efficiency gains that schools can provide are still much smaller than the gaps that are explained by home background factors (Shepherd 2016, Van der Berg & Von Fintel 2017).

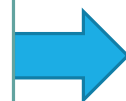


INTERNATIONAL RESEARCH: SLM & LEARNING LINKAGES

EDUCATION

ASSOCIATION AND CAUSALITY

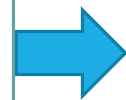
Weak to average associations between principal instructional leadership & learning outcomes (Witziers et al 2003, Robinson, 2008)



MEASUREMENT METHOD

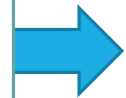
Self-reported experiences or perceptions | 360* – scale construction through items

More efficient use of own time by principals may matter for learning (Grissom & Loeb, 2015)



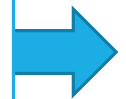
Time use data: time diaries, time logs.

Small to large causal contributions of principals to learning (Branch, Hanushek, Rivkin 2012)



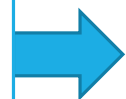
Principal effects isolated using v. large scale panel data. *But what makes a better quality principal?*

Principal training programme - casual evidence of learning improvements (Fryer 2017 - NYC, Tavares 2015 – Brazil) but cf. Muralidharan & Singh (forthcoming) - India)



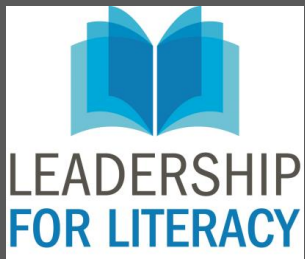
Experimental effect sizes used to signal value of SLM. *Mechanism for change?*

Strong cross-national or within country linkages between quantified *management* factors and learning (Bloom et al 2015; Crawford 2017).



Descriptive scoring rubrics
Assess effectiveness/ competence against set of descriptions

ECONOMICS



METHOD AND DATA



PURPOSEFUL SAMPLE SELECTION TO ADD VARIATION

STEP 1:
System-wide ANA data

STEP 2:
Word-of-mouth
recommendations

STEP 3:
Select best available
schools to visit

STEP 4:
Verify school
quality-literacy testing

Identify no-fee schools reaching the average performance levels of Quintile 5 (Q5) schools in the ANAs.

± 500
recommendations of
potentially 'good'
schools.

Link to ANA

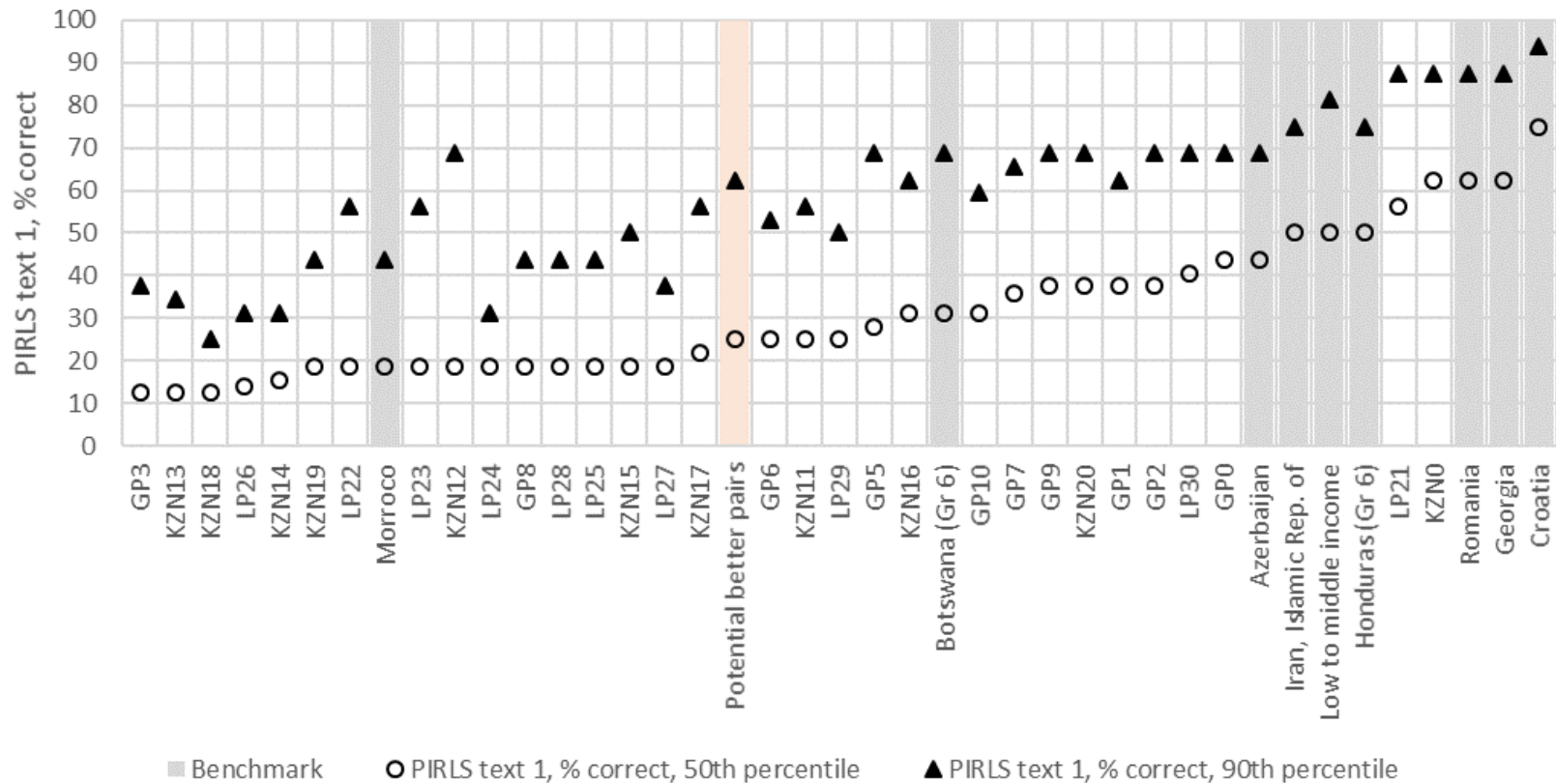
Select best available no-fee if they met Q5 performance benchmarks in ANA and/or were recommended multiple times as 'good' schools.

2 PIRLS texts & a vocab. test.
 ± 2600 Gr 6 students in 30 *potential* outlier schools & 30 additional matched pairs of lower performing schools.



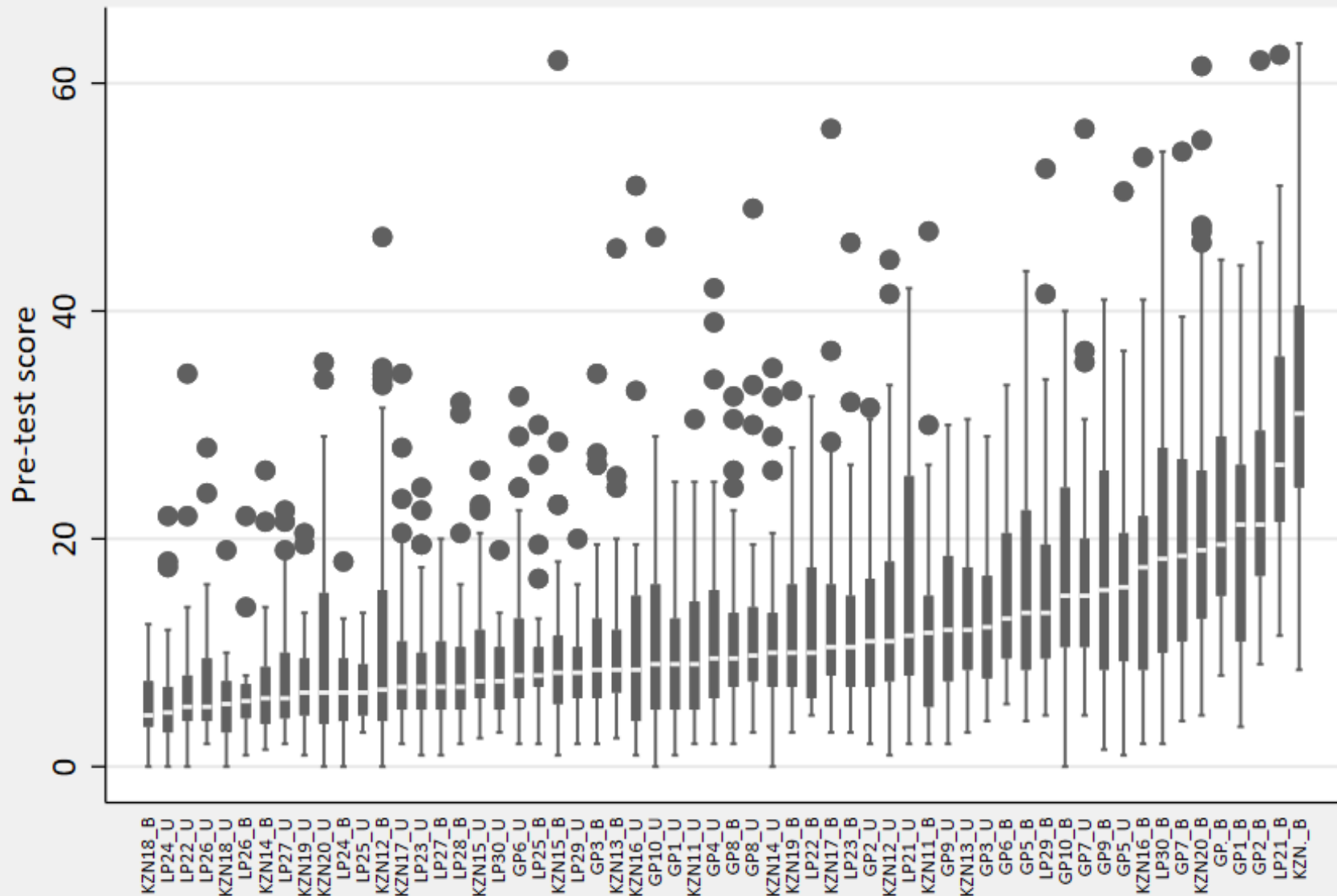
RESULTS: MIDDLE INCOME COUNTRY BENCHMARKING

Figure: International comparison of potential better performing pairs on PIRLS text 1 (literacy experience), % correct on entire comprehension



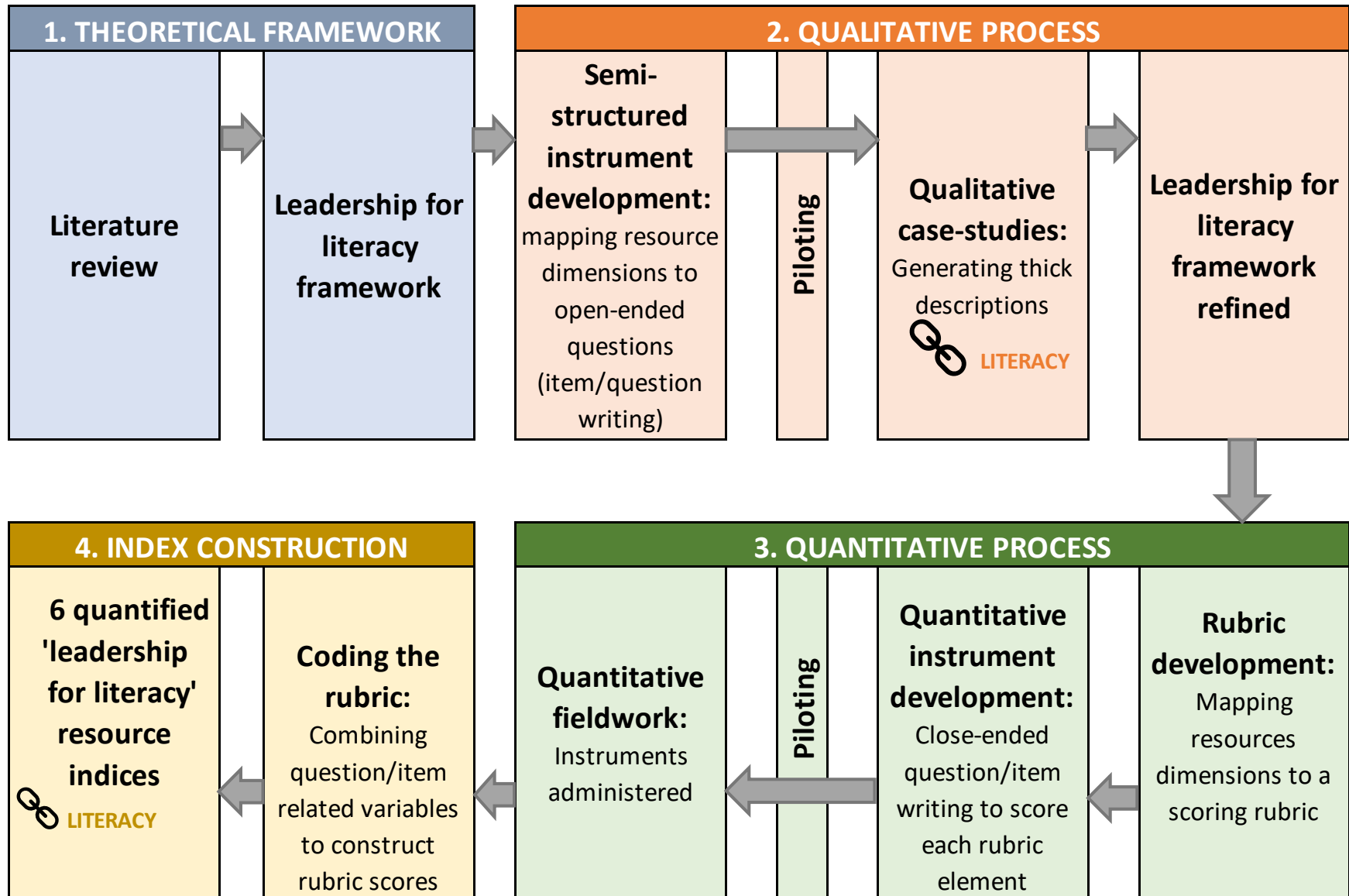
21 of the 31 *purposefully* selected school classes perform **worse** at 50th percentile than a *random* sample of Botswanan Gr. 6 students

Gr. 6 written English: Pre-test score



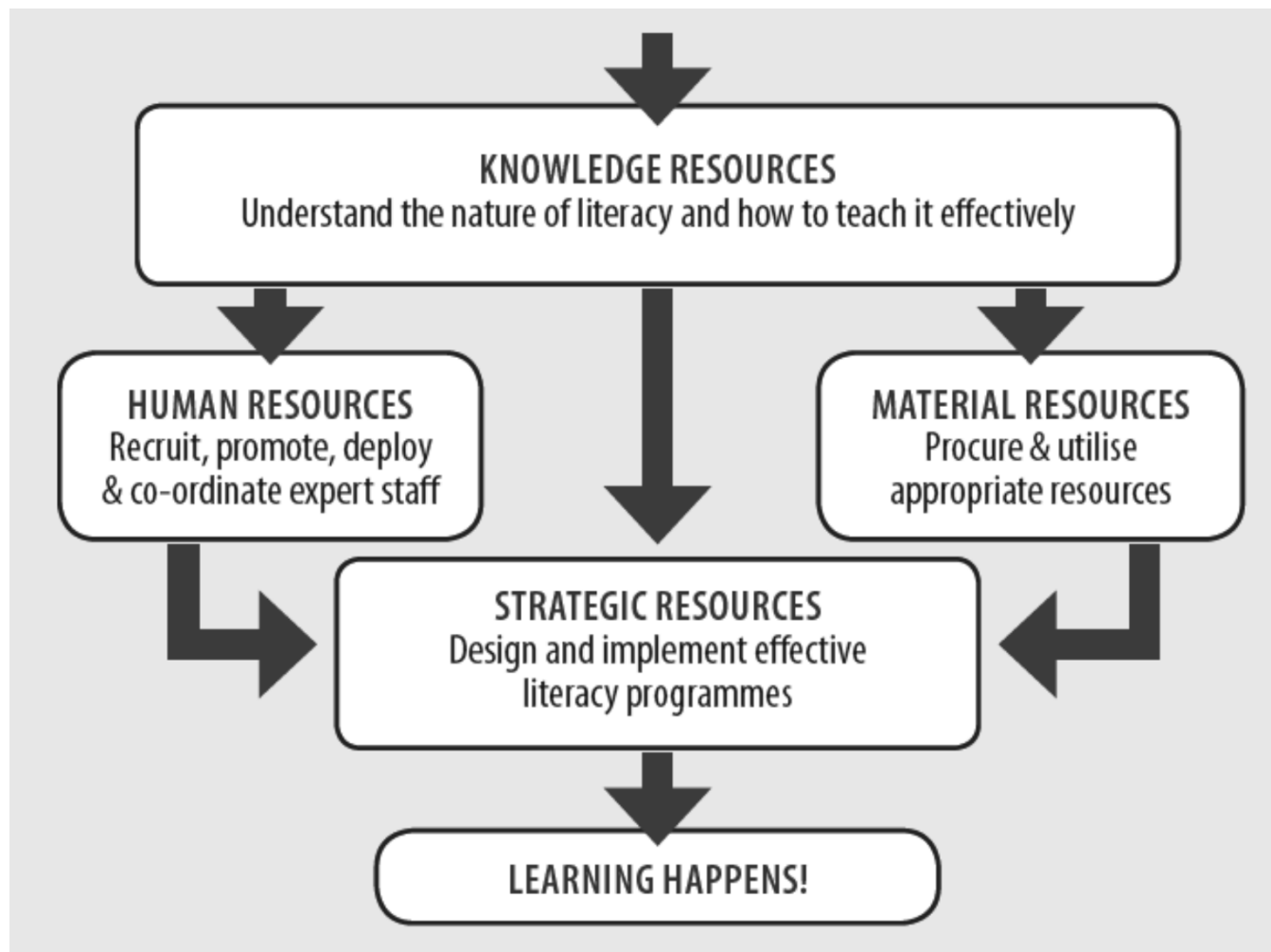


INDEX DEVELOPMENT PROCESS

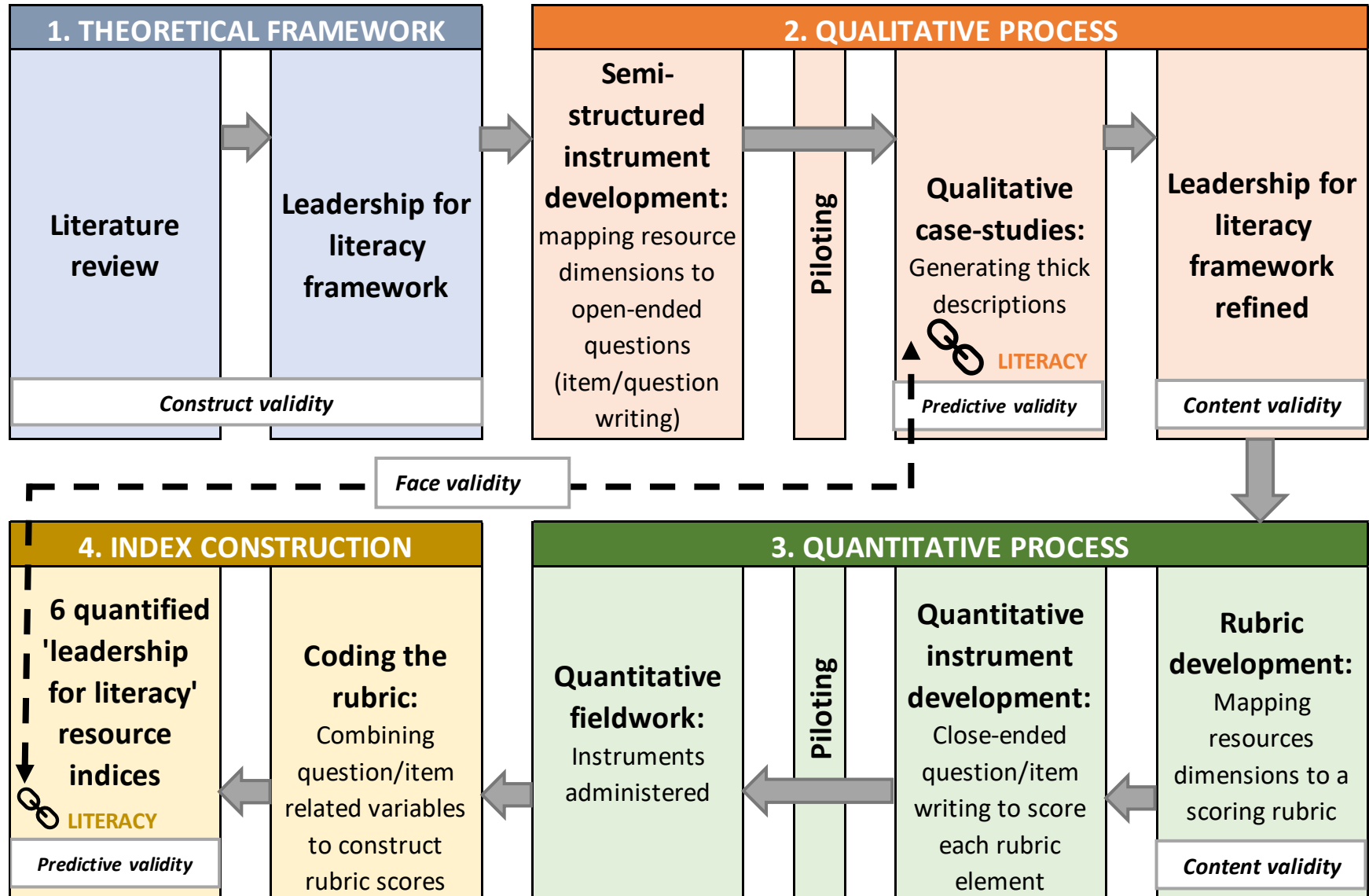




LITERACY FOR LEADERSHIP FRAMEWORK

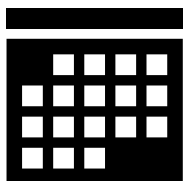


Use of time
Presence of text
Use of text





HOW WE MEASURED THE PRESENCE AND USE OF 4 ‘LEADERSHIP FOR LITERACY’ RESOURCES



We created a rubric to describe what characterises lower [1] and higher [5] presence or utilisation of the 4 resources available to school leaders in promoting literacy. Descriptions were written for 114 elements.
Elements combined using mean or principal components analysis to create 6 indices

Knowledge resources

Material R. – time

Human resources

Material R. – text presence

Strategic resources

Material R. – Use of text

INSTRUMENTS/ QUESTIONNAIRES

Close-ended questions developed to identify whether what happens in a school fits with lower or higher scored descriptions.

Administering at scale requires reducing the cognitive demands on fieldworkers.

Principal
Deputy principal / HoD
Grade 3 teacher of tested class
Grade 6 teacher of tested class
School observational instrument

ALL educator survey
(1000 educators)

80%
return rate!



RUBRIC TO INSTRUMENT

What type of data would we have to collect to objectively score each rubric element?

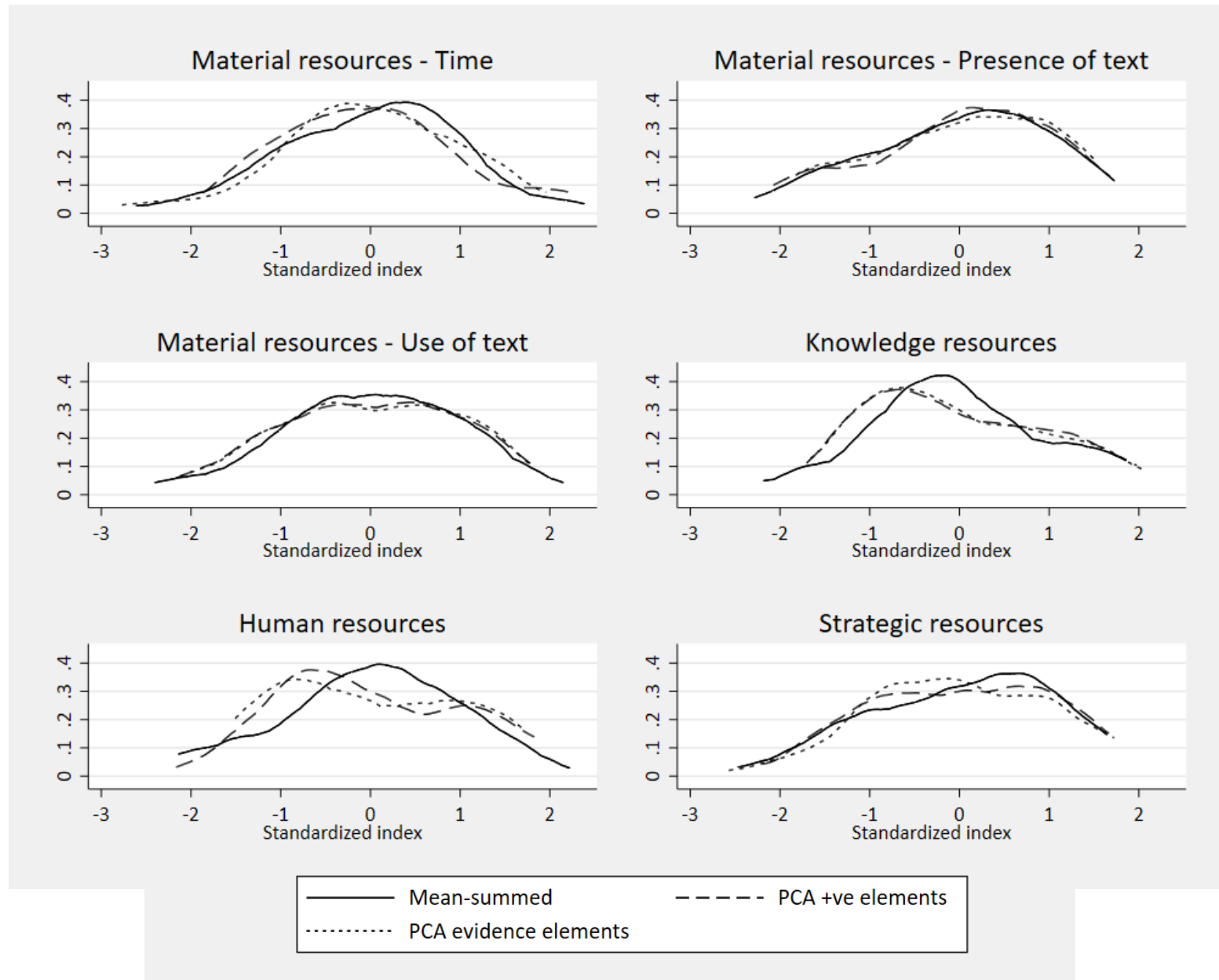
Who would be the most appropriate respondent in a school to provide this data?

What evidence based info. can we collect to verify respondents' answers to various SLM processes or practices.

Leadership for Literacy Index Dimensions	Sub-dimensions	N elements
Material resources: Time	Allocation / structure of time for teaching of language and reading	5
	Maximum use of teaching time (limited disruptions and few free periods)	4
	Low absenteeism and teacher presence in classroom	5
	Additional time for reading beyond class	5
Material resources: Presence of text	Presence of text in Grade 3 classroom	10
	Presence of text in Grade 6 classroom	9
Material Resources: use of text	Use of text in grade 3 classroom	3
	Use of text in grade 6 classroom	3
	School-wide management of resources to promote availability and use of text	3
Knowledge Resources	Culture of reading among teachers	9
	Knowledge of teaching reading	7
	Knowledge of remediation	2
	Knowledge sharing - professional collaboration	4

Human resources	The presence of managers and leaders in the school to promote reading	4
	Qualifications levels, teacher & SMT alignment to subjects & phase specialisms	4
	Presence of reading expert/s in the school	2
	Acknowledging and rewarding teacher performance	2
	Professional development - Educator exposure to PD include. reading instruction	6
	Managing poor performance and consequence management	4
	Appointing staff & attracting talent to promote the improved educators quality	3
Strategic Resources	Use of networks and financial mgt. to support a reading programme.	4
	Evidence of reading assessment practices	3
	Performing tracking of parameters, including reading & review of performance	3
	Monitoring of lessons and curriculum coverage	4
	Clear strategies to create a reading programme (implement, promote)	5
	Vision, goal setting and expectations - school goals incl. 'improved reading'	4

Figure 3: Distribution of standardised index scores (using three different approaches to combine rubric scores)





PREDICTIVE VALIDITY — LINKAGES WITH LEARNING

Feb/March 2017

Pre-test

Oct/Nov 2017

Post-test

Gr.6 LIT. 2379
(Comprehension + vocab test)

Gr.6 ORF 599
(Eng + African language)



Student individual
and
home background

Leadership for
literacy indices

School
characteristics



Wealth – SES
(asset index)
Age
girl
Attended grade R

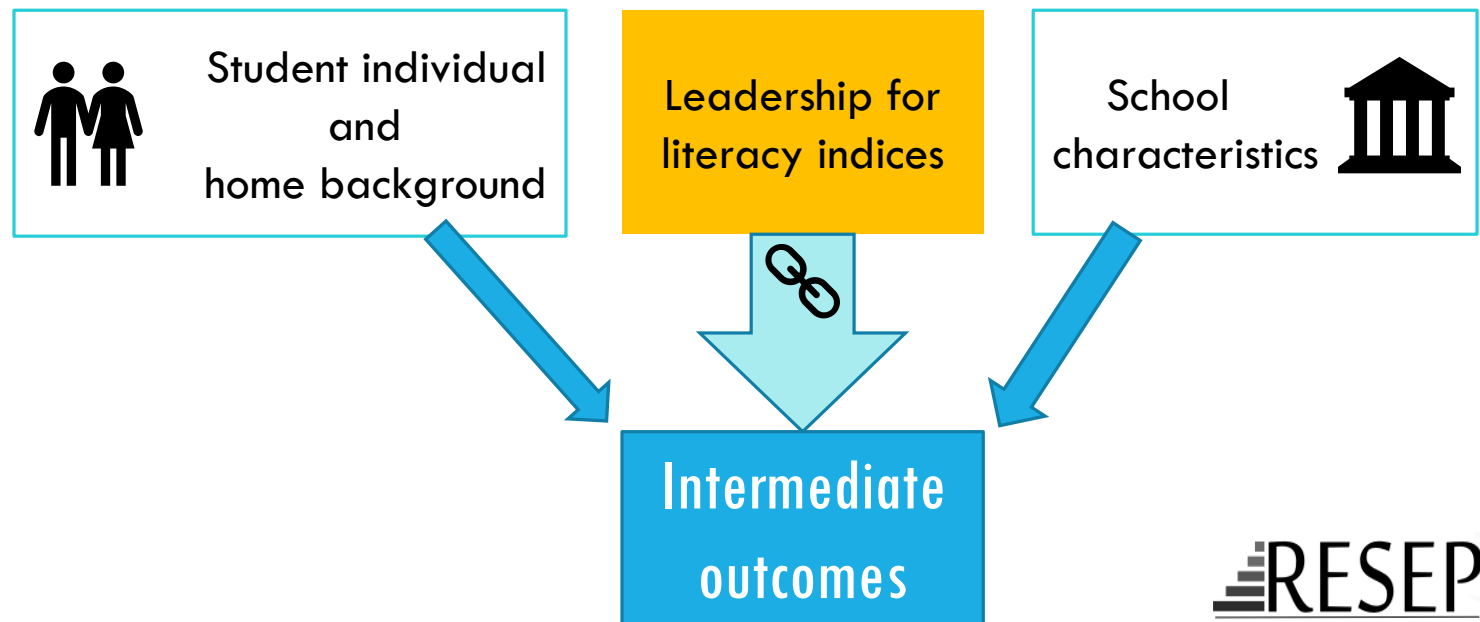
Own story book
Lives with mother
Lives with father
Rural
Language at home
Parents employment

Average SES
Class size
LOLT – English
Low fee



PREDICTIVE VALIDITY — INTERMEDIATE OUTCOMES

1. Work coverage - best learners' exercise/workbook (centiles)
2. % utilised classrooms with teacher & students engaged in a learning activity
3. % of educators who indicate curriculum coverage is monitored at least twice a week by SMT
4. Index of teacher engagement (z-score)

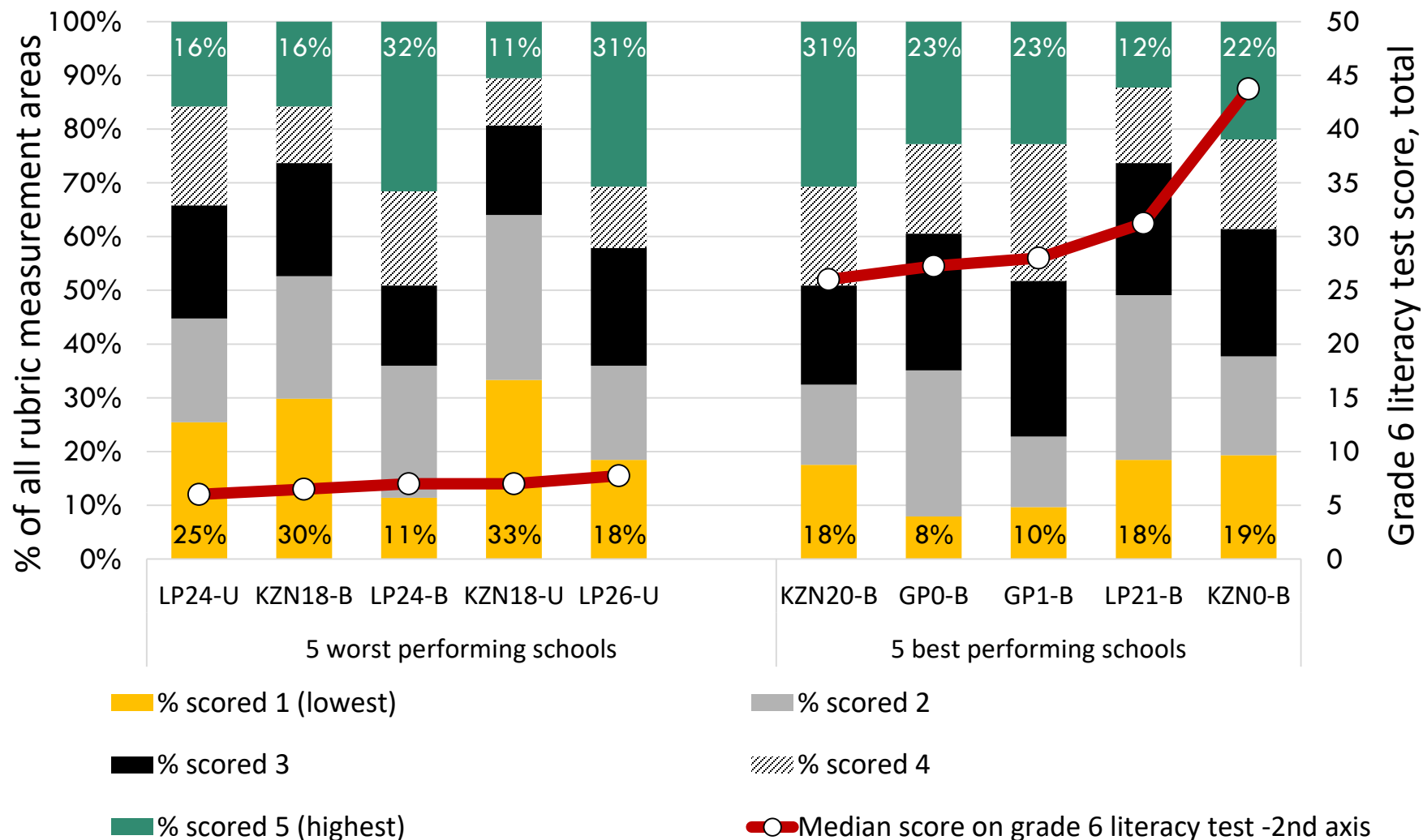






Finding 1: Better practices are not consistently observed in higher performing schools

Figure 1: Rubric scores for 114 'elements' for 5 worst & 5 best performing schools





Finding 2a: Human resources most linked to English literacy outcomes

Full model results: Control for student background and school characteristics

ENGLISH LITERACY LEVELS

No significant positive association identified for 5 of 6 “Leadership for Literacy” indicators.

VALUE-ADDED –LITERACY (add pre-test)

No significant positive association identified for 5 of 6 “Leadership for Literacy” indicators.

Exception: Human resource index

1 std. deviation (SD) ↑ in index

0.18 SD** ↑
Gr 6 Eng.
Reading comp.
+ vocab

0.16 SD** ↑
Gr 6 Eng.
ORF score

0.14 SD** ↑
Gr 3 Eng.
ORF score

Exception: Human resource index

1 std. deviation (SD) ↑ in index

0.1 SD*** ↑
In Gr 6 Eng.
Reading comp.
+ vocab

0.05 SD ↑
Gr 6 Eng.
ORF score

0.09 SD** ↑
Gr 3 Eng.
ORF score

Robust to use of mean or principal components analysis in combining elements

Table 1: Estimates of Gr 6. literacy outcomes using 6 indices (LEVELS)

LEADERSHIP FOR LITERACY INDICES	<i>Gr. 6 Eng. literacy (reading comprehension & vocab. test, z-scores)</i>			<i>Gr. 6 African language ORF (% Words Read Correctly Per Minute)</i>		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Material Resource: Time	0.05	0.05	0.06	0.16	-0.10	0.00
Material Resources: Text presence	0.18**	-0.02	-0.06	-0.13	-0.38	-0.28
Material Resource: Text Use	0.05	-0.03	-0.03	0.12	-0.26	0.04
Knowledge Resources	0.09	0.04	0.00	-0.05	0.26	0.29
Human Resources	0.01	0.15**	0.18**	0.69	0.84	1.12
Strategic Resources	-0.03	0.1	0.1	0.8	0.84	1.03
Observations	2541	2541	2541	589	589	589
Controls						
Individual & home		X	X		X	X
Province		X	X		X	X
School			X			X

Source: Leadership for literacy dataset, 2017 - 60 schools. Notes: Standard errors are in parentheses and clustered at the school level. Significant at *10% level, **5% level, ***1% level. All indices measured as z-scores.

Table 2: Estimates of Gr 6. literacy outcomes using 6 L.L. indices (VALUE-ADDED)

LEADERSHIP FOR LITERACY INDICES	Gr 6 English literacy (reading comprehension & vocab., z-scores)			Gr. 6 African language ORF (% Words Read Correctly Per Minute)		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Material Resources Time	0.01	0	0	0.30	0.13	0.05
Material Resources Text Presence	0.02	0	0.01	-1.0*	-0.37	-0.06
Material Resources Text Use	-0.03	-0.04	-0.03	-0.41	-0.43	-0.19
Knowledge Resources	0.02	0.03	0.03	-0.48	0.02	0.16
Human Resources	0.08**	0.09**	0.10***	0.95*	0.03	-0.09
Strategic Resources	0.02	0.03	0.03	1.7**	0.63	0.66
Observations	2379	2379	2379	589	589	589
Controls						
Individual and home		X	X		X	X
Province		X	X		X	X
School			X			X

Source: Leadership for literacy dataset, 2017 - 60 schools. Notes: Standard errors are in parentheses and clustered at the school level. Significant at *10% level, **5% level, ***1% level. The pre-test control in estimating A) grade 6 literacy is the z-score of the students' pre-test result on the same test. The pre-test control in estimating C) grade 6 African language oral reading fluence is the %WCPM of the student on the pre-test English ORF - no pre-test available in African language.



Finding 2b: Allocation and utilisation of time most linked to African language reading outcomes (grade 3 only)

Full model results: Control for student background and school characteristics

VALUE-ADDED –LITERACY (add pre-test)

No significant positive association identified for 5 of 6 “Leadership for Literacy” indicators.

Material Resources: Time

1 std. deviation (SD) ↑ in index



0.39 % ↑ point
Gr 6. African
lang. ORF
*^pre-test control
is English ORF*



1.091*
% point of single
words read
correctly per
minute
Gr 3. African lang.



2.079**
%WCPM
Gr 3. African
lang. ORF

Table 3: Estimates of intermediate outcomes using 6 L.L. indices

	Coverage of work in best learners' exercise / workbooks (in centiles)	% of utilised classrooms with teacher present (and students in a learning activity)	% of educators indicating their curriculum coverage is monitored at least 2X a week by SMT.	Index of teacher engagement (z-score)
	Model 3	Model 3	Model 3	Model 3
Material Resources: Time	2.9	1.5	2.6	0.06
Material Resources: Text presence	5.2	-0.5	-0.1	0.01
Material Resources: Text use	-10.9***	2.8	-0.7	-0.07
Knowledge Resources	-2.5	2.2	-1.2	0.02
Human Resource	7.0*	-0.1	5.3*	0.20***
Strategic Resources	15.4***	-3.4	7.6**	0.21***
Controls				
Student characteristics	X	X	X	X
School characteristics	X	X	X	X
Province	X	X	X	X

Source: Leadership for Literacy. Notes: N = 60 for all regressions. Average student characteristics of grade 6 class include % overage, % who attended grade R, % who always or almost always speak English at home, % whose parents are not employed, % with own story books at home. School controls include average school wealth, class size of grade 6 class, English LOLT and low-fee paying. Cells are highlighted where P-values are less than 0.1.



Finding 2: Human resources most linked to learning outcomes

POSITIVE AND SIGNIFICANT 'HR' ELEMENTS

- Suitable ratio of learners to SMT members with administrative support in place
- Language teachers are specialised to teach African or English language
- Reading experts are present in the school
- The school has a system for acknowledging its best teachers through rewards /awards.
- The School Governing Body supports good teacher hiring processes
- The SMT actively support teacher's development
- The SMT regularly encourage teachers to adopt or use new teaching practices



Why are other rubric elements insignificant or at times are even negatively linked to learning when they are theoretically likely to be as important for learning?



WHY DIDN'T WE FIND STRONGER LINKAGES?

Quantitative

Instructional leadership practices we were measuring are randomly distributed – few systematic patterns observed in poorer schools.

May still have measured things imprecisely, particularly knowledge resources.

Quant. Instruments detect average relationships well but not nuance of practice (esp. when not directly observable).

Qualitative

Case study findings concur that consistently better practices w.r.t. LL framework were not observed in higher performing pairs

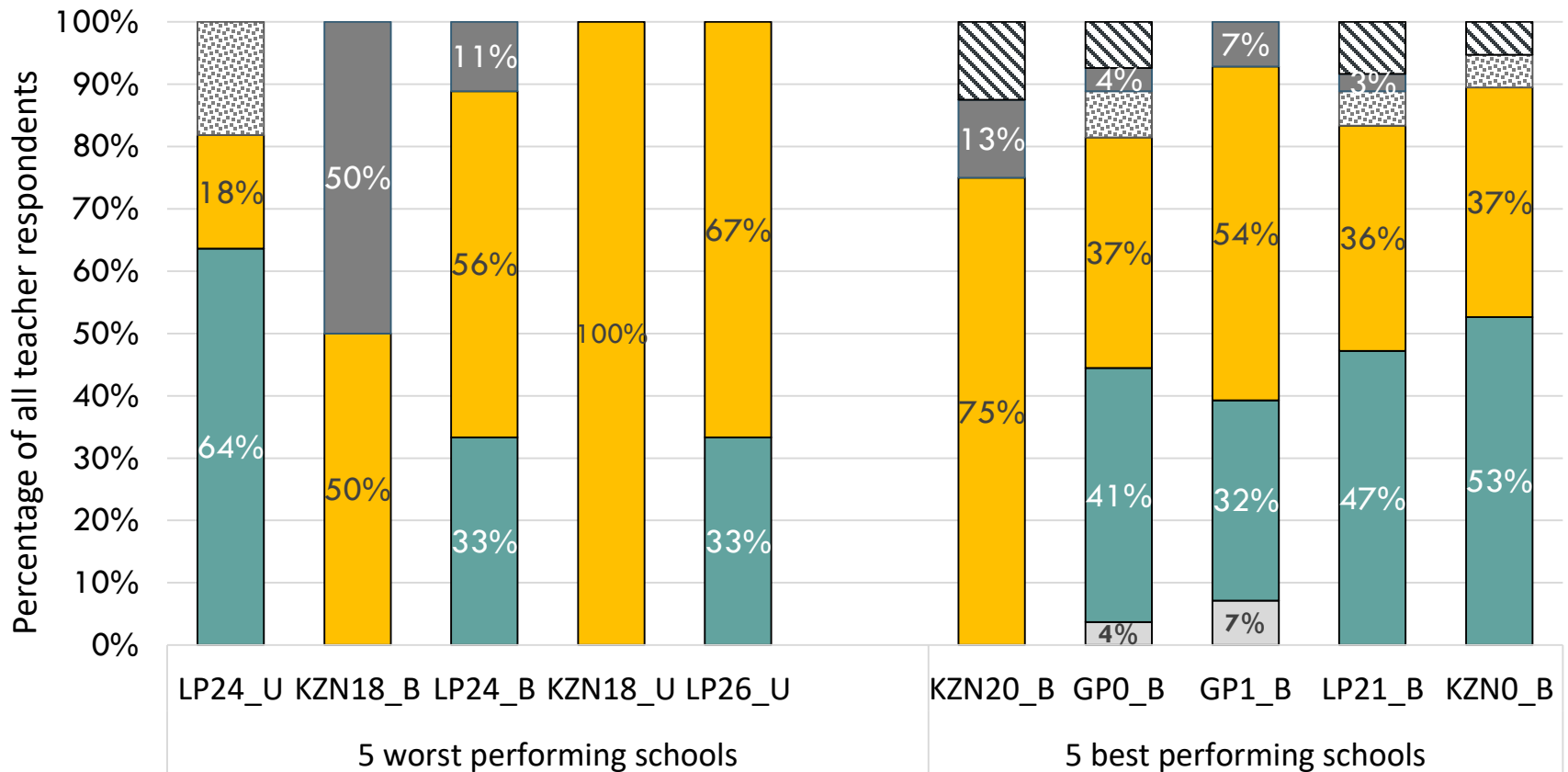
Some face validity concerns – divergence when mapping quant. findings to qual. findings on specific rubric elements that cannot be directly observed.



Result 3: Incoherent management practices within the same school

Figure 3: Teacher responses in schools - “How often does your HoD in this school check to see how much of the curriculum you have taught?”

Legend: Never (light grey), At least once a term (teal), Once a week (yellow), 2-3 times a week (dotted), 4-5 times a week (dark grey), Missing (hatched)





SUMMARY & DISCUSSION

Better practices with respect to the Leadership for Literacy framework are not consistently identified in better performing schools in our sample of rural and township schools.

How does this affect our thinking about previous research on SLM?

It is unlikely that school management and leadership largely accounts for unexplained differences in school performance across historically disadvantaged schools.

Case studies suggest that teacher effects predominate.

Implications for future research

Start looking elsewhere for systematically better SLM practice.

- Zuze & Juan (2018) suggests more evidence of instructional leadership practices in independent schools sampled in TIMSS ([see policy brief “School leadership & local learning contexts in South Africa”](#)).

Consider programme interventions to shift SLM as a better approach to measurement but if the variation is not there to start off with, can we shift it?



SUMMARY & DISCUSSION

Human resource factors are most associated with English literacy improvements. Suggestive evidence that one associative mechanism may be curriculum coverage.

Implications for policy & practice

First step to improving the quality of SLM is getting the right people on the bus & enough people on the bus.

- Allocate enough managers to schools in line with policy.
(see policy brief “*Structural inequalities in school management*”)
- Hire the best suitable candidates.

Appoint teachers to teach literacy who have specialist skills in this area.
Develop and acknowledge excellent teacher practice.



SUMMARY & DISCUSSION

Incoherence in management & leadership practice within the same schools.

Case studies: In the absence of systematic coherent SLM practices in schools, teacher effects predominate.

Teachers perceptions and experiences of their SMT vary notably within the same school.

Implications for future research

Making judgements about SLM practice in a school on the basis of asking one or two respondents is problematic.

- All educator survey if administered correctly is useful. Return rate high.

In the no-fee system, there may be a lot more variation within schools that could be used to identify SLM-learning linkages.

Test multiple grades, multiple classes within the same grade – requires vertically comparable tests (anchor items).



LEADERSHIP
FOR LITERACY

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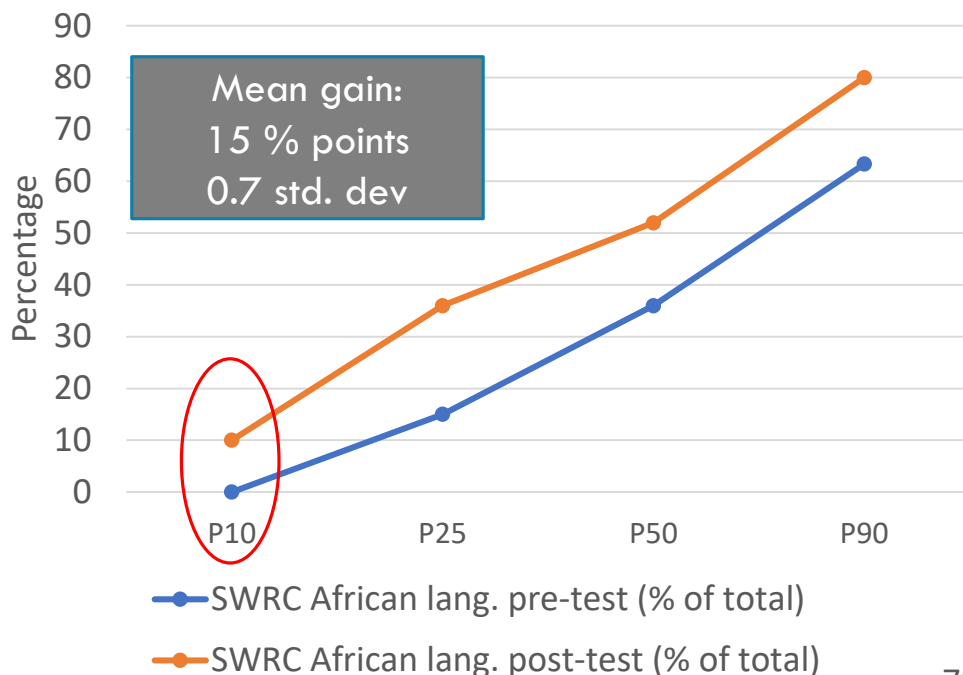




GRADE 6 LITERACY OUTCOMES

<i>Grade 6 literacy outcomes</i>	Mean	SD	P10	P50	P90	Min	Max	N
Total literacy score pre-test	13.1	9.9	4.0	10.0	27.0	0.0	63.5	2652
Total literacy score post-test	18.0	12.9	5.5	14.5	37.0	0.0	75.0	2541
Change in total	5.1	6.1	-1.5	4.5	13.0	-36.5	36.0	2379
Change in std. deviation	0.5	0.6	-0.2	0.5	1.3	-3.7	3.6	2362
Total vocabulary score - pre-test	5.1	5.7	0.0	3.0	13.0	0.0	42.5	2652
Total vocabulary score - post-test	8.6	7.9	1.0	6.5	19.0	0.0	53.0	2541
Change in vocabulary total	3.6	4.1	-0.5	3.0	9.0	-26.5	31.5	2379
ORF Eng. score pre-test	81.1	38.4	28.0	80.0	130.0	0.0	202.0	733
ORF Eng. score post-test	93.4	40.0	40.0	97.0	144.0	0.0	192.0	599
Change in total	12.7	17.4	-5.0	12.0	32.0	-95.0	92.0	598
Change in std deviation	0.3	0.5	-0.1	0.3	0.8	-5.3	2.4	599
African language ORF % WCPM	24.4	11.0	11.1	24.7	36.8	0.0	56.6	589

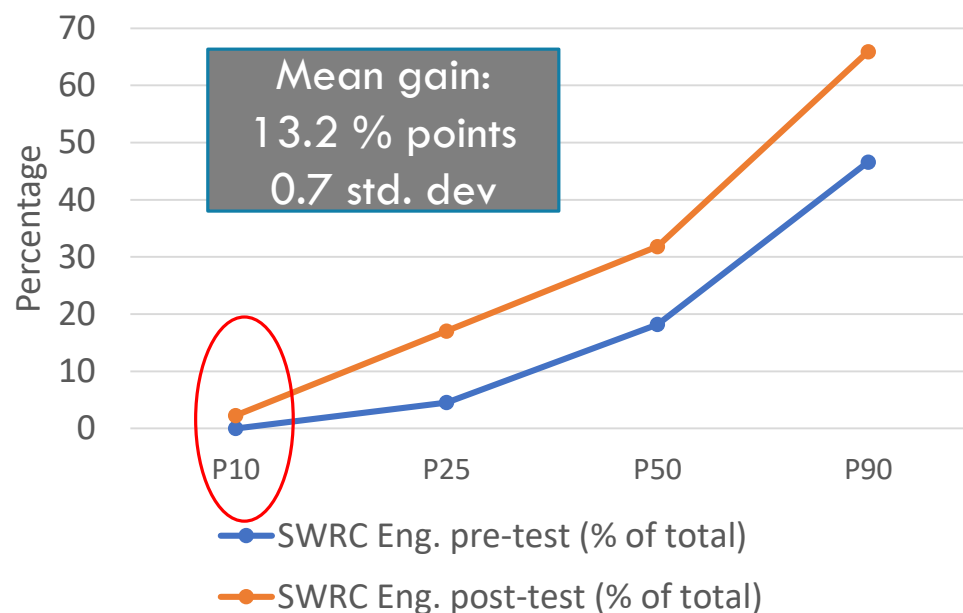
Single words read correctly in African language
as % of total possible words



Grade 3 children generally
do learn something.

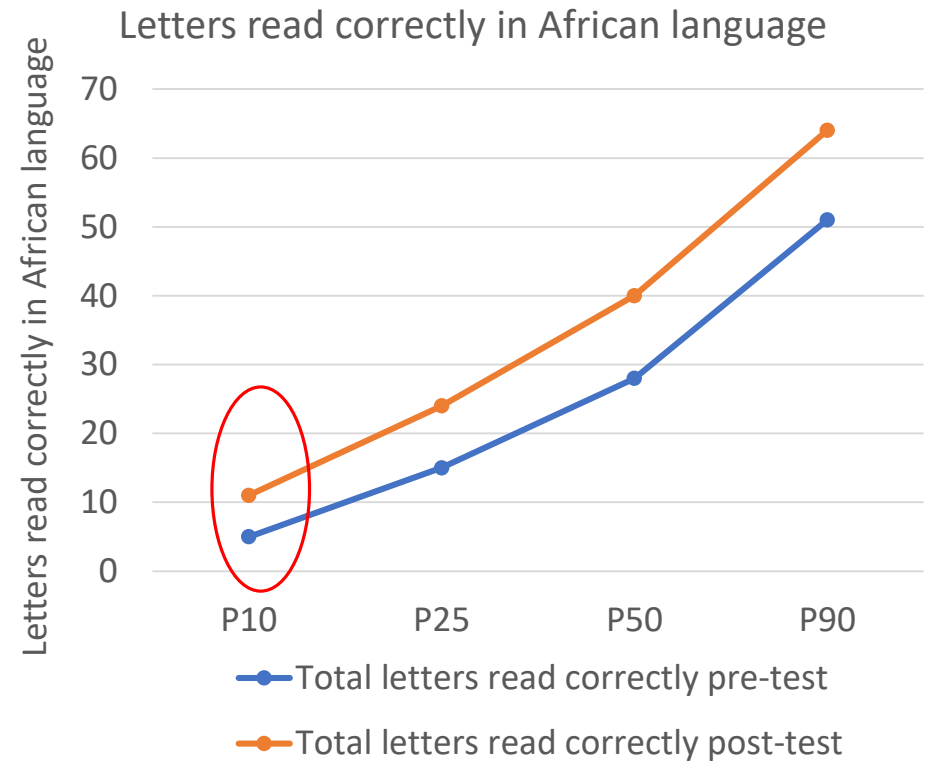
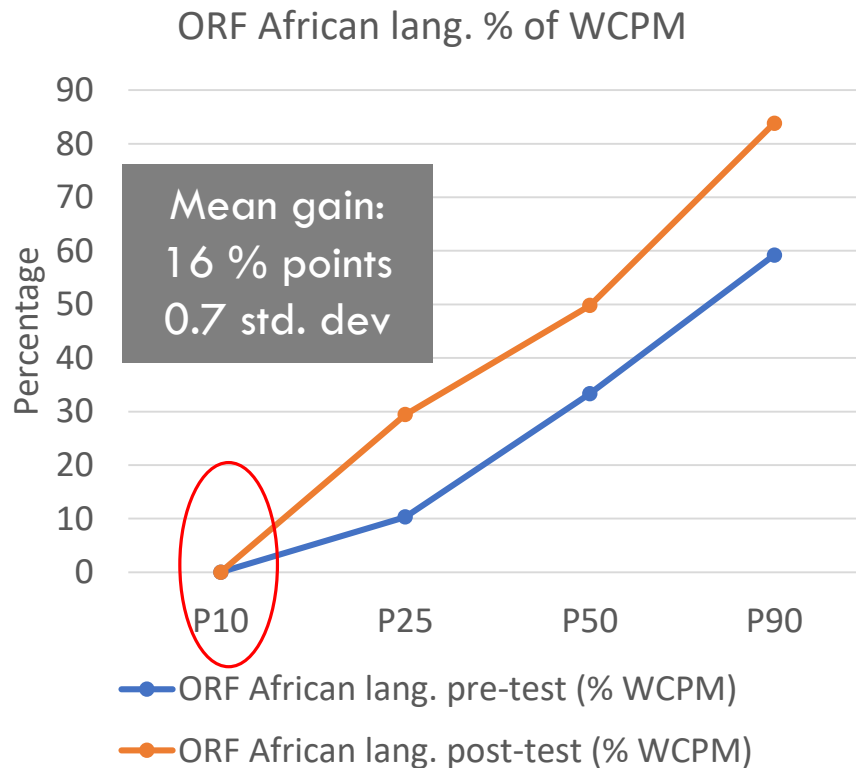
But what is tested matters in
picking up the bottom end.

Single words read correctly in English as a % of
total words



Grade 3 children generally learn something.

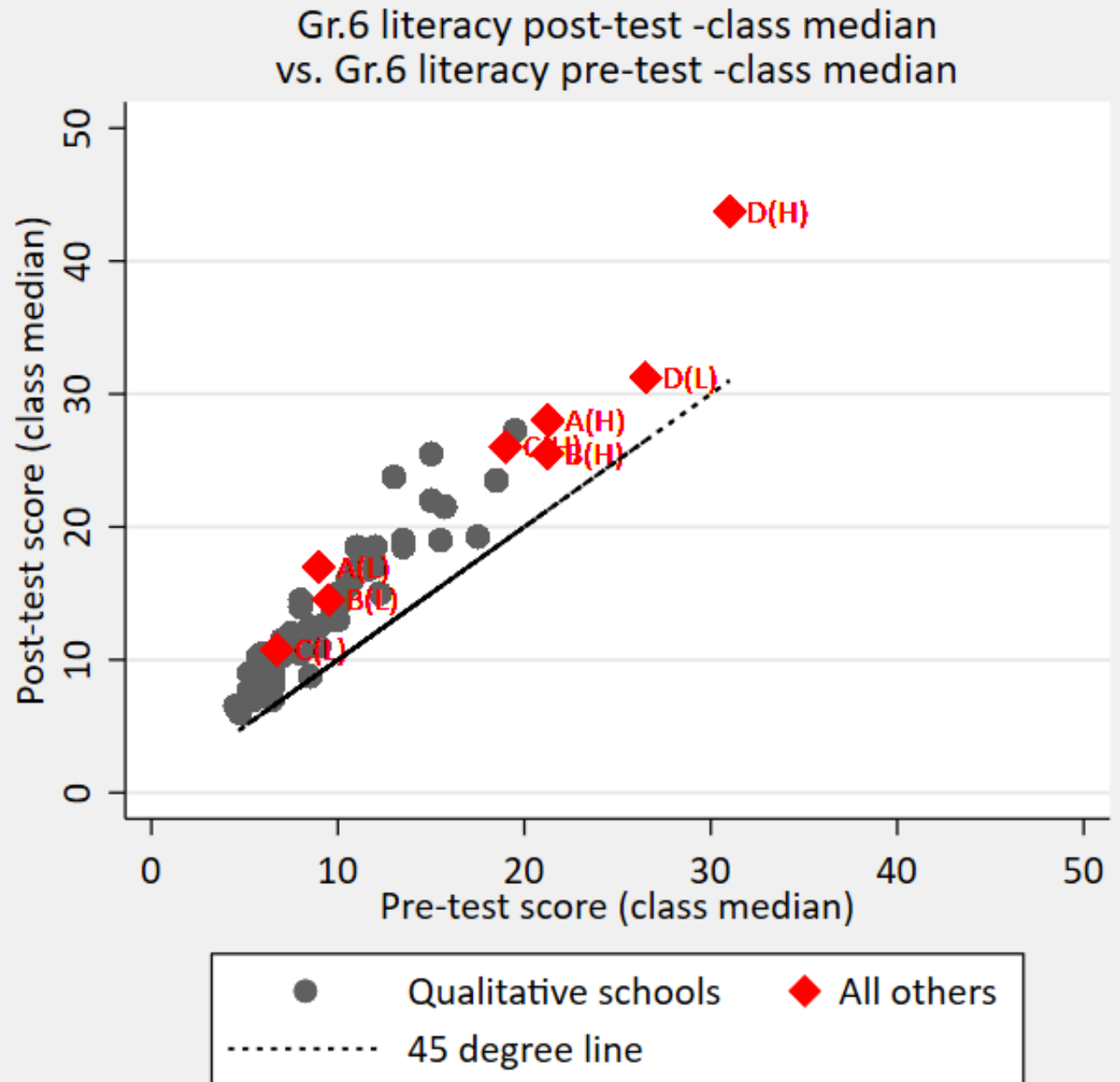
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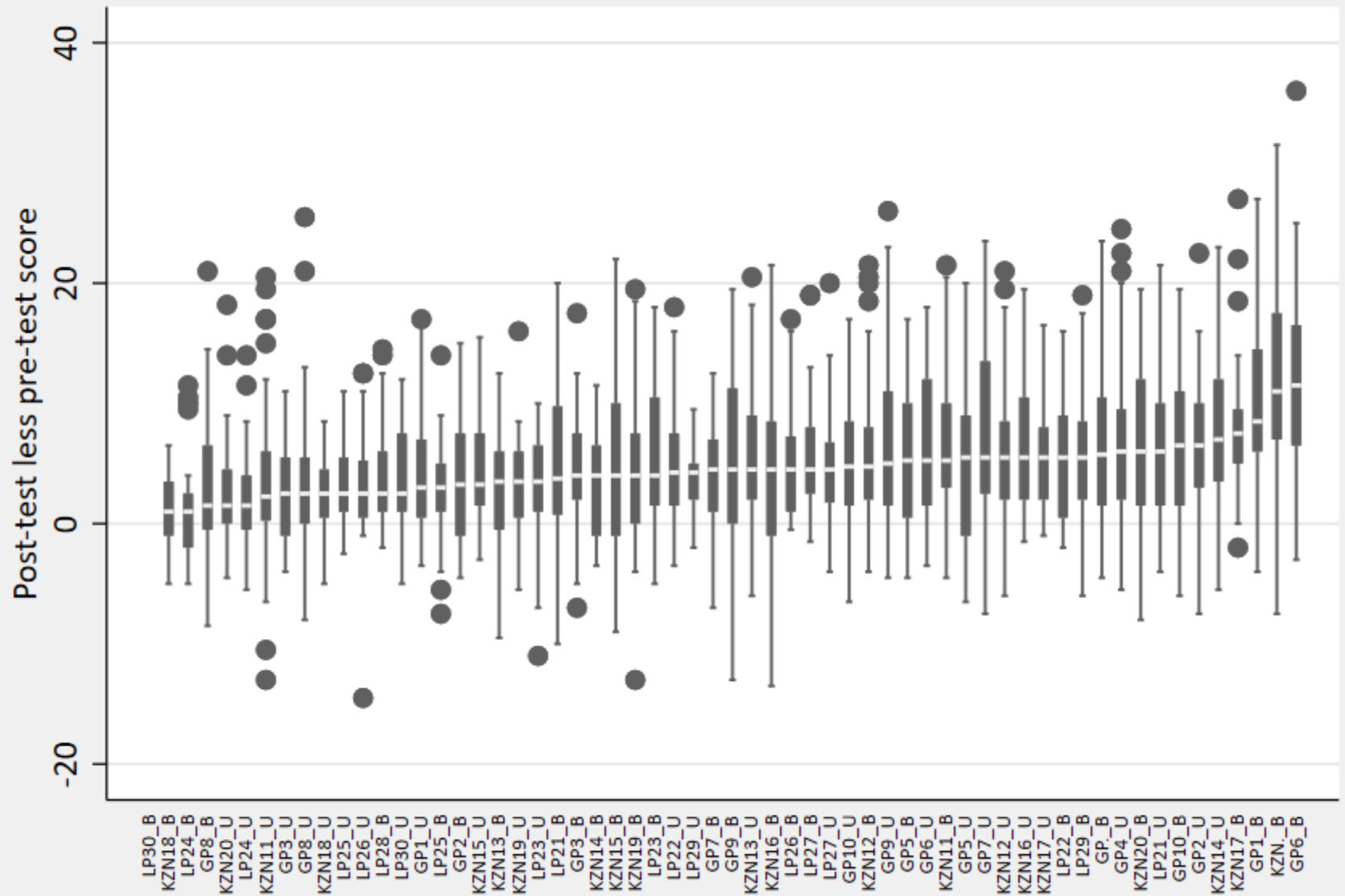
Leadership for Literacy Index Dimensions	Sub-dimensions	N elements
Material resources: Time	Allocation / structure of time for teaching of language and reading	5
	Maximum use of teaching time (limited disruptions and few free periods)	4
	Low absenteeism and teacher presence in classroom	5
	Additional time for reading beyond class	5
Material resources: Presence of text	Presence of text in Grade 3 classroom	10
	Presence of text in Grade 6 classroom	9
Material Resources: use of text	Use of text in grade 3 classroom	3
	Use of text in grade 6 classroom	3
	School-wide management of resources to promote availability and use of text	3
Knowledge Resources	Culture of reading among teachers	9
	Knowledge of teaching reading	7
	Knowledge of remediation	2
	Knowledge sharing - professional collaboration	4

Human resources	The presence of managers and leaders in the school to promote reading	4
	Qualifications levels, teacher & SMT alignment to subjects & phase specialisms	4
	Presence of reading expert/s in the school	2
	Acknowledging and rewarding teacher performance	2
	Professional development - Educator exposure to PD include. reading instruction	6
	Managing poor performance and consequence management	4
	Appointing staff & attracting talent to promote the improved educators quality	3
Strategic Resources	Use of networks and financial mgt. to support a reading programme.	4
	Evidence of reading assessment practices	3
	Performing tracking of parameters, including reading & review of performance	3
	Monitoring of lessons and curriculum coverage	4
	Clear strategies to create a reading programme (implement, promote)	5
	Vision, goal setting and expectations - school goals incl. 'improved reading'	4

Qualitative schools



Gr. 6 written English: Post-test less pre-test score





RESULTS: INDICES CREATED USED EVIDENCE OR OBSERVATIONAL DATA ONLY I.E. REMOVE SELF-REPORT

LITERACY LEVELS (Full model)

Knowledge resource index

1 std. deviation (SD) ↑ in index

0.01 SD ↑

0. SD** ↑

0.03* ↑

Strategic resource index

1 std. deviation (SD) ↑ in index

0.1 SD* ↑

0. SD** ↑

0.1 ↑

Human resource index

1 std. deviation (SD) ↑ in index

0.12 SD** ↑
Eng. Reading
comp. + vocab

0. SD** ↑
Eng. ORF
score

0.77 ↑
%WCPM
African. lang.
ORF score

VALUE-ADDED –LITERACY (Full model)

Knowledge resource index

1 std. deviation (SD) ↑ in index

0.03 SD* ↑

0. SD** ↑

0.15 ↑

Strategic resource index

1 std. deviation (SD) ↑ in index

0.17 SD ↑

0. SD** ↑

0.3 ↓

Human resource index

1 std. deviation (SD) ↑ in index

0.08 SD*** ↑
in Eng.
Reading comp.
+ vocab

0.05 SD ↑
Eng. ORF
score

0.07 ↓
%WCPM
African. lang.
ORF score

Qualitative and Quantitative results Diverge (D), Diverge somewhat (DS) or Converge (C)

	Knowledge		Human				Strategic	Material
	Introduce literacy skills (know)	Understand reading	Recruit staff	Expertise recognised	Collaboration	External in-service training	Reading programme	Library
Pair (A)	DS	C	C	C	DS	DS	DS	C
Pair (B)	D	DS	DS	DS	DS	C	D	C
Pair (C)	D	C	D	C	C	DS	DS	C
Pair (D)	C	C	D	D	D	DS	D	C
Number of pairs where results converge	1/4	3/4	1/4	2/4	1/4	1/4	0/4	4/4