What do we know about reading outcomes in SA?
-Nic Spaull
(OECD/UJ/SU)

18 May 2016
BRIDGE
1. SA context
2. Why focus on reading?
3. Background research on reading in SA
4. What data is there on reading outcomes?
   - How do sample-based assessments work?
   - Inequality as the over-arching feature of SA education system
     • Language, Province, Former-department, Socioeconomic status (SES)
5. New research on Oral Reading Fluency
   - Draper & Spaull (2015)
6. Reading as THE binding constraint in the education system
“Once again, we’re boarding only our Élite Premium passengers at this time. Thank you.”
Not all schools are born equal

SA public schools?

Pretoria Boys High School
Complex language dynamics in SA

ANA 2013 Language of Assessment

Gr1  Gr2  Gr3  Gr4  Gr5  Gr6  Gr9

English: 23%  23%  24%  90%  90%  90%  91%
isiZulu: 13%  22%  20%  0%  0%  0%  0%
isiXhosa: 9%  8%  8%  9%  9%  9%  9%
Sepedi: 9%  8%  8%  9%  9%  9%  9%
Afrikaans: 8%  8%  8%  8%  8%  8%  8%
Setswana: 6%  5%  5%  9%  9%  9%  9%
Sesotho: 5%  5%  5%  9%  9%  9%  9%
siSwati: 0%  0%  0%  0%  0%  0%  0%
Venda: 0%  0%  0%  0%  0%  0%  0%
isiNdebele: 0%  0%  0%  0%  0%  0%  0%
Background: qualitative research on reading in SA

Hoadley (2016) summarizes the SA classroom-based research and finds the following descriptive features:

- Lack of opportunities for reading and writing (oral discourse dominates)
- Classroom interaction patterns that privilege the collective (chorusing)
- Weak forms of assessment and lack of feedback on student responses
- Students in poorer schools can usually mechanically decode text (i.e. pronounce sounds and words) but have little comprehension of the content of what they are reading

- Similarly Pretorius & co-authors have found that a number of instructional practices (prevalent in SA) contribute to poor reading development:
  - The tendency of teachers to rely on whole class oral chorusing of reading,
  - The lack of reading homework
  - Minimal reading of extended texts in the early grades
What data is there on reading outcomes in SA?

“Without data you are just another person with an opinion”
- Andreas Schleicher
<table>
<thead>
<tr>
<th>How do sample-based assessments work?</th>
<th>Census-based</th>
<th>Number of schools?</th>
<th>Number of students?</th>
<th>Comparable over time?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>SACMEQ</strong> 2000, 2007, 2013</td>
<td>-</td>
<td>392</td>
<td>9071</td>
</tr>
<tr>
<td></td>
<td><strong>PIRLS</strong> 2006, 2011, 2015 (Eng/Afr only)</td>
<td>-</td>
<td>92</td>
<td>3515</td>
</tr>
<tr>
<td></td>
<td><strong>prePIRLS</strong> 2011, 2015</td>
<td>-</td>
<td>341</td>
<td>15744</td>
</tr>
<tr>
<td>National assessments (diagnostic)</td>
<td><strong>Systemic Evaluations</strong> 2001 (Gr3) 2004 (Gr6), 2007 (Gr3)</td>
<td>-</td>
<td>2340</td>
<td>54,000</td>
</tr>
<tr>
<td></td>
<td><strong>Verification-ANA</strong> 2011, 2013 (Gr 3 &amp; 6)</td>
<td>-</td>
<td><strong>ANA</strong> 2011/12/13/14</td>
<td>24</td>
</tr>
<tr>
<td>National assessments (certification)</td>
<td>-</td>
<td><strong>Matric</strong></td>
<td>6591</td>
<td>about 550,000</td>
</tr>
</tbody>
</table>

In addition to these, the Western Cape is the only province to have a population-based assessment at Grades 3, 6 and 9, also (confusingly) called the **Systemic Evaluations** (sometimes WCED SE).

*Number of schools and students is for the most recent round of assessments*
Purple dots = 266 NSES sampled schools
Brown dots = former black schools
Blue dots = former white schools
Purple dots = school included in NSES
(courtesy of Marisa Coetzee)
What do they show?
Inequality as the over-arching feature of education in SA

• Given the apartheid-era policies, it is unsurprising that the inequalities we see in South Africa can be seen along a number of correlated dimensions, including
  – Language,
  – Geographical location,
  – Socioeconomic status,
  – Race
  – Former department
Can children read in African languages?

PrePIRLS 2011 - Proportion of Grade 4 students that are illiterate and the proportion who cannot read for meaning (in LOLT Gr1-3)

Using prePIRLS 2011 illiterate: cannot reach low benchmark. Read for meaning: reach intermediate benchmark. Note: prePIRLS not

% Illiterate  % Cannot read for meaning

Western Cape  11% ± 4%  27% ± 4%
Gauteng  21% ± 4%  44% ± 4%
KwaZulu-Natal  26% ± 4%  57% ± 4%
Eastern Cape  32% ± 4%  60% ± 4%
Mpumalanga  32% ± 4%  63% ± 4%
North West  29% ± 4%  66% ± 4%
Limpopo  50% ± 4%  83% ± 4%
South Africa  29% ± 4%  58% ± 4%

Proportion of Grade 4 students that are illiterate and the proportion who cannot read for meaning (in LOLT Gr1-3).

Using prePIRLS 2011 illiterate: cannot reach low benchmark. Read for meaning: reach intermediate benchmark. Note: prePIRLS not
Do children in English or Afrikaans LOLT schools learn to read?

PIRLS 2011 - Proportion of Gr5 students in English & Afrikaans schools acquiring basic reading skills by school location

Note: Proportion reaching low international benchmark in PIRLS 2011. SA tested 3515 grade 5 students in 92 schools where Eng/Afr was LO

- Remote rural: 26%
- Township: 28%
- Small town/village: 55%
- Medium-city or large town: 64%
- Urban: 81%
- Suburban: 84%
- National: 57%
- International median (Gr4): 95%
Figure 2: Kernel density curves of Literacy 2007, 2008 and 2009 by ex-department

Taylor, 2011
Socioeconomic status...

SACMEQ III (2007)

SACMEQ III (2007) Distribution of student reading scores by quartiles of school socioeconomic status (Spaull, 2013)
Province...SACMEQ III Reading (Gr6)

Western Cape
Gauteng
North West
Northern Cape
Free State
Kwazulu-Natal
Mpumalanga
Eastern Cape
Limpopo

SACMEQ III Reading Score

5th 25th 75th 95th
95% Confidence Interval for Average (±2SE)
Percentiles of performance

200 300 400 500 600 700 800 900 1000
Bimodality – indisputable fact

PIRLS / TIMSS / SACMEQ / NSES / ANA / Matric... by Wealth / Language / Location / Dept...

Figure 2: Kernel density curves of Literacy 2007, 2008 and 2009 by ex-department
High productivity jobs and incomes (17%)
- Mainly professional, managerial & skilled jobs
- Requires graduates, good quality matric or good vocational skills
- Historically mainly white

Low productivity jobs & incomes
- Often manual or low skill jobs
- Limited or low quality education
- Minimum wage can exceed productivity

University/FET
- Type of institution (FET or University)
- Quality of institution
- Type of qualification (diploma, degree etc.)
- Field of study (Engineering, Arts etc.)

Low SES background
- Big demand for good schools despite fees
- Some scholarships/bursaries

Majority (80%)
Some motivated, lucky or talented students make the transition

Minority (20%)
- Low quality secondary school
- Low quality primary school

Unequal society

Vocational training
Affirmative action

QLFS 2014
New research: Oral Reading Fluency
ORF literature

• Oral reading fluency, defined in terms of accuracy and speed in word recognition, has been found to be a reliable indicator of reading comprehension (Fuchs et al, 2001; Spear-Swerling 2006). Although prosody is part of fluency, difficult to measure objectively.

• There is a strong empirical basis attesting to a relationship between fluency and reading comprehension. Fluency typically measured as total words read correct per minute.

• Fuchs et al. (2001) report high correlations (0.8) between ORF and various kinds of reading comprehension measure such as high stakes state mandated comprehension tests, as well as a variety of other comprehension tests using different formats (e.g. multiple choice or open questions, cloze procedures or story recall protocols).

• The relationship obtains across schools serving children from different socioeconomic backgrounds or instructional programmes, and occurs with children without reading difficulties as well as with children with learning disabilities with reading (Deno et al. 2001; Wolf & Katzir-Cohen 2001).
How do ORF assessments work?

STORY 1
A traditional story - How Leopard got his spots

Many years ago Leopard was a creature with no spots. His fur was an ordinary brown colour. One day, he was relaxing in the shade of a thorn tree when Zebra walked past. Leopard looked longingly at Zebra’s black and white stripes. “I wish I had interesting patterns in my coat,” he said wishfully to Zebra.

Suddenly they heard a noise in the bushes nearby. They found Snake slithering under some dry leaves. Surprised, they asked why she was hiding away. “I am sad and lonely because I have no friends,” she said.

“I’m not your friend because you have a poisonous bite,” replied Zebra. “I am scared of you!”

“You have never yet hurt me,” said Leopard. “I will be your friend.”

Snake was pleased and wanted to make her new friend happy. “I can make your fur beautiful, but I need to bite you first,” she said.

Leopard decided to trust Snake so he let her bite him. The next moment he tumbled down as if he were dead! But when he awoke, what a transformation! His fur was covered in beautiful spots! And to this day, Snake and Leopard remain the best of friends.
Many years ago Leopard was a creature with no spots. His fur was an ordinary brown colour. One day, he was relaxing in the shade of a thorn tree when Zebra walked past. Leopard looked longingly at Zebra’s black and white stripes. “I wish I had interesting patterns in my coat,” he said wishfully to Zebra.

Suddenly they heard a noise in the bushes nearby. They found Snake slithering under some dry leaves. Surprised, they asked why she was hiding away. “I am sad and lonely because I have no friends,” she said.

“I’m not your friend because you have a poisonous bite,” replied Zebra. “I am scared of you!”

“You have never yet hurt me,” said Leopard. “I will be your friend.”

Snake was pleased and wanted to make her new friend happy. “I can make your fur beautiful, but I need to bite you first,” she said.

Leopard decided to trust Snake so he let her bite him. The next moment he tumbled down as if he were dead! But when he awoke, what a transformation! His fur was covered in beautiful spots! And to this day, Snake and Leopard remain the best of friends.
Once upon a time all the animals of Africa were very friendly with each other. They made their own laws and rules for their kingdom, and they voted for their own king. At that particular time, the Elephant was King.

One day, the Elephant called all the horned animals in his kingdom to a meeting. Sanguru the Hare did not have horns, of course. In those days he still had small, round ears. But he was an inquisitive animal, always wanting to know what was going on! He very much wanted to go to the meeting and he was annoyed that the King had not invited him. “I shall attend the meeting,” the Hare grumbled, and he decided on a plan. He remembered seeing a bee’s nest in the forest. He found the nest and took the beeswax from it. He shaped the wax into a pair of beautiful, long shiny horns.

The following morning the Hare fixed the horns to his little, round ears. Satisfied, he hopped off to the place where the antelopes and other horned animals were gathered for the meeting.

Then the sun became very hot. The wax horns slowly began to melt. Sanguru felt something wet trickling down his face. He wiped his cheeks and saw melted wax on his paws. He tried to hide, but the other animals noticed what was happening. The antelopes chased him and dragged him to the King, shouting ‘A spy! A spy in our midst!’
NEEDU testing procedure - 2013

All grade 5 students in one class were selected to participate.

The top 3, middle 4 and bottom 3 students did the ORF 1 test.

If students read 50 WCPM they did the more difficult ORF test 2.

214 rural primary schools

4697 grade 5 students wrote a comprehension test (San-Hunter /20)

1786 students selected to write Oral Reading Fluency Test 1 (next day) (+ comprehension Test /5)

878 students selected to write ORF Test 2 (+ comprehension Test /5)

Tests were administered at different times in the year. Preliminary analysis shows little Relation between time of test and results.
What about ESL kids in rural areas?

“We found that South African Grade 5 second language learners from rural areas in South Africa had essentially the same distribution as Grade 1 second language learners in Florida, or Grade 2 second language remedial learners who had been removed from normal classes because they ‘cannot communicate meaning orally in English and demonstrate very little understanding in English’.

Draper & Spaull, 2015 (SAJCE)
Two large research projects are completed:

- Binding Constraints in Education in SA (PSPPD)
- Laying Firm Foundations: Getting Reading Right (Zenex)

Both make the argument that reading in the FP is the biggest solvable problem in our education system.
Main conclusions

1. The majority of South African children are not learning to read in any language by the end of Grade 3.

2. This is the binding constraint to improved educational outcomes for the poor.

3. These students never get a firm hold on the first rung of the academic ladder and stumble forward into higher grades with low self esteem and compromised learning.
PSPPD: Binding Constraints in Education

Most students do not learn to read for meaning by the end of Grade 3.

1. Weak Institutional Functionality (State capacity)
2. Undue Union Influence
3. Weak Teacher Content Knowledge & Pedagogy
4. Wasted Learning Time

Provinces and districts are unable to provide meaningful support themselves or to appoint, manage and evaluate competent service providers.

Provinces and districts cannot monitor learning or hold teachers, principals and schools accountable for learning.

CAPACITY: Lack of meaningful support

ACCOUNTABILITY: Lack of information & tangible consequences
We’ve been on this rodeo before...

1. National Reading Strategy (DBE, 2008) – Pandor
2. Teaching Reading in the Early Grades: A Teacher’s Handbooks (DBE, 2008)
3. Western Cape Numeracy & Literacy Strategy 2006-2016 (WCED, 2006)
5. Gauteng Primary Literacy Strategy 2010-2014 (GDE, 2010)
6. NEED Reading Study 2013 (NEEDU, 2013)
7. Systematic Method for Reading Success (Hollingsworth & Gains, 2009)
8. Western Cape Living Labs Schools (WCED, 2015)

(See PSPPD Report (2016) for full discussion of previous reading initiatives)
Conclusions?

• Unless we get reading right in the Foundation Phase we are “falling at the first hurdle” (Taylor, 1989)
• Need to understand why previous reading initiatives failed
• Need for both capacity & accountability - not one or the other

• #1 Goal of the DBE must become:
  “Every child must read for fluently and with comprehension by the end of Grade 3 (age 9)”
Thank you

www.nicspaull.com/research
nicholasspaull@gmail.com
@NicSpaull
Zenex: Extreme class sizes in the Foundation Phase

Proportion of children in Grades 1-3 in class different class sizes (using ASS 2013 data)

<table>
<thead>
<tr>
<th>Province</th>
<th>46-50 Learners/class</th>
<th>51+ Learners/class</th>
</tr>
</thead>
<tbody>
<tr>
<td>LP</td>
<td>27%</td>
<td>14%</td>
</tr>
<tr>
<td>EC</td>
<td>27%</td>
<td>9%</td>
</tr>
<tr>
<td>GP</td>
<td>19%</td>
<td>14%</td>
</tr>
<tr>
<td>MP</td>
<td>18%</td>
<td>15%</td>
</tr>
<tr>
<td>NW</td>
<td>15%</td>
<td>12%</td>
</tr>
<tr>
<td>KN</td>
<td>15%</td>
<td>16%</td>
</tr>
<tr>
<td>FS</td>
<td>16%</td>
<td>6%</td>
</tr>
<tr>
<td>NC</td>
<td>6%</td>
<td>7%</td>
</tr>
<tr>
<td>WC</td>
<td>3%</td>
<td>6%</td>
</tr>
</tbody>
</table>
1. What evidence do we have to say that FP teachers don’t know how to teach reading?
2. Is it possible to teach in-service FP teachers how to teach reading?
3. Is there consensus on the most effective way(s) to teach reading in the African languages?
4. Is the abrupt-switch model of language transition to English in Gr4 the only way or the best way?
5. Is there consensus on a ‘tight’/explicit definitions of “reading for meaning” or “basic reading” or “reading with fluency and comprehension” or “literate” or “reading grade appropriate texts”?
6. Measuring is only the first step, we need to know how to help teachers/kids who can’t read or teach reading. Programs? Evidence?
<table>
<thead>
<tr>
<th>Percentiles</th>
<th>Non-English speaker (A1)</th>
<th>Limited English speaker (A2)</th>
<th>Intermediate English speaker (B1)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall WCPM</td>
<td>Winter WCPM</td>
<td>Spring WCPM</td>
</tr>
<tr>
<td><strong>Grade 1</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>90</td>
<td>62</td>
<td>78</td>
<td></td>
</tr>
<tr>
<td>75</td>
<td>48</td>
<td>61</td>
<td></td>
</tr>
<tr>
<td><strong>50</strong></td>
<td>34</td>
<td>43</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>20</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td><strong>Grade 2</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>90</td>
<td>47</td>
<td>79</td>
<td>82</td>
</tr>
<tr>
<td>75</td>
<td>36</td>
<td>61</td>
<td>64</td>
</tr>
<tr>
<td><strong>50</strong></td>
<td>23</td>
<td>41</td>
<td>44</td>
</tr>
<tr>
<td>25</td>
<td>11</td>
<td>21</td>
<td>24</td>
</tr>
<tr>
<td>10</td>
<td>0</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td><strong>Grade 3</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>90</td>
<td>58</td>
<td>73</td>
<td>85</td>
</tr>
<tr>
<td>75</td>
<td>44</td>
<td>58</td>
<td>68</td>
</tr>
<tr>
<td><strong>50</strong></td>
<td>29</td>
<td>41</td>
<td>49</td>
</tr>
<tr>
<td>25</td>
<td>13</td>
<td>24</td>
<td>30</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>9</td>
<td>13</td>
</tr>
<tr>
<td><strong>Grade 4</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>90</td>
<td>86</td>
<td>93</td>
<td>102</td>
</tr>
<tr>
<td>75</td>
<td>70</td>
<td>75</td>
<td>84</td>
</tr>
<tr>
<td><strong>50</strong></td>
<td>51</td>
<td>56</td>
<td>65</td>
</tr>
<tr>
<td>25</td>
<td>33</td>
<td>37</td>
<td>43</td>
</tr>
<tr>
<td>10</td>
<td>16</td>
<td>19</td>
<td>27</td>
</tr>
<tr>
<td><strong>Grade 5</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>90</td>
<td>103</td>
<td>93</td>
<td>128</td>
</tr>
<tr>
<td>75</td>
<td>83</td>
<td>78</td>
<td>107</td>
</tr>
<tr>
<td><strong>50</strong></td>
<td>61</td>
<td>62</td>
<td>85</td>
</tr>
<tr>
<td>25</td>
<td>40</td>
<td>46</td>
<td>62</td>
</tr>
<tr>
<td>10</td>
<td>20</td>
<td>32</td>
<td>42</td>
</tr>
</tbody>
</table>

Approximates SA Rural Grade 5 ESL (Full ORF1 sample)
Approximates SA Rural Gr5 ESL sample scoring 60%+ on comprehension
the ‘**minimum level**’ – was the level of achievement they would expect from a student who would barely survive during the next year of schooling.

the ‘**desirable level**’ – was the level associated with a student that was guaranteed to cope with the next year of schooling.
Language...

**PIRLS 2006**
PIRLS Gr 5
(Shepherd, 2011)

**prePIRLS 2011**
prePIRLS Gr 4
(Howie & Van Staden, 2012)

---

**African language schools**

- English
- Afrikaans
- isiSwati
- isiZulu
- isiNdebele
- isiXhosa
- Setswana
- Sesotho
- Xitsonga
- Tsivenda
- Sepedi
- South Africa
- Lesotho
- Botswana
- Zambia

**English/Afrikaans schools**

- English
- Afrikaans
- isiSwati
- isiZulu
- isiNdebele
- isiXhosa
- Setswana
- Sesotho
- Xitsonga
- Tsivenda
- Sepedi
- South Africa
- Botswana
- Columbia

---

*prePIRLS reading score 2011*

- 531
- 525
- 452
- 443
- 436
- 429
- 428
- 425
- 407
- 395
- 388
- 461
- 463
- 576

*Reading test score*

- 0
- 200
- 400
- 600
- 800

*kdensity reading test score*

- 0.001
- 0.002
- 0.003
- 0.004
- 0.005

---

*Test language*

- English
- Afrikaans
- isiSwati
- isiZulu
- isiNdebele
- isiXhosa
- Setswana
- Sesotho
- Xitsonga
- Tsivenda
- Sepedi
- South Africa
- Botswana
- Columbia
Hoadley (2016)
Descriptive features of Foundation Phase classrooms

- Students have limited opportunities to handle books and bound material
- Students mainly read isolated words rather than extended texts
- Learners mainly write single words and single sentences. There is very little writing of extended text.
- Focus is on decoding texts rather than comprehension and reading for meaning
- There is little or no elaboration on learner responses
- Learning is largely communalised
- There is virtually no vocabulary and spelling development
- There is little systematic teaching of phonics and decoding skills
- Oral discourse predominates
- There is a lack of (good) print material in classrooms
- There is a shortage of sufficient texts at a range of reading levels, both ‘big books’ and graded readers