Understanding Foundational Numeracy
South Asian perspectives on ICAN, a new global tool

August 10, 2020
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Citizen-Led Assessment (CLA) approach innovated in India in 2005
Adopted and adapted in other Global South contexts
People’s Action for Learning (PAL) Network formalised in 2015, now comprising members in 14 countries across 3 continents
CLA approach is relevant for the Global South

Core features of CLAs:

- Conducted in households to include all children irrespective of schooling status
- Implemented orally and one-on-one as many children cannot read
- Cover foundational learning content taught in early primary classes
- Administer simple-to-use tools, processes and produce easy-to-understand data to ensure wider engagement
- Ensure collaboration with local stakeholders to create awareness and fuel local action
Global goal for education: SDG 4

- SDG 4 focuses on ensuring “inclusive and equitable quality education and lifelong learning opportunities for all.”

- Within Target 4.1, the first indicator (SDG 4.1.1) tracks the “proportion of children and young people achieving at least a minimum proficiency level in (i) reading and (ii) mathematics, by sex”

  (a) in Grade 2 or 3

- Robust and regular data on learning outcomes are needed over time and across countries

- Limited relevance of existing data to track progress towards SDG 4.1.1 for grades 2 or 3

Critical to measure learning early so that corrective measures can be implemented.
The minimum proficiency level descriptor for numeracy under SDG 4.1.1 for class 2 or 3 requires students to demonstrate skills in number sense and computation, shape recognition and spatial orientation.

### Overview of domains and tasks in the ICAN assessment tool

<table>
<thead>
<tr>
<th><strong>NUMBER KNOWLEDGE</strong></th>
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<tbody>
<tr>
<td>Counting, comparing number of objects</td>
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<td>Number recognition</td>
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<tr>
<td>Operations (without and with carry-over, borrow and remainder)</td>
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<td>Real world problems</td>
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<tr>
<th><strong>GEOMETRY</strong></th>
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<td>Position and direction</td>
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<td>Shapes and figures</td>
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<tr>
<th><strong>MEASUREMENT</strong></th>
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<td>Length and capacity</td>
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<td>Time and calendar</td>
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<th><strong>DATA DISPLAY</strong></th>
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<td>Retrieving simple information</td>
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Sample tasks from the ICAN assessment tool

**Space, shape and measurement tasks**

- Q1: In this picture, which cat is inside the box?
- Q2: In this picture, which is the shortest pencil?
- Q3: Which of these is a straight line?

**Number knowledge tasks**

**Number knowledge tasks**

- Q10: Recognize numbers.
  
  At least 4 out of 5 numbers must be correct.

- Q11: Solve the following questions.
  
  - 46
  - 21
  
  - 78
  - 29

**Applied tasks**

- Q7: What is the time in this clock?
- Q8: Listen to the question carefully, solve and answer.
  
  There were 43 children in the park. Out of these, 25 of them have gone home. How many children are left in the park now?

- Q9: Look at the chart given below carefully.
  
  How many apples are there?
  How many more bananas are there than oranges?

- Q10: Look at the calendar given below.
  
  MARCH 2019
  
<table>
<thead>
<tr>
<th>SUNDAY</th>
<th>MONDAY</th>
<th>TUESDAY</th>
<th>WEDNESDAY</th>
<th>THURSDAY</th>
<th>FRIDAY</th>
<th>SATURDAY</th>
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<td>1</td>
<td>2</td>
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**ICAN assessment tool is available in 11 languages on the PAL Network website**
ICAN 2019: Large-scale household-based implementation

- Proof of concept - feasibility of using common tools across different country contexts
- ICAN 2019 retained all core features of the CLA architecture
- Translation, training, data collection procedures based on PAL Network’s Data Quality Standards Framework (DQSF) in all participating countries
- Implementation by PAL member organisations in collaboration with local partners

Conducted in 13 countries
60 randomly sampled rural communities in 1 district per country
District not an outlier in terms of learning outcomes

Administered in randomly sampled households to children in the age-group of 5-16 years
Each child assessed orally, one-on-one
ICAN 2019: sampled districts and reach

3 continents | 13 countries | 13 rural districts | 779 communities | 15,000+ households | 20,000+ children

- America
  - Matagalpa (Nicaragua)
  - Xalapa Rural (Mexico)

- Western Africa
  - Ikorodu (Nigeria)
  - Séguo (Mali)
  - Tivaouane (Senegal)

- Eastern and Southern Africa
  - Arusha Rural (Tanzania)
  - Larde (Mozambique)
  - Mubende (Uganda)
  - Mwala (Kenya)

- South Asia
  - Betul (India)
  - Jhenaidah (Bangladesh)
  - Makwanpur (Nepal)
  - Toba Tek Singh (Pakistan)
Illustrative findings from ICAN 2019

- Purpose of this round of implementation was to test feasibility across country contexts and to **showcase the kinds of comparisons that the use of ICAN on scale facilitates**

- In the ICAN 2019 Report, district names are anonymised as Location 1, Location 2, and so on while showing comparative analysis
No location has at least 75% children in class 2-3 who can do numeracy tasks mapped to SDG 4.1.1 (a) criteria.

Even in class 4-6, many children are still unable to do numeracy tasks expected in class 2 or 3.
Even 20 years after the MDGs, many primary school-age children are out of school.

Because ICAN 2019 was a household survey, it generated information on enrolment patterns for children age 5-16:

- In 3/13 locations, more than 3 in every 10 children age 6-10 are out of school.
- There is enormous variation in the types of schools enrolled children attend.
Out of school children must be included in discussions on learning

SDG 4 is targeted to ALL children.

Because ICAN 2019 was administered in households, it assessed all children in the target age group of 5-16 years, irrespective of enrolment status.

Children age 8-10 years are usually enrolled in classes 3 to 5. There are large disparities among performance of children enrolled in school and those not enrolled.
As the clock ticks to 2030 . . .

We need less top-down and more granular measurements of foundational learning that can lead to rapid corrective action

ICAN is:
- Open source
- Most tasks are aligned to grade 3 level or lower of the UNESCO Global Proficiency Framework
- Suitable for use in both household and school settings
- Simple and quick to administer and understand, therefore easy to scale
ICAN tools currently available in 4 South Asia languages

ICAN tools are currently available in Bangla, Hindi, Nepali and Urdu.
Building a South Asia regional assessment