Tayari’s Longitudinal Endline Results: Program Impact and Implementation Decisions

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Getting Children Ready for School
Introduction to Tayari

Pilot program at medium scale (2000+ centers) from 2016-18

Implemented by local education officers in 4 counties

RCT research design

3 treatment groups

Tayari longitudinal study with 3 datapoints for Treatment 2

2016 cohort representative of 600+ centres
Tayari Counties

- Laikipia
- Uasin Gishu
- Siaya
- Nairobi
- Nairobi APBET
Tayari Ingredients and Costs

- DICECE training: $2.50
- Teacher Training: $4.97
- Coaching: $1.43
- Other materials: $0.61
- Learner Workbooks: $2.43
- Teachers' Guides: $0.20

Total Cost: $14.00
## Education Report (2018 Feb)

### Counties

<table>
<thead>
<tr>
<th>County</th>
<th>Number of classroom visits</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>3396 (83%)</td>
</tr>
<tr>
<td>Laikipia</td>
<td>191 (31%)</td>
</tr>
<tr>
<td>Nairobi</td>
<td>435 (126%)</td>
</tr>
<tr>
<td>Nairobi APBET</td>
<td>687 (59%)</td>
</tr>
<tr>
<td>Siaya</td>
<td>1301 (133%)</td>
</tr>
<tr>
<td>Uasin Gishu</td>
<td>782 (78%)</td>
</tr>
</tbody>
</table>

1. Number of classroom visits as a percentage of target visits.
Design and Methodology

Tayari Direct Assessment Tool (derived from MELQO)
  • Literacy
  • Numeracy
  • Executive function
  • Socio-emotional

External evaluation school readiness index (10 tasks)

Longitudinal Tayari index (17 tasks)

Cluster level randomization

Intent-to-treat impact evaluation
<table>
<thead>
<tr>
<th>Subtask</th>
<th>Domain</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Backward digit span</td>
<td>Executive function</td>
</tr>
<tr>
<td>2. Rhyme</td>
<td>Literacy</td>
</tr>
<tr>
<td>3. Letter-name knowledge</td>
<td>Literacy</td>
</tr>
<tr>
<td>4. Letter-sound knowledge</td>
<td>Literacy</td>
</tr>
<tr>
<td>5. Initial sound identification</td>
<td>Literacy</td>
</tr>
<tr>
<td>6. Listening comprehension</td>
<td>Literacy</td>
</tr>
<tr>
<td>7. Shape naming</td>
<td>Numeracy</td>
</tr>
<tr>
<td>8. Quantity discrimination</td>
<td>Numeracy</td>
</tr>
<tr>
<td>9. Measurement vocabulary</td>
<td>Numeracy</td>
</tr>
<tr>
<td>10. Oral addition</td>
<td>Numeracy</td>
</tr>
</tbody>
</table>
# Tayari Longitudinal Study by Cohort and Time

<table>
<thead>
<tr>
<th>Cohort</th>
<th>Jan 2016 baseline</th>
<th>2016 academic year</th>
<th>Oct 2016 midterm</th>
<th>2017 academic year</th>
<th>Oct 2017 endline</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td>3,257</td>
<td>11.2% attrition</td>
<td>2,891</td>
<td>18.7% total attrition</td>
<td>2,647</td>
</tr>
<tr>
<td></td>
<td></td>
<td>91.7% in same school as Jan</td>
<td></td>
<td>91.5% in same school as last year</td>
<td></td>
</tr>
<tr>
<td><strong>PP1 cohort</strong></td>
<td>1,126</td>
<td>82.4% still in PP1</td>
<td>1,010</td>
<td>81.8% in PP2</td>
<td>930</td>
</tr>
<tr>
<td></td>
<td></td>
<td>93.4% in same school as Jan</td>
<td></td>
<td>92.8% in same school as last year</td>
<td></td>
</tr>
<tr>
<td><strong>PP2 cohort</strong></td>
<td>1,365</td>
<td>82.1% still in PP2</td>
<td>1,227</td>
<td>90.4% in Grade 1</td>
<td>1,128</td>
</tr>
<tr>
<td></td>
<td></td>
<td>88.4% in same school as Jan</td>
<td></td>
<td>92.1% in same school as last year</td>
<td></td>
</tr>
<tr>
<td><strong>Combined cohort</strong></td>
<td>766</td>
<td>91.5% still in Combined</td>
<td>654</td>
<td>8.7% in Combined</td>
<td>589</td>
</tr>
<tr>
<td></td>
<td></td>
<td>95.5% in same school as Jan</td>
<td></td>
<td>88.6% in same school as last year</td>
<td></td>
</tr>
</tbody>
</table>
Tayari Longitudinal Data Collection
3 data points
Longitudinal Gains in School Readiness for PP1 Cohort

- **Literacy index**: Control - 28.1, Treatment - 34.6
- **Numeracy index**: Control - 34.2, Treatment - 40.5
- **Socio-emotional and executive function Index**: Control - 19.3, Treatment - 23.4

*Early Childhood Development Programme*
Impact of Tayari on % Reaching a Typical Yearly Gain

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>Tayari impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>PP1</td>
<td>51.0</td>
<td>17.9</td>
</tr>
<tr>
<td>PP2</td>
<td>75.2</td>
<td>2.8</td>
</tr>
<tr>
<td>Combined</td>
<td>68.4</td>
<td>10.1</td>
</tr>
</tbody>
</table>
Children Increasing School Readiness by 50 points

Control: 27.6%
Treatment: 35.1%
Longitudinal Gains in Tayari School Readiness, by County and by Language Usage

Laikipia  | Nairobi  | Nairobi APBET | Siaya  | Uasin Gishu
---|---|---|---|---
Control: 32.4 | Control non-MT: 35.1 | Control non-MT: 43.2 | Control: 38.4 | Control: 27.1
Treatment non-MT: 29.2 | Treatment non-MT: 35.1 | Treatment non-MT: 48.3 | Treatment non-MT: 36.1 | Treatment non-MT: 31.4
Tayari Impacts for PP1 (Effect size in SD)

- School Readiness Index (longitudinal): 0.38
- School Readiness Index (external): 0.27
- Literacy Index: 0.31
- Numeracy Index: 0.25
- Socio-emotional and executive function Index: 0.20
Tayari Costs and Cost-Effectiveness (APHRC, 2018)

Cost per year:
- Tayari: $13.36
- Teachers' incentives (Kenya): $11.50
- Textbooks (Kenya): $7.73

Cost per .1 SD impact:
- Tayari: $3.61
- Teachers' incentives (Kenya): $16.43
- Textbooks (Kenya): $19.32
Key Findings

1. Longitudinal study shows moderate gains after 2 years of implementation.
2. Tayari monitoring data shows moderate to high county officer implementation.
3. Tayari implementation is perceived to be successful.
4. Increased demand for Tayari in Kenya.
5. Relatively cost-effective impacts.
Recommendations

1. Ensure that children get two years of pre-primary
2. Consider costs for county implementation
3. Examine how counties use their funding
4. Plan for scale-up of Treatment 2
Thank you
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Significant Predictors of School Readiness

- Doesn't speak MT: 6.2
- Toilet etiquette: 3.7
- Express likes and dislikes: 3.0
- Overall performance: 2.9
- Group activity: 2.8
- Numeracy performance: 2.7
- Follow instructions: 2.5
- Dress oneself: 2.3
- SES Factor: 2.3
- SES: 1.0
- Autistic multiple impairment: 0.6
- Vision impairment: -8.8
- Speech impairment: -9.4
- Emotional disorders: -19.7

Emotional disorders
Speech impairment
Autistic multiple impairment
SES
SES Factor
Dress oneself
Follow instructions
Group activity
Numeracy performance
Overall performance
Express likes and dislikes
Toilet etiquette
Doesn't speak MT

Tayari
Early Childhood Development Programme