IEA advances to measure SDG 4.1.1

9th Meeting of the Global Alliance to Monitor Learning (GAML)
6 – 7 December 2023

International Association for the Evaluation of Educational Achievement
IEA Studies and SDG Monitoring
## Overview of IEA’s core studies monitoring on SDG 4.1.1

<table>
<thead>
<tr>
<th>Study subject</th>
<th>Mathematics &amp; Science</th>
<th>Reading Literacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade</td>
<td>4 &amp; 8</td>
<td>4</td>
</tr>
<tr>
<td>Study cycle</td>
<td>Every 4 years</td>
<td>Every 5 years</td>
</tr>
<tr>
<td>Current data collection</td>
<td>2023</td>
<td>2021 – Enrollment open for 2026</td>
</tr>
<tr>
<td># of participants / countries</td>
<td>67 + 8</td>
<td>57 + 7</td>
</tr>
<tr>
<td>SDG Monitoring</td>
<td>4.1.1b&amp;c via <strong>intermediate</strong> benchmark (475)</td>
<td>4.1.1b via <strong>low</strong> benchmark (400)</td>
</tr>
</tbody>
</table>
About PIRLS 2021 (1)

- Conducted every five years, the Progress in International Reading Literacy Study assesses international trends in the reading comprehension of students in their fourth year of schooling.
- Recognized as the global standard for assessing trends in reading achievement at primary school level.
- Around 400,000 students, 20,000 teachers and 13,500 schools in 65 participating entities were assessed.

20 years of trends
About PIRLS 2021 (2)

- In today’s world students are increasingly reading text on digital devices and from online sources.
- PIRLS therefore has moved to a digital reading assessment and added a simulated web environment reading component (ePIRLS).
- Results from PIRLS 2021 published in May, 2023.
Only data collection during Covid-19 Pandemic

• Data collection took almost 2 years
  – 43 countries assessed students at end of fourth grade
  – 14 Northern Hemisphere countries delayed assessment over summer into fifth grade
    → Older G5 students appeared to have an advantage

• Most countries had at least 85% of their student reaching a minimum proficiency level in reading
  → altogether 94% of the students reached the low PIRLS benchmark

• However, 21 of 32 countries with comparable data showed a decline in reading achievement from 2016 (and only three countries showed higher achievement)
As a reminder: Rosetta Stone Reports
Special LaNA Administration: Establishing a link between LaNA and TIMSS/ PIRLS
IEA’s LaNA Assessment

- A new **Literacy and Numeracy Assessment** rooted in the TIMSS and PIRLS frameworks
- Designed for education systems where TIMSS and PIRLS are (still) too demanding
- Student and principal questionnaires allow for the association of achievement results with important factors that influence the learning environment
- Administered at the end of primary school as a stand-alone paper and pencil assessment
Objective of the 2023 administration

• Collect empirical test administration data to establish a link between LaNA results and TIMSS/PIRLS achievement scales
  – To provide an indication of the percentage of students reaching the minimum proficiency level in reading and mathematics (via TIMSS/PIRLS benchmarks)
  – To monitor progress towards SDG 4.1.1b
• In future, only the LaNA booklets will need to be administered to measure progress toward SDG 4
IEA’s LaNA Assessment

• LaNA may also be considered as easier than TIMSS and PIRLS in terms of administration
  – Multiple choice items only (no scoring)
  – No teacher questionnaire (i.e., no student-teacher linking)

• Previously administered in Haiti, Nigeria, North Macedonia, Pakistan (Punjab) and Serbia -> resulting in revisions of the test material and procedures
LaNA Design

- Rotated booklet design (4 rotated booklets) allowing for a wider range of content representation (54 literacy & 80 numeracy items)
  - Four booklets with two literacy and two numeracy blocks each
  - One common easy literacy block and four rotating literacy blocks: 2 literary (stories) and 2 informational
  - Four rotating numeracy blocks

- Two 40 minutes testing sessions followed by a context questionnaire administration
LaNA Participants

- Burkina Faso
- Egypt
- Nigeria
- Palestine
- Pakistan
- Senegal
LaNA Linking Study: Design

- Usual LaNA design complemented by four additional linking booklets containing literacy passages from PIRLS Literacy and mathematics items from TIMSS Numeracy
- Materials from PIRLS and TIMSS represent the lower end of the difficulty level in the two studies
- Half of the students receive LaNA material, other half receive link booklets
- Sample of 100+ schools is needed
# Major Project Timelines

<table>
<thead>
<tr>
<th>Period</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>2023</td>
<td></td>
</tr>
<tr>
<td>Apr - May</td>
<td>Practice Administration (about 300 students per country)</td>
</tr>
<tr>
<td>Nov - Dec</td>
<td>Main Data Collection</td>
</tr>
<tr>
<td>2024</td>
<td></td>
</tr>
<tr>
<td>Feb - Mar</td>
<td>Cleaning &amp; weighting</td>
</tr>
<tr>
<td>April - Sep</td>
<td>Psychometric Analysis (Linking to PIRLS and TIMSS)/ Scale anchoring/ benchmark description</td>
</tr>
<tr>
<td>Aug - Jan</td>
<td>Reporting</td>
</tr>
<tr>
<td>2025</td>
<td></td>
</tr>
<tr>
<td>Feb</td>
<td>Release of LaNA results (outcomes &amp; technical report, databases...)</td>
</tr>
</tbody>
</table>
## Results from the Practice Administration Analyses

<table>
<thead>
<tr>
<th>AVG P+</th>
<th># of students</th>
<th>LaNA Math</th>
<th>LaNA Read</th>
<th>Link Math</th>
<th>Link Read</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burkina Faso (G5)</td>
<td>324</td>
<td>64%</td>
<td>60%</td>
<td>49%</td>
<td>51%</td>
</tr>
<tr>
<td>Egypt (G4)</td>
<td>289</td>
<td>57%</td>
<td>48%</td>
<td>47%</td>
<td>48%</td>
</tr>
<tr>
<td>Nigeria (G5)</td>
<td>300</td>
<td>61%</td>
<td>63%</td>
<td>43%</td>
<td>56%</td>
</tr>
<tr>
<td>Palestine (G4)</td>
<td>207</td>
<td>58%</td>
<td>47%</td>
<td>42%</td>
<td>37%</td>
</tr>
<tr>
<td>Pakistan (G5)</td>
<td>200</td>
<td>62%</td>
<td>57%</td>
<td>45%</td>
<td>47%</td>
</tr>
<tr>
<td>Senegal (G5)</td>
<td>263</td>
<td>57%</td>
<td>49%</td>
<td>44%</td>
<td>48%</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>60%</strong></td>
<td><strong>54%</strong></td>
<td><strong>45%</strong></td>
<td><strong>48%</strong></td>
<td></td>
</tr>
</tbody>
</table>

- **Reasonable difficulties on average**
- **Reasonable variability across schools (no ceiling/ floor effects)**
LaNA special administration - Key Facts

- Objective: Establish psychometrically sound link of LaNA to IEA’s TIMSS and PIRLS (to allow finally measuring on SDG 4.1b via TIMSS and PIRLS benchmarks) in 5 to 10 countries

- Link will allow participating (and future) LaNA countries to monitor progress towards SDG 4.1.1b and to compare results with the TIMSS and PIRLS community
Thank you!

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