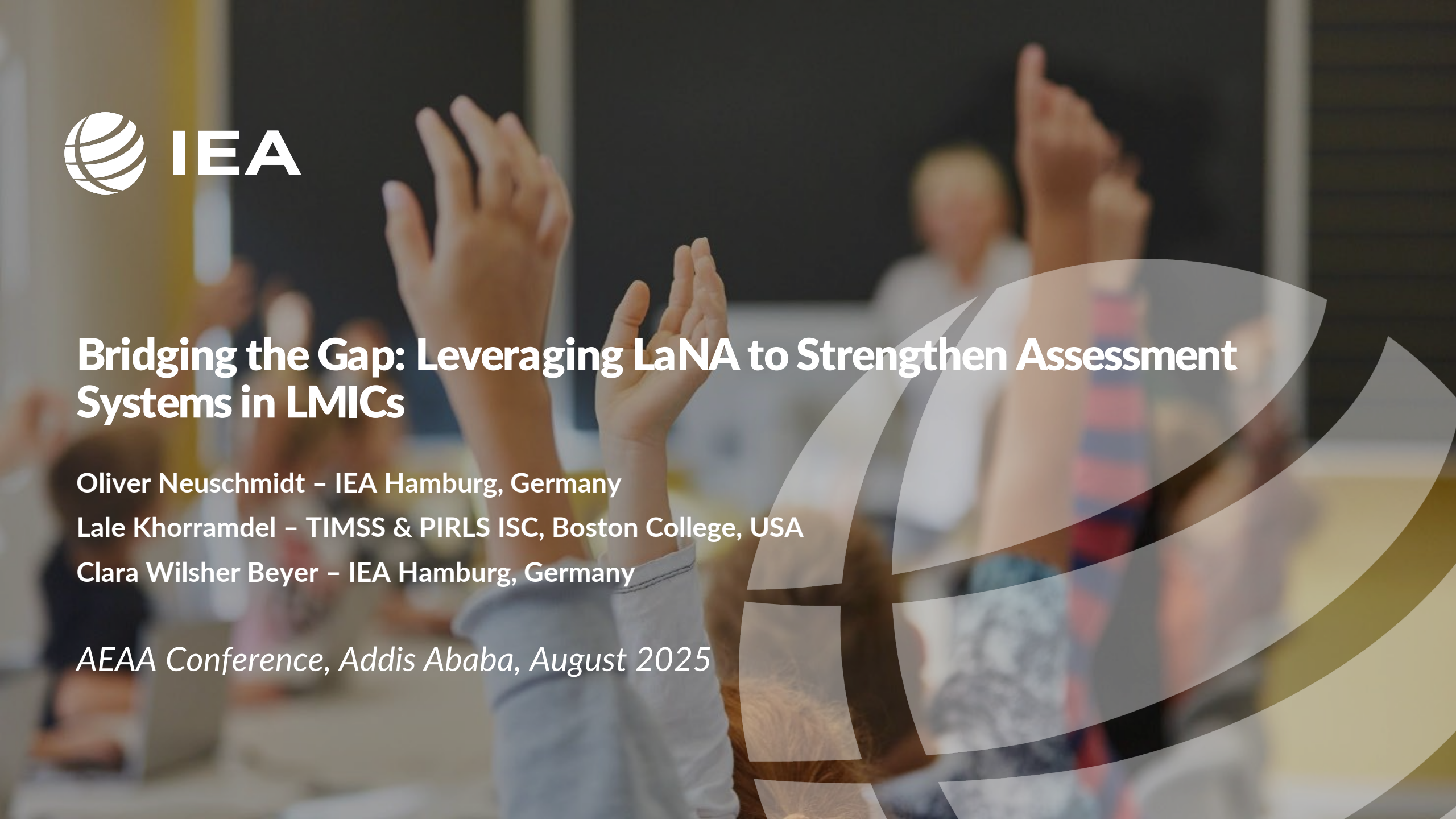

Bridging the Gap: Leveraging LaNA to Strengthen Assessment Systems in LMICs

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AEAA Conference, Addis Ababa, August 2025

Introduction to IEA

- Founded in 1958, the **I**nternational Association for the **E**valuation of Educational **A**chievement (IEA) is a pioneer in the field of large-scale assessments in education
- IEA is an independent, international cooperative of national research institutions and governmental research agencies
- More than 60 countries/member institutions; nearly 100 education systems participate in IEA studies
- IEA implements large-scale comparative studies of educational achievement, provides consultancy services, and publishes research

LaNA

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IEA conducts large-scale studies to better understand education practices, processes, and policies in order to improve *quality teaching and learning* within and across systems of education.
IEA

Common Features of IEA Assessments

- IEA Assessments are curriculum-based
- They select representative grade-based school samples with at least one classroom per school
- They are recognized to maintain high-quality standards throughout the implementation process and public release of data and results
- IEA studies can be used for monitoring progress toward several SDG indicators:

Current IEA International Studies

New in 2025!

IEA TIMSS | IEA PIRLS | IEA ICCS | IEA ICILS | IEA LaNA

Subject	Mathematics & Science	Reading Literacy	Civic & Citizenship Education	Computer & Information Literacy	Reading & Mathematics
Grade	4 & 8	4	8	8	4-6
Trends	Since 1995	Since 2001	Since 2009	Since 2013	Flexible scheduling

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Why LaNA? A Responsive Solution (1)

Challenges of ILSAs* in lower achieving systens	How LaNA Addresses These Challenges
Assessment content and difficulty not well aligned to student populations -- challenging to provide valid and reliable information about what students know and can do	LaNA assesses **emerging** mathematics and reading comprehension skills • By better matching assessment content and difficulty with student populations, LaNA provides better measurement • **New LaNA Basic International Benchmark** describing emerging reading comprehension and mathematics skills
Questionnaires more focusing on higher income countries/ higher achieving contexts	Questionnaires designed to be contextually appropriate • Provides contextual insights into school and home learning conditions and allows flexible adjustment to national context

*ILSA: International large-scale assessment

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Why LaNA? A Responsive Solution (2)

Challenges of ILSAs in lower achieving systems	How LaNA Addresses These Challenges
Infrastructure for electronic delivery may not be available	Paper and pencil administration
Fixed administration schedules (usually every 3-5 years) may not align with countries' needs for timely data	Flexible schedule • Countries choose when to administer LaNA based on their needs and national circumstances
Implementation complexity and rigidity of timelines demand high level of resources	Feasible and customizable and cost-effective • Streamlined design is less resource-intensive and national schedules are developed to align with national circumstances
Capacity-building not an explicit component, may not meet country's needs	Capacity-building integral part • Training, working side by side IEA • Additional capacity-building modules available

LaNA

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A New IEA Initiative: LaNA

Literacy and Numeracy Assessment

Introduction to LaNA

IEA's international assessment of emerging **mathematics and reading comprehension skills** at the end of primary school

Grounded in and linked to the globally recognized TIMSS and PIRLS assessments at fourth grade

Reports learning outcomes across multiple levels of proficiency, including the LaNA Basic Benchmark representing emerging skills

Provides comparable data for monitoring progress towards SDG 4.1.1b

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LaNA Example: A Literary Passage

Brave Charlotte

By Anu Stohner
Illustrated by Henrike Wilson

Charlotte was different from all the other sheep right from the start. When all the other lambs just stood shyly by their mothers, Charlotte was leaping around, ready for adventure.

Charlotte lived with all the other sheep on a hillside far from the farm. They had a shepherd to look after them and he had an old dog named Jack. Jack tried to keep Charlotte under control, but she wasn't scared of him.

1. Why was Charlotte different?

   (A) She stood by her mother.
   (B) She was shy.
   (C) She was ready for adventure.
   (D) She was on the hillside.

2. Who was Jack?

   (A) A sheep
   (B) A shepard
   (C) An old dog
   (D) A farmer

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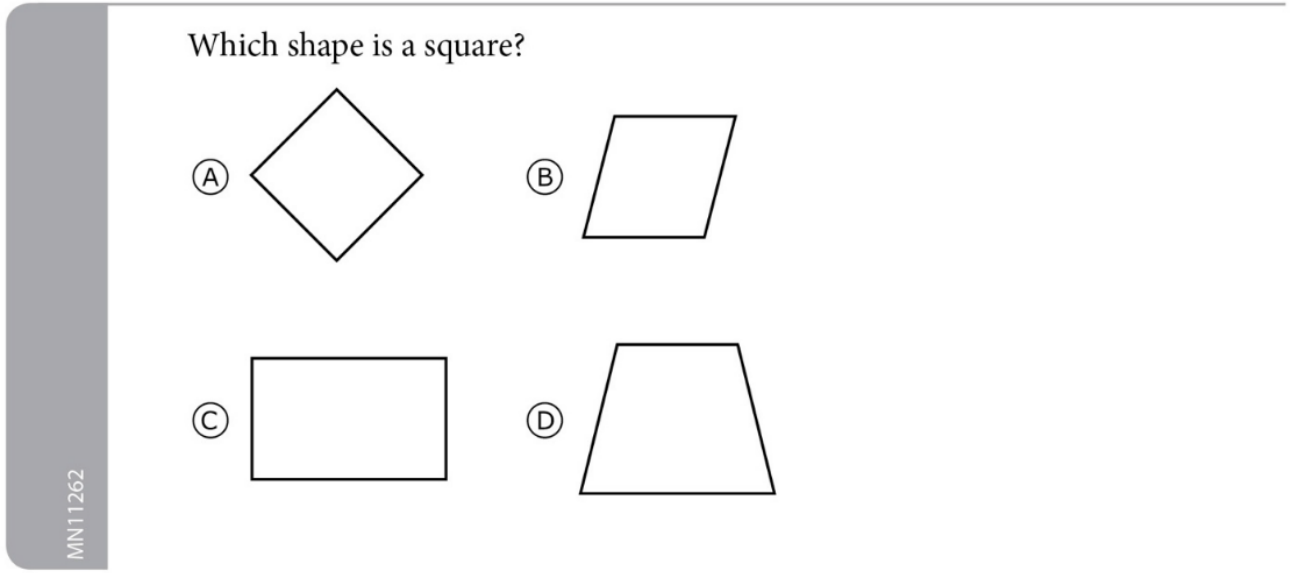
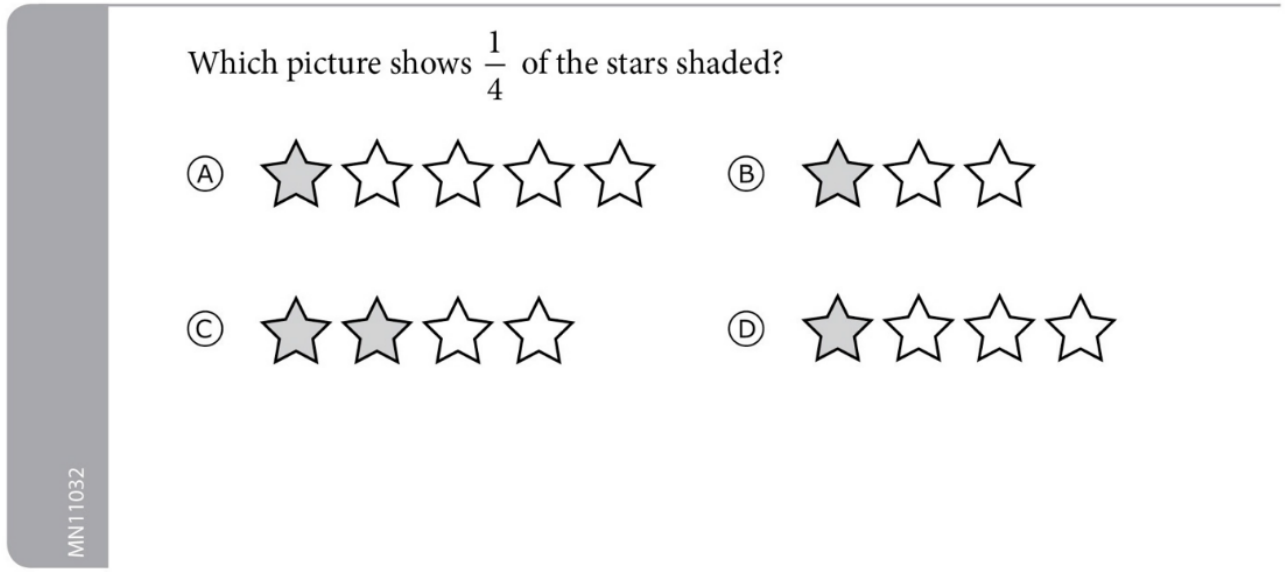
LaNA Example: Numeracy Items



Content domain: Measurement and Geometry



Content domain: Number (fractions)

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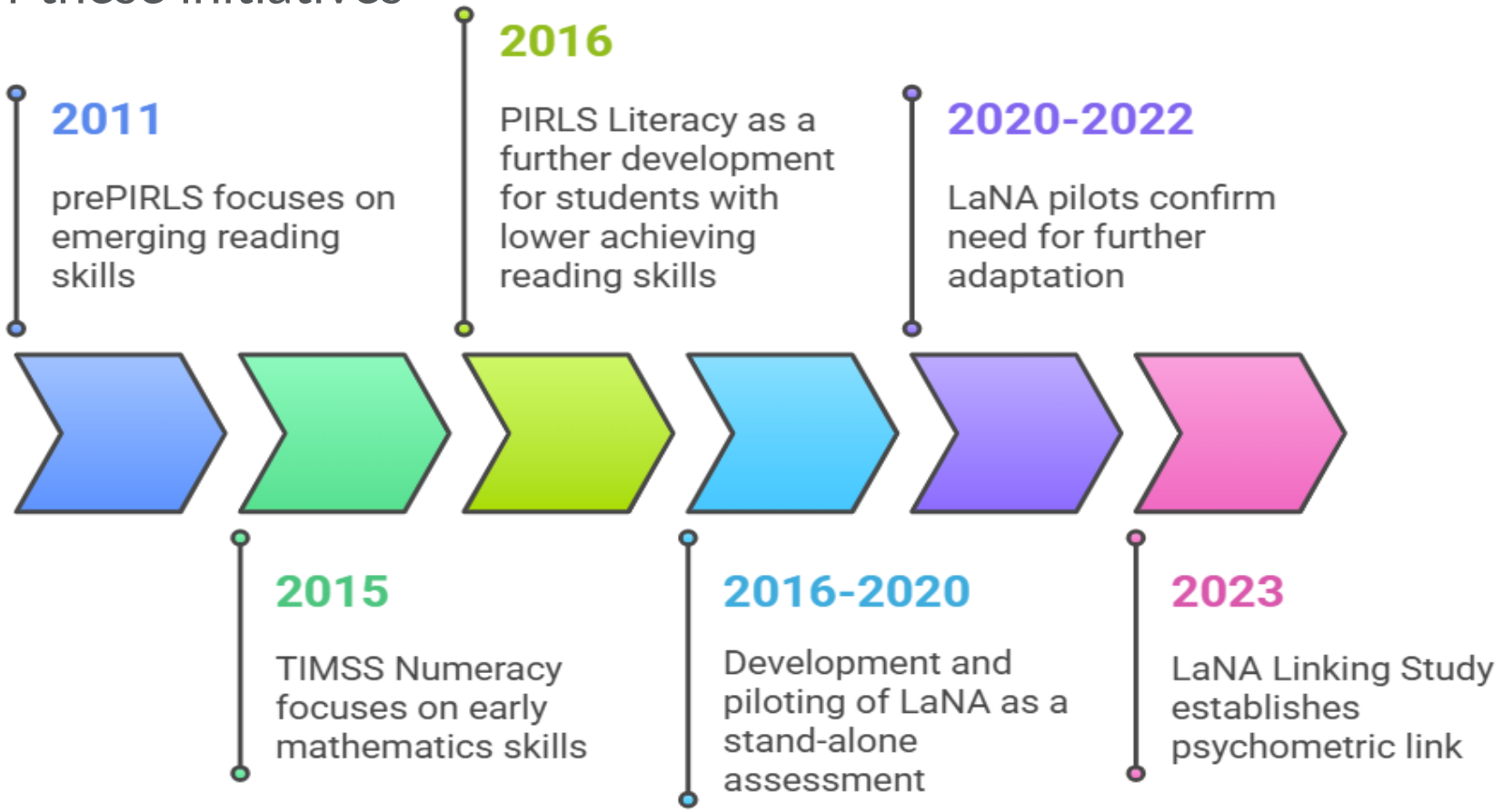
LaNA Assessment Design Overview

Administration	• 40 min Reading + 40 min Mathematics + 30 min Questionnaire	
Booklet Design	Rotated booklet design • Four booklets each with two reading and two mathematics blocks • Each student responds to subset of questions in the item pool	
Assessment Content	Mathematics – 80 items total • Number (whole numbers, fractions) • Measurement and Geometry • Data	Reading – 5 passages, 10-11 items each • Reading for Literary Experience • Reading to Acquire and Use Information
Questionnaires	Student and School (Teacher questionnaire to be developed)	
Sample	100-150 schools, 1 class per school -> ~ 4500 students	

Development of LaNA

- LaNA builds on more of a decade of TIMSS and PIRLS adaptations to better reach students with emerging reading and math skills.
- African countries including Botswana, Egypt, Morocco, and South Africa participated in several of these initiatives



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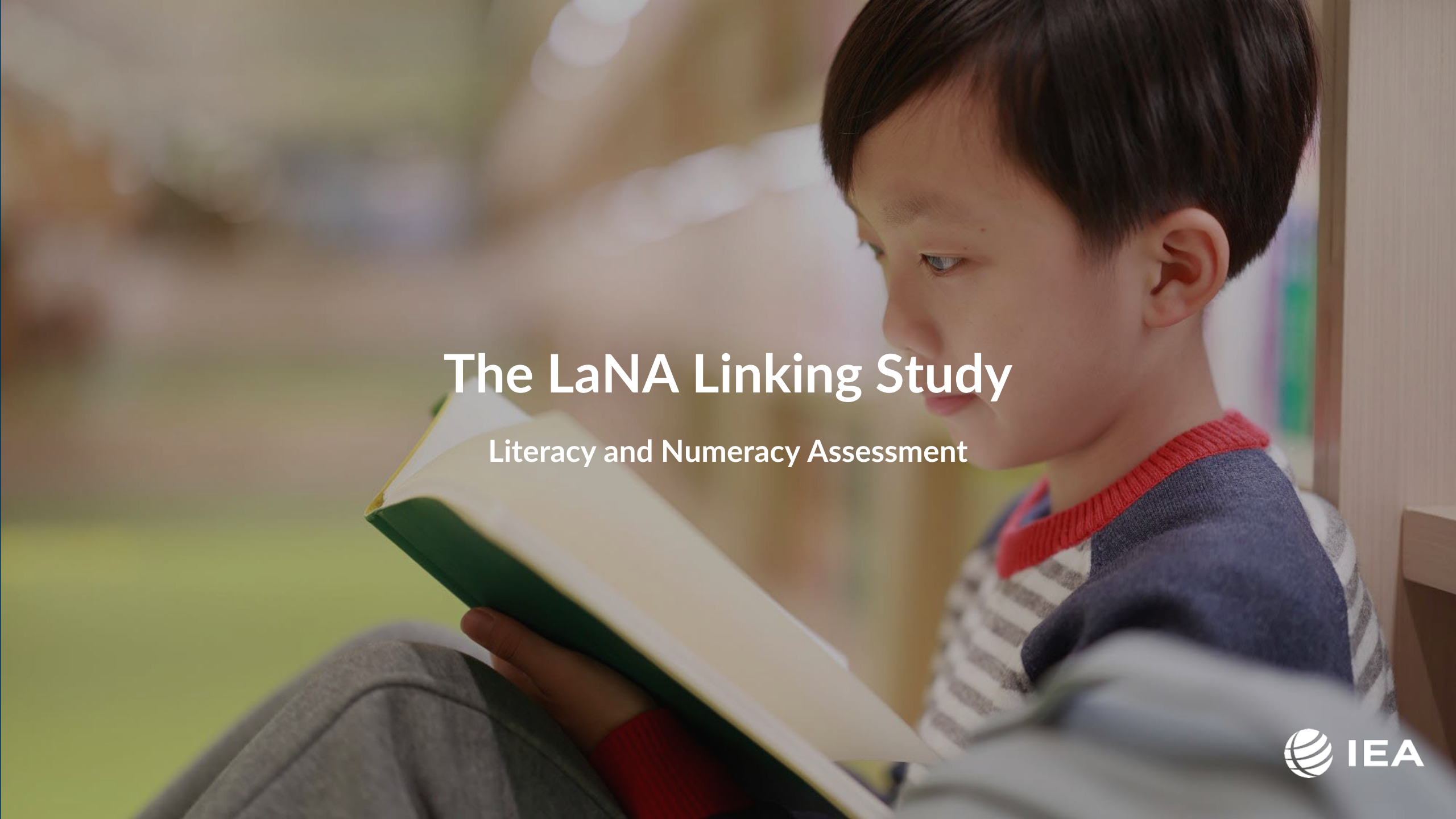

The LaNA Linking Study

Literacy and Numeracy Assessment

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The LaNA 2023 Linking Study

… was a special LaNA administration in 2023 to establish a link between LaNA results and the TIMSS/PIRLS achievement scales.

More than

30,000

students

More than

900

schools

In

6

countries

Burkina Faso
Egypt
Nigeria
Pakistan
Palestinian National Authority
Senegal

LaNA

→ Enables reporting on TIMSS/PIRLS scales and on SDG 4.1.1b

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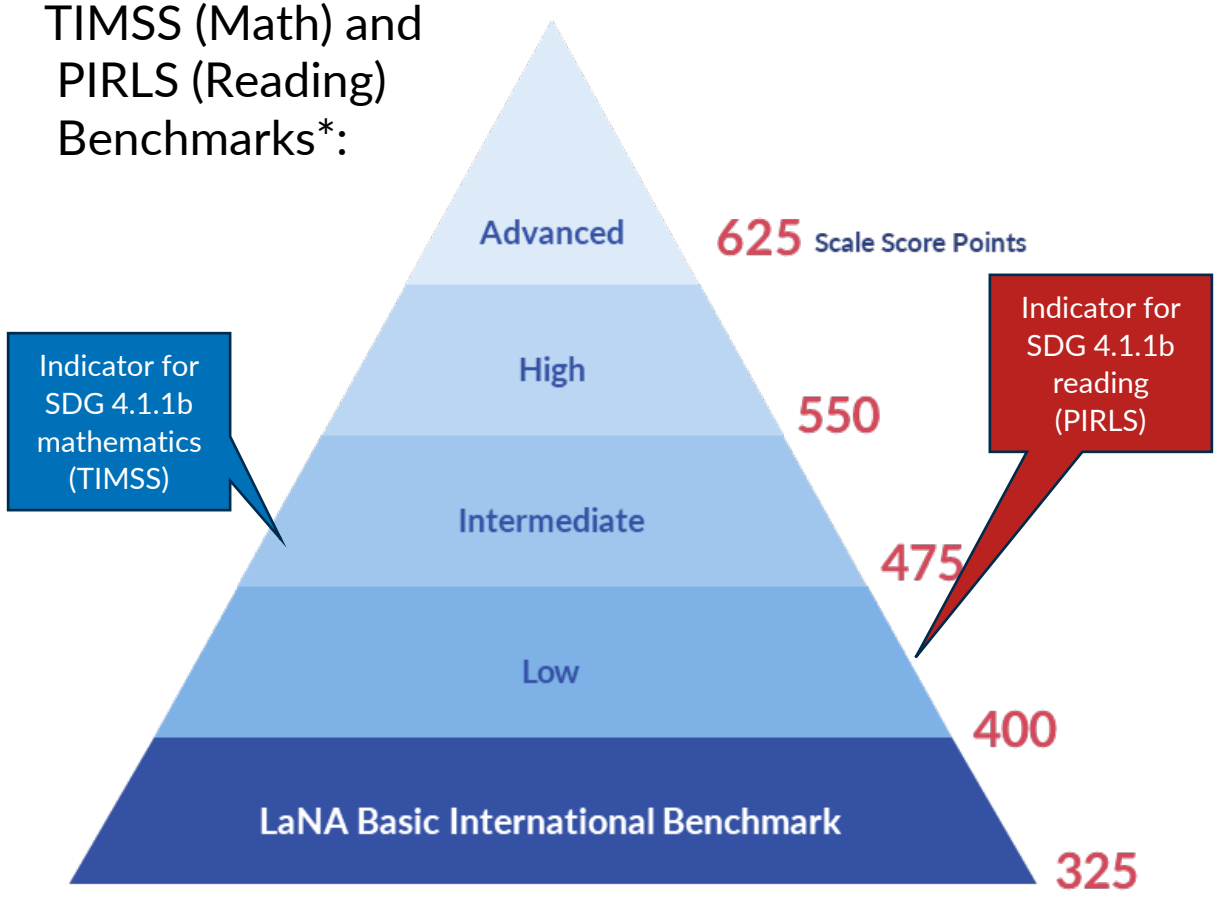
Psychometric Approach to Establishing Link Between LaNA and TIMSS/PIRLS

- Administration
  - Equivalent sample design (half of the students received a LaNA booklet and half received a linking booklet) allowed to reduce administrative burden
- Item calibration
  - All LaNA items were scaled using IRT models. TIMSS and PIRLS items were linked using their established parameters from the 2019 and 2021 cycles, respectively.
- Latent regression and plausible values
  - Student responses and background data were modeled using latent regression, allowing for the calculation of plausible values in mathematics and reading.
- Scale transformation
  - Plausible values were transformed to the TIMSS and PIRLS metric scales, enabling reporting using the established TIMSS and PIRLS International Benchmarks.

Linkage allows for Contextualization of LaNA Results with TIMSS and PIRLS

TIMSS (Math) and PIRLS (Reading) Benchmarks*:



*Benchmarks describe what students can do at a certain level

Mathematics
(% of students reaching Benchmark)

International Benchmark	TIMSS 2019 countries	LaNA 2023 countries
Intermediate	71%	15%
Low	92%	44%
LaNA Basic	99%	70%

Reading
(% of students reaching Benchmark)

International Benchmark	PIRLS 2021 countries	LaNA 2023 countries
Intermediate	75%	7%
Low	94%	25%
LaNA Basic	99%	55%

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Key Findings from the LaNA Linking Study

- **Gender Differences**
  - **Reading**: Girls outperformed boys in three countries
  - **Mathematics:** Gender-balanced achievement, in contrast to TIMSS 2023, where boys outperformed girls (notably in Grade 4).
- **Student Absences**
  - Frequent absences were strongly linked to lower achievement in both subjects.
- **School Belonging**
  - A stronger sense of belonging at school correlated with higher achievement in mathematics and reading
- **Positive Attitudes**
  - Students with positive attitudes towards mathematics and reading had significantly higher achievement scores.

Conclusion

- LaNA provides a context-appropriate, internationally comparable solution for assessing emerging mathematics and reading skills
- It enables monitoring of SDG Indicator 4.1.1b by linking results to TIMSS and PIRLS benchmarks
- The design balances technical rigor with feasibility, allowing flexible, cost-effective administration and rapid result availability
- Results provide actionable data for curriculum alignment and policy planning
- Beyond data, LaNA builds national capacity in sampling, implementation, and data analysis
- LaNA also serves as a gateway for deeper engagement in national and international assessments

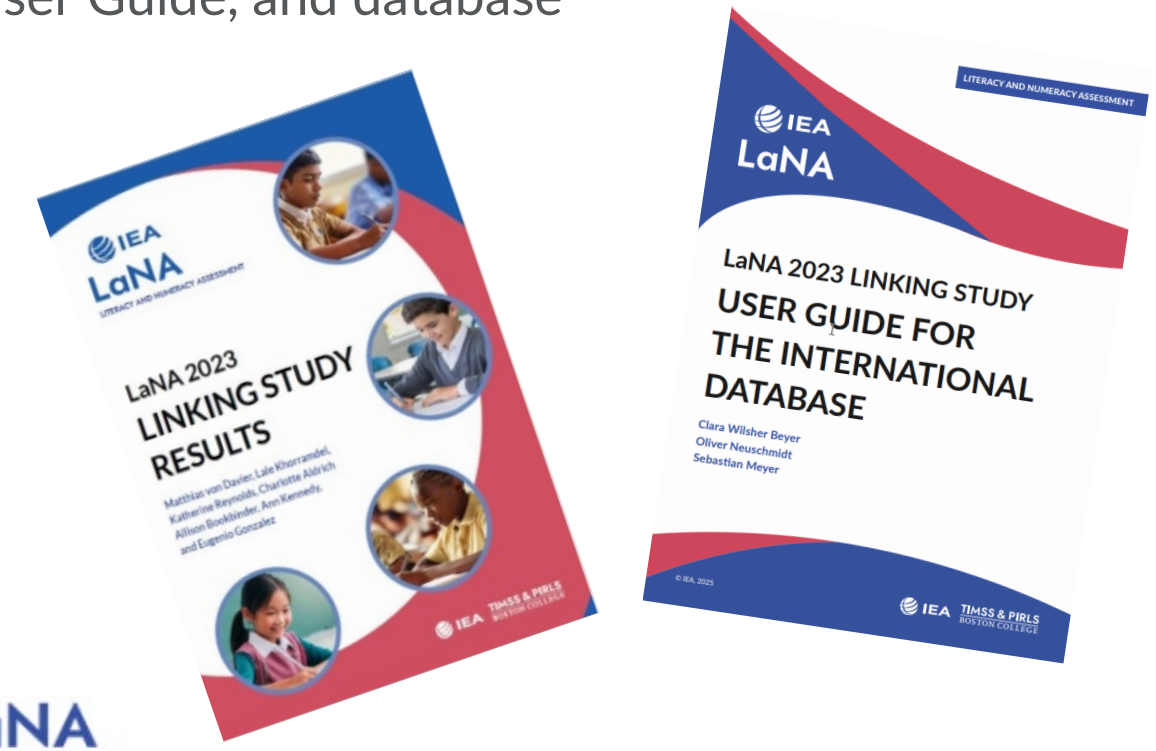
IEA's Next Steps for LaNA

- Supporting LaNA 2023 link countries with policy briefs and data dissemination
- Continuing to improve LaNA Questionnaires to more fully reflect participating countries' contexts
- Fostering collaboration with countries and partners to expand participation in LaNA

For More Information

Visit IEA's website for

- Information about LaNA and how to participate
- LaNA 2023 Linking Study Results Report, User Guide, and database



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Questions?

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Researching education, improving learning