

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*



Researching education, improving learning

IEA Studies and SDG Monitoring

Overview of IEA's core studies monitoring on SDG 4.1.1

		
Study subject	Mathematics & Science	Reading Literacy
Grade	4 & 8	4
Study cycle	Every 4 years	Every 5 years
Current data collection	2023	2021 – Enrollment open for 2026
# of participants / countries	67 + 8	57 + 7
SDG Monitoring	4.1.1b&c via intermediate benchmark (475)	4.1.1b via low benchmark (400)

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



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

The screenshot displays a simulated web browser interface for the ePIRLS 2021 assessment. The browser's address bar shows the URL <http://www.oceanhabitats.org/coralreefs.html>. The page content includes a header with the title "Ocean Life and Habitats" and navigation buttons for "Home", "Coral Reefs", and "Mariana Trench". A large image of a coral reef is shown, with a video player overlay displaying a close-up of coral. The right sidebar features a "Class Project" section with a "SAVED" button, a "Mr. Webster" comment, and a task instruction: "10. Use all of the information on this webpage to describe coral reef habitats. Give two things about coral reef habitats." Below the instruction are two text input fields and a "SAVE" button.

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



pasec Programme d'analyse des systèmes éducatifs de la confemen



Países participantes en ERCE 2019



Rosetta Stone Analysis Report:
Establishing a Concordance
between PASEC and
TIMSS/PIRLS



Rosetta Stone Analysis Report:
Establishing a Concordance
between ERCE and
TIMSS/PIRLS





Researching education, improving learning

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

Period	Activity
2023	
Apr - May	Practice Administration (about 300 students per country)
Nov - Dec	Main Data Collection
2024	
Feb - Mar	Cleaning & weighting
April - Sep	Psychometric Analysis (Linking to PIRLS and TIMSS)/ Scale anchoring/ benchmark description
Aug - Jan	Reporting
2025	
Feb	Release of LaNA results (outcomes & technical report, databases...)

Results from the Practice Administration Analyses

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

- 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!



lana@iea-hamburg.de



Researching education, improving learning

