Mini-LAMP: A cost-effective way to assess literacy and numeracy

Learning through the lifecycle in multi-topic national household surveys
Options for low-income countries
February 3-4, 2020
Washington, USA
Literacy and numeracy are part of the world’s Sustainable Development Goals (SDGs), with SDG **Target 4.6** providing the mandate for action:

“**By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy.**”

To measure progress towards this target, **Global Indicator 4.6.1** measures:

“The percentage of the population in a given age group achieving at least a fixed level of proficiency in functional (a) literacy and (b) numeracy skills, by sex.”

Group age: the percentage of youth (aged 15 to 24 years) and adults (aged 15 years and older) who have achieved or exceeded a **fixed level of proficiency**.
A shared conception of literacy: A continuum

The transition from learning to read to reading to learn

- Learning to read: Proficiency dominated by mechanics of reading
- Reading to learn: Proficiency dominated by cognitive strategies

Prose literacy proficiency

Levels:
- Level 1
- Level 2
- Level 3
- Level 4
- Level 5
Various tools existes

Given the vast difference in literacy skills within and across countries, a need of a variety of tools that can target and capture varied skills across population

- PIAAC instrument captures well **middle-to-high skills**
- STEP instrument **only covers Literacy skills** so might not have sufficient information to report on indicator 4.6.1
- LAMP instrument and methodology captures **better low and middle skills** so might be suited for low- and middle-income countries **but it is discontinued**
- UIL’s RAMAA **does not survey the full adult population** in the 12 participating African countries, **but assesses literacy programme participants’ literacy skills** in different points of the programme
Existing tools coverage

Source: UIL, 2019.
<table>
<thead>
<tr>
<th>Level 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tasks at this level require the respondent to read relatively short</td>
</tr>
<tr>
<td>digital or print texts to locate a single piece of information that is</td>
</tr>
<tr>
<td>identical to or synonymous with the information given in the question</td>
</tr>
<tr>
<td>or directive. Knowledge and skill in recognising basic vocabulary,</td>
</tr>
<tr>
<td>determining the meaning of sentences, and reading paragraphs of text</td>
</tr>
<tr>
<td>is expected.</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Level 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Require the respondent to make matches between the text, either digital</td>
</tr>
<tr>
<td>or printed, and information, and may require paraphrasing or low-level</td>
</tr>
<tr>
<td>inferences.</td>
</tr>
</tbody>
</table>
## Level 1
Tasks at this level require the respondent to carry out basic mathematical processes in common, concrete contexts where the mathematical content is explicit. Tasks usually require one-step or simple processes involving counting; sorting; performing basic arithmetic operations; and identifying elements of simple or common graphical or spatial representations.

## Level 2
*Require the application of two or more steps or processes involving calculation with whole numbers and common decimals, percents and fractions; simple measurement and spatial representation; estimation; and interpretation of relatively simple data and statistics in texts, tables and graphs.*
The Literacy Assessment and Monitoring Programme (LAMP)

- Developed by the UNESCO Institute for Statistics (UIS).
- To respond to the pressing need to measure literacy and numeracy.
- It provides a sound methodology and tools to help countries, especially low- and middle-income countries, to monitor and improve literacy skills.

LAMP was field-tested in 10 countries:

<table>
<thead>
<tr>
<th>Afghanistan</th>
<th>Morocco</th>
<th>Lao PDR</th>
<th>Niger</th>
<th>Paraguay</th>
</tr>
</thead>
<tbody>
<tr>
<td>El Salvador</td>
<td>Jordan</td>
<td>Mongolia</td>
<td>Palestine</td>
<td>Viet Nam</td>
</tr>
</tbody>
</table>

While the testing demonstrated the value of the LAMP methodological approach, it also highlighted the challenges of implementing assessments across a range of diverse locations and linguistic settings.
From LAMP to Mini-LAMP considered

- **Domain**
  - Reduce Number of Domains to literacy
  - Keep domain but test only part of the skills distribution

- **Sample**
  - Full Sample
  - Reduced sample combined with synthetic estimates

- **Implementation**
  - Dedicated Survey
  - Module to be added to existing survey

- **Administration**
  - Paper
  - Computer based

- **Centralization**
  - Decentralized with a quality assurance process
  - Administered centrally at a global level
Mini-LAMP is based on

- A **background and self-report questionnaire** to understand the language practices of a household and the reading, writing and numeracy skills of individual household members, as well as their use of technology and educational experience. This information can also be used for other SDG 4 indicators.

- A **literacy and numeracy module** which includes 15 test items administered by an interviewer. The module is designed to assess the fundamental level of an individual’s reading and numeracy abilities and can be adapted to reflect the specific contexts of countries.

- **Documentation and guidelines** to help countries implement Mini-LAMP and ensure quality control of the results.

- A **software package** to produce the data needed for policymaking and reporting.
Mini-LAMP sheds light on:

- Factors that influence the distribution of literacy skills, including literacy practices by including other SDG Indicator indicators:
  - Indicator 4.3.1 on youth and adult participation in education;
  - Indicator 4.3.3 on the participation rate in technical and vocational programmes; and
  - Indicator 4.6.3 on the participation of youth and adults in literacy programmes.

Meeting specific needs of countries
Mini-LAMP Tool

Mini-LAMP Item Response Analysis

This program analyses response data from administrations of assessments developed using items from UNESCO’s LAMP literacy scales to estimate statistics for SDG 4.6.1 (proportion of population with literacy levels above the minimum level).

Data Processing Instructions +

Choose a file...

No response file is loaded.

Select a domain...

Select a grouping variable...

Get data

Get results
Mini-LAMP provides the data to help governments and their partners to:

Depending on the needs of countries, Mini-LAMP can be used as a:

- stand-alone assessment tool, or
- integrated into a household survey.

Mini-LAMP enables countries to **reduce the operational and technical costs** associated with learning assessments **but it is limited to one specific level** of proficiency to be cost-efficient.
### Alternative ways to reduced costs

**Estimated costs for paper-and-pencil and computer-based literacy and numeracy assessments for low income countries (in US$)**

<table>
<thead>
<tr>
<th>Sample size=1,500</th>
<th>Sample size=3,000</th>
<th>Sample size=5,000</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Computer-based option</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administering the assessment</td>
<td>119,350</td>
<td>198,450</td>
</tr>
<tr>
<td>Data production and reporting</td>
<td>38,200</td>
<td>38,200</td>
</tr>
<tr>
<td><strong>Total cost</strong></td>
<td><strong>157,550</strong></td>
<td><strong>236,650</strong></td>
</tr>
</tbody>
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| **Paper-and-pencil option** |                   |                   |
| Administering the assessment | 215,808 | 383,680 | N/A |
| Data production and reporting | 37,200 | 37,200 | N/A |
| **Total cost** | **252,528** | **420,880** | N/A |
The total time required to conduct Mini-LAMP can range from 11 to 24 months.

**Step 1:** National planning report to help countries plan for assessment costs and decide whether to:
- use Mini-LAMP as a standalone assessment or integrate it within a household survey;
- conduct a pencil-and-paper assessment or a computer-based assessment;
- focus on literacy skills or also include numeracy skills;
- produce estimates or projections; and
- produce results based on a continuum of skills or a defined threshold.

**Step 2:** Memorandum of understanding between the country and the UIS
Step 3: Development work by the country to adapt the data collection tools, software package and quality assurance procedures to meet specific needs.

Step 4: Data collection by the country, which administers the assessment.

Step 5: Data processing, quality assurance and reporting by the country. Mini-LAMP also includes a template to help countries produce national reports that can be adapted for policymaking and monitoring.
Reading Components not ag could be developed by countries
Examples of reading components

- Vocabulary
- Digit naming
- Rapid digit naming
- Lowercase letter naming
- Uppercase letter naming
- Rapid letter naming (lowercase)
- Word recognition (high frequency words; lowercase)
- Rapid word recognition (same as previous)
- Decoding (rare words; non-words)
- Rapid decoding (same as previous)
- Sentence processing (oral reading; silent reading, timed)
- Passage fluency (oral reading; silent reading, timed)
Non-readers are unable to identify one fifth of the letters in their alphabet.

Incipient letter readers identify between 1/5 and ½ of the letters in their alphabet.

Developing letter readers identify more than half of the letters in their alphabet.

“Incipient” and “Developing” categories are then applied to other skills such as sentence comprehension and text comprehension.
Expanding and upgrading Mini-LAMP

- Expanding the pool of items:
  - expand the current pool at the time of administering
  - Combine items from different sources

- Identify readers' type in the low scaled the reading component at the national level in an optional base

- Technology: online and adaptive platform

- Expand the ranges of skills assessed
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