Real World
Language of Instruction Studies:
Impact on Learning in Kenya

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Dr. Benjamin Piper
with Timothy Kinoti, Tabitha Kilonzo & Salome Ong’ele
Kenya Mother Tongue background

- 1976 mother tongue policy
- Policy: pre-K to Grade 3
- Heavy resistance to MT
- Used very little
- Can decrease enrollment
- 2018 curriculum emphasizes MT
- Limited MT causal research in Africa
Mother Tongue Impact Evaluation

• **Typical** MT evaluations in Sub-Saharan Africa
  – Small samples only compared to control
  – Manipulate the language environment

• **Zones were randomly selected**
  – Not changed when the coach or teacher was mismatched

• **171 schools** involved in mother tongue pilot
  – 2 languages in 2 counties

• PRIMR Mother tongue comparisons
  – Control
  – Non-MT alternative
### Mother Tongue vs. Non-Mother Tongue Design

<table>
<thead>
<tr>
<th>Intervention Components</th>
<th>Subjects Supported</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment Group</td>
<td>Lesson Plans</td>
</tr>
<tr>
<td>PRIMR &amp; Mother Tongue</td>
<td>X</td>
</tr>
<tr>
<td>PRIMR</td>
<td>X</td>
</tr>
</tbody>
</table>
PRIMR MT Research Design

• Similarities between PRIMR & PRIMR+MT
  – Learning materials in other subjects
  – 10 days of training in other subjects
  – Support for coaches with tablets
  – Assessed in mother tongue

• Differences
  – Mother tongue materials and training (2 days)
  – Encouragement to use mother tongue for other subjects
PRIMR Mother tongue Inputs

• Learning Materials
  – Pupil book
  – Teachers’ guide
  – Letter cards
  – Pocket chart
  – Big book
  – Supplemental readers

• Coaches
  – Classroom visits and support

• Teachers
  – Termly training .5 or 1 day
  – Observation by coaches
  – Reflection sessions
Did it work?
Study 1: Mother Tongue Effect on Kikamba

<table>
<thead>
<tr>
<th>Measure</th>
<th>PRIMR</th>
<th>PRIMR + MT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Letter Sound Fluency</td>
<td>22.5</td>
<td>19.6</td>
</tr>
<tr>
<td>Syllable Fluency</td>
<td>6.3</td>
<td>8.0</td>
</tr>
<tr>
<td>Nonword Fluency</td>
<td>2.5</td>
<td>3.3</td>
</tr>
<tr>
<td>Oral Reading Fluency</td>
<td>0.1</td>
<td>7.4</td>
</tr>
<tr>
<td>Reading Comprehension</td>
<td>0.2</td>
<td>18.0</td>
</tr>
</tbody>
</table>
Study 1: Mother Tongue Average Effect Size (SD)

<table>
<thead>
<tr>
<th>Class 1</th>
<th>Effect size (Cohen's d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kikamba</td>
<td>0.35</td>
</tr>
<tr>
<td>Lubukusu</td>
<td>0.32</td>
</tr>
<tr>
<td>Kikamba</td>
<td>0.33</td>
</tr>
<tr>
<td>Lubukusu</td>
<td>0.56</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Class 2</th>
<th>Effect size (Cohen's d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRIMR</td>
<td>0.10</td>
</tr>
<tr>
<td>PRIMR + MT</td>
<td>0.48</td>
</tr>
</tbody>
</table>
Study 2: Mathematics Language Usage in Kenya

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>PRIMR</th>
<th>PRIMR+MT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>English</strong></td>
<td>64%</td>
<td>99%</td>
<td>82%</td>
</tr>
<tr>
<td><strong>Mother tongue</strong></td>
<td>5%</td>
<td>0%</td>
<td>12%</td>
</tr>
<tr>
<td><strong>Kiswahili</strong></td>
<td>15%</td>
<td>21%</td>
<td>21%</td>
</tr>
</tbody>
</table>

- Baseline
- Endline
### Impact of MT on English, Kiswahili and Math

<table>
<thead>
<tr>
<th>Grade</th>
<th>English (5 items)</th>
<th>Kiswahili (7 items)</th>
<th>Math (6 items)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 1</td>
<td>No effect</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade 2</td>
<td>No effect</td>
<td>No effect</td>
<td></td>
</tr>
</tbody>
</table>

- Community resistance to mother tongue
- Policy of mother tongue conflicts with teacher deployment
- Lack of mathematics vocabulary in mother tongue
Implementing Mother Tongue Instruction in the Real World: Results from a Medium-Scale Randomized Controlled Trial in Kenya

Benjamin Piper, Stephanie S. Zulkowska, and Salome Ongele

Research in sub-Saharan Africa investigating the effect of mother tongue (MT) literacy instruction at medium scale is limited. A randomised controlled trial of MT literacy instruction was implemented in 2013 and 2014 as part of the Primary Math and Reading (PRIMR) Initiative in Kenya. We compare the effect of two treatment groups—the base PRIMR programme to teaching literacy in English and Kiswahili and the PRIMR-MT programme, which taught literacy in English, Kiswahili, and mother tongue— to two different language environments. Implementation of the MT program faced challenges because many educators were not native speakers of the languages, some communities resisted mother tongue instruction, and some areas were more language heterogenous. Effect sizes on MT literacy averaged between 0.3 and 0.6 standard deviations. The base PRIMR program also increased MT learning outcomes in some measures but had smaller effects than the PRIMR-MT program in oral reading fluency and comprehension.

Introduction

The majority of children in Kenyan primary schools are reading far below grade level. While most children now enroll in school at some point, more than one million Kenyan children of school age are out of school and one in five youths aged 15–24 cannot read (UNESCO 2014). These statistics point to serious deficits in the quality of Kenya’s primary education system, and particularly in its literacy instruction in the early grades.

One of the explanations for the difficulties children have experienced in learning to read in Kenya, as in other postcolonial sub-Saharan African countries, is the mismatch between children’s time on a mother tongue and the language of instruction in their schools. In Africa, when children begin first grade, more than half are being taught in a language different from the one they speak at home (Ouaane and Glanz 2010). Sixty-seven living languages are spoken in Kenya (Lewis et al. 2015). The official language-of-instruction policy states that children have a right to be taught in the “language of the catchment area”.

Study 3: Fluency Gains of MT and non-MT Learners in Non-MT Tusome

- **English Fluency Gains**: Mother tongue (16.6), Non-mother tongue (21.8)
- **English Fluency 2 Gains**: Mother tongue (20.2), Non-mother tongue (24.4)
- **Kiswahili Fluency Gains**: Mother tongue (8.8), Non-mother tongue (11.8)
Study 3: Comprehension Gains of MT and non-MT Learners in Non-MT Tusome

![Bar chart showing comprehension gains in English and Kiswahili for mother tongue and non-mother tongue learners.](chart.png)
MT Study Implications

- Previous research undertaken in **unrealistic** settings
- Language complexity and **resistance is the reality**
- Mother tongue showed **significant impact** on MT
- Decoding skills transfer to MT but **not comprehension**
- **No positive effect** on other subjects
- Do the **logistical difficulties** warrant MT?
- Mother tongue learners made **large gains**
- Is a **Kenya** or a **Uganda** style program better?
  - Panel on Thursday 11:30 AM
Thank you
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