Three levels of analysis from large-scale research on interventions to improve literacy in South Africa

Quantitative RCT findings: UKFIET, September 2017
Cas Prinsloo and Nompumelelo Mohohlwane
Motivation Behind This Project

• Reading is at the heart of the quality challenge in SA
  – 58% of children not learning to read by grade 4 (Pre-PIRLS)
  – Root cause of school dropout in grades 10–12
• Robust impact evaluation
• Exploring mixed methods research for system-wide policy
• Developing partnerships – led by government
Sample: 230 schools in North West

3 Interventions targeting HL literacy (Setswana)

<table>
<thead>
<tr>
<th>Control group</th>
<th>“Training”</th>
<th>“Coaching”</th>
<th>“Parent Involvement”</th>
</tr>
</thead>
<tbody>
<tr>
<td>(80 schools)</td>
<td>Lesson plans, reading materials + central teacher training (50 schools)</td>
<td>Lesson plans, reading materials + on-site coaching (50 schools)</td>
<td>(50 schools)</td>
</tr>
</tbody>
</table>

2015: Grade 1
2016: Grade 2
2017: Grade 3 (Interventions 1 and 2 only)
3 waves of data collection

• Wave 1: “Baseline”
  – Start of Grade 1, Feb 2015
  – Randomly sampled 20 learners per school

• Wave 2: “Midline”
  – End of Grade 1, Oct/Nov 2015

• Wave 3: “Endline”
  – End of Grade 2, Oct/Nov 2016
  – Included those repeating grade 1
Sample: 230 schools in North West
Theory of change: I1 & I2

• CAPS-aligned structured learning programme:
  1. **Lesson Plans:**
     • Improve curriculum coverage, pacing and sequencing
     • Facilitate adoption of new instructional methods and increase the teacher’s repertoire
     • (knowing ↔ doing)
     • Can ensure usage of additional resources
  2. **New resources:**
     • Allow quality implementation of pedagogical methods
  3. **Coaches:**
     • Ongoing contact provides an additional mechanism to implement, evaluate, and re-implement

• But:
  – Reduce teacher autonomy
  – Could stifle differentiated instruction
Empirical backdrop

• This project builds on earlier work in SA
  – Systematic Method for Reading Success (Piper, 2009)
  – Triple cocktail of lesson plans, reading materials and coaching showed promise in Gauteng (Fleisch & Schoer, 2014)

• Structured pedagogic programmes showing positive impacts elsewhere
  – Highlighted by systematic reviews (Snilstveit et al, 2016; Popova et al, 2016)
  – Kenya (Piper, Zuilkowski & Mugenda 2014)
  – Liberia (Piper & Korda 2011)

• Various questions remain
  – Which mechanisms of these bundled programs work?
  – Under which conditions do LP work?
  – Does it depend on the type of monitoring and support?
Theory of change: Parent Intervention

Weekly meetings are held and well facilitated

Parents attend weekly meetings

Parents update knowledge and beliefs

Parents change education support practices

Changed practices at home impact on reading outcomes
Year 2 Results
(End of Grade 2)
Attrition & repetition

Attrition
Due to leaving school or to absenteeism
Related to gender, poverty and being in a specific district, but not to learner performance

Repeating Grade 1
Strongly related to grade 1 reading achievement, to being in a specific district and to gender.

In Grade 2
3726 pupils remain in the sample
Orally administered learner assessments

- **Letter sound recognition**
  EGRA item: 60 seconds

- **Word recognition**
  EGRA item: 60 seconds

- **Non-word recognition**
  EGRA item: 60 seconds

- **Paragraph reading**
  EGRA adapted item: 60 seconds

- **Reading comprehension**
  4 items based on paragraph

- **Phonological awareness**
  4 items

- **Writing**
  Letter dictation, word dictation, re-writing a short sentence

- **Maths**
  2 items

- **English**
  8 items: receptive & expressive vocabulary

- **Composite score**
  Based on a factor analysis
Main results: Multi-variable regression model

• Reading = function of:
  – Baseline achievement
  – Gender
  – Age
  – District
  – Community SES
  – Intervention group
Main results: Impact including repeaters
Main results: Impact for those with 2 years of interventions
• How large are these impacts?

—Relative to a year of learning?
Main results:
Impact for those with 2 years of interventions

**Control:** 2 years of school

**Training:** About 19% of a year of learning

**Coaching:** About 40% of a year of learning

**Parents:** About 13% of a year of learning
Impacts on sub-tests

Estimated effect size (SD)

<table>
<thead>
<tr>
<th>Letters</th>
<th>Words</th>
<th>Non-words</th>
<th>Paragraph reading</th>
<th>Comprehension</th>
<th>Phon. awareness</th>
<th>Writing</th>
<th>Math</th>
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Intervention 1 - Training
Intervention 2 - Coaching
Intervention 3 - Parents
Impacts on sub-tests

- Intervention 1 - Training
- Intervention 2 - Coaching
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Impacts on sub-tests

- Letters
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Intervention 1 - Training
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Impacts on sub-tests

Estimated effect size (SD)

Intervention 1 - Training
Intervention 2 - Coaching
Intervention 3 - Parents
Word recognition: Coaching and Control

Percentage achieving at least this level

Words per minute

Coaching
Control
Oral Reading Fluency: Coaching and Control

![Graph showing percentage achieving at least this level against paragraph reading words per minute for Coaching and Control groups.](image-url)
Who benefits most from the interventions?

• **Boys** catch up to some extent

• **Large-classes** benefited most

• Impact concentrated in **urban schools**
Changes: Teaching practice and Parent behaviour

• Sources of information

  1. Background questionnaires in all 230 schools
  2. 60-school lesson observation study
  3. 8 case studies
  4. Class Act monitoring data
     • teacher curriculum coverage
     • attendance records of teachers & parents
# Changes: Teaching practice

## Teachers’ experiences of professional support

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<tbody>
<tr>
<td>“I feel supported and recognised for my work”</td>
<td>53%</td>
<td>62%</td>
<td>82%</td>
<td>49%</td>
</tr>
<tr>
<td>“I regularly meet with people who provide mentoring and curriculum support”</td>
<td>52%</td>
<td>57%</td>
<td>84%</td>
<td>45%</td>
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Conclusions, recommendations & plans

1. **Structured pedagogic programmes can make a difference:**
   - Aligned to the NCS
   - With high quality reading support materials

2. **Coaching better than direct centralised training:**
   - Scant evidence about effective large-scale teacher support modalities;
   - On-site coaching, including modelling of lessons, can be a cost-effective strategy;
   - Promotes deeper understanding of the methodologies
   - Promotes persistence in sticking to the programme

3. **Direct centralised training better than ‘train-the-trainer’ models:**
   - Direct in-service training of teachers (4 two-day workshops over the course of 2 years), is likely to have more impact than “cascade” models (“train the trainers”)
4. **Existing subject advisers cannot fulfil the role of a coach:**
   - Low ratio of subject advisors to schools (especially in the Foundation Phase);
   - Different recruitment process, oversight structures and modus operandi

5. **Prioritize schools for special support:**
   - On-site coaching interventions could be implemented in priority schools (e.g. 100 or 500 schools in a province)
   - The cost for 100 schools would be about R6 million at current prices.

6. **Develop reading norms in the African languages:**
   - Reading norms cannot simply be adapted from one language into another;
   - It is a complex exercise requiring longitudinal data.
   - The EGRS data could be used
Conclusions, recommendations & plans

7. Learning from EGRS:
   • Other large scale intervention initiatives (e.g. NECT) could draw on the lessons of the EGRS and extend successful programmes to selected schools and districts.

8. Parental involvement needs further research & may be promising:
   • The catch 22 of parental involvement
   • Remains a potentially cost-effective intervention

9. Learning what works in deep rural settings:
   • Further research is needed to establish what might work in deep rural settings.
10. Measuring long-run EGRS impacts:
   • Future data collections on the same sample of learners

11. EGRS for EFAL in Mpumalanga:
    • EGRS 2 is underway measuring the effectiveness of two alternative interventions on EFAL (USAID funded)

12. Early Grade Mathematics Study:
    • EGMS over the next 2 to 5 years, beginning with a scoping study to identify and design promising interventions
Thank you!

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callcentre: 0800 202 933
Additional slides...
29% (including repeaters)
## Cost-effectiveness analysis

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<td>Per learner annual cost</td>
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Changes: Parent behaviour

Parent attendance a challenge