

Extending the Reach of TIMSS and PIRLS: IEA's Rosetta Stone and LaNA

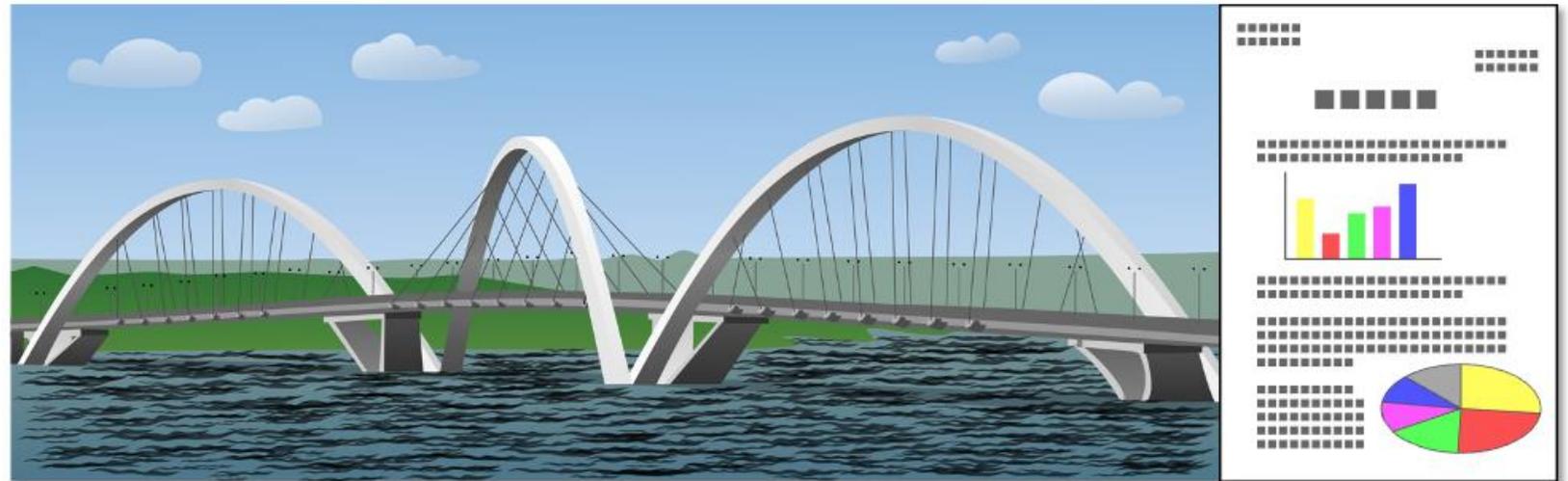


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Extending TIMSS and PIRLS

The TIMSS and PIRLS scales and benchmarks are established global indicators of student achievement around the world

We discuss two efforts to build on TIMSS and PIRLS:

- Rosetta Stone: comparing TIMSS and PIRLS to two regional assessments – ERCE and PASEC; Sponsored by UNESCO.
 - Concordance tables for score comparisons between different assessments
 - Projected TIMSS and PIRLS achievement using only ERCE or PASEC results
- LaNA: a new, less difficult Literacy and Numeracy assessment for countries where TIMSS and PIRLS are too difficult
 - LaNA is rooted in the TIMSS and PIRLS frameworks, allows direct linking

Goal



- Provide assessments that enable international comparisons for countries in which TIMSS and PIRLS are too difficult for students
- Help countries building capacity and facilitate better understanding of regional vis-a-vis international large-scale assessments
 - Example: How do international and regional assessment benchmarks relate?
- Provide countries with data that help to target the UN's SDG 4 which aims to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all."

Rosetta Stone: Project Status

- Successfully established concordance tables based on data from the following countries where the same students took both ERCE or PASEC and Rosetta Stone linking booklets
 - ERCE: Guatemala and Colombia (grade 6)
 - PASEC: Burundi, Guinea and Senegal (grade 6)
- The concordance tables and reports together with an executive summary have been published in a **Global Launch on June 27, 2022** together with the UNESCO institute for statistics (UIS) and IEA



Rosetta Stone: Comparing PASEC with TIMSS & PIRLS

- *Le Programme d'analyse des systèmes éducatifs de la CONFEMEN (PASEC) includes participants from (mainly) francophone countries in Africa.*
- *The Rosetta report is based on joint work with participating PASEC countries is available through the IEA, the UNESCO Institute for Statistics and the TIMSS and PIRLS International study center.*



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



TIMSS & PIRLS
International Study Center
Lynch School of Education
BOSTON COLLEGE

Rosetta Stone: Comparing ERCE with TIMSS & PIRLS

- *(ERCE) is UNESCO's Regional Comparative and Explanatory Study assesses primary students from Latin America in reading, mathematics and science.*
- *The Rosetta report is based on joint work with participating ERCE countries is available through the IEA, the UNESCO Institute for Statistics and the TIMSS and PIRLS International study center.*



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



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Example: Concordance Table for ERCE Math

The concordance table provides a **RANGE of likely TIMSS scores** for each ERCE score level to account for the **statistical variability of achievement estimates** in both TIMSS and ERCE

*This allows projections of how a country **approximately** would perform on TIMSS if only ERCE data is available*

ERCE Mathematics Score	Projected Score on TIMSS Scale		Lower Bound		Upper Bound	
	Mean	SD	95%	68%	68%	95%
400	290	64	162	226	354	417
420	304	63	178	241	367	430
440	319	62	194	256	381	443
460	318	63	192	255	381	444
480	322	62	198	260	384	446
500	326	62	201	264	389	451
520	334	62	211	273	396	458
540	342	64	214	278	406	470
560	357	63	231	294	419	482
580	371	62	247	309	433	495
600	389	61	266	327	450	511
620	403	61	282	342	463	524
640	420	58	303	361	478	537
660	432	57	317	375	489	546
680	449	53	344	397	502	555
700	465	52	362	414	517	569
720	481	51	379	430	532	583
740	497	49	399	448	547	596
760	515	50	415	465	565	616
780	531	50	431	481	581	631
800	548	48	453	500	596	643
820	563	46	471	517	609	655
840	576	46	484	530	622	668
860	590	45	500	545	635	680
880	599	46	508	554	645	691
900	608	46	516	562	654	699
920	617	48	520	568	665	713
940	624	51	522	573	675	726
960	638	50	538	588	688	739
980	653	49	554	603	702	751

Relating Regional Assessments to TIMSS and PIRLS through Rosetta Stone

- We hope to continue collaborations with UNESCO and regional partners, including additional countries or other assessments
- The ERCE and PASEC Rosetta Stone studies showed that successful data collections and very useful concordance tables can be achieved
- The methodology we developed for the studies was presented and well received at an international meeting of the psychometric society
- The studies showed that the TIMSS and PIRLS scales can be extended to a wider range of countries through collaborations and new developments

LaNA: Project Status

- Final LaNA instrument is a redesign based on the results of several waves of piloting in four countries
- The Pilot showed that LaNA constitutes a set of reliable scales with appropriate between school and between country variance
- The finalized LaNA design based on the pilot results is ready for full scale implementation
- The final LaNA instrument together with the linking booklets will be administered to 5-10 seed countries

Implementation of LaNA

- Instruments, administration manuals and scoring guides have been prepared and shared with IEA
- A preliminary timeline for the LaNA data collection, analysis and reporting has been established
- IEA is currently recruiting countries, and we are happy to invite more
- LaNA and linking booklets are given in an equivalent groups design
- Data from the first LaNA main study countries will be used to
 - Establish the LaNA scale and scale metric, and link to TIMSS/PIRLS
 - Explore Creation of a new “Basic” International Benchmark

LaNA – Timeline



Summary

- Reliable, valid, and internationally comparable indicators of student proficiencies in literacy and numeracy for measuring progress toward the UN's SDG 4
- This first main LaNA Study (after piloting and redesign) aims at a scale linkage to TIMSS (Math) and PIRLS
- LaNA and Rosetta Stone studies complement and complete each other: One establishes an expanded score range, the other shows relationships to existing regional assessments.
- A targeted outcome is establishing a new 'basic' benchmark that extends the reach of the achievement range measured on the TIMSS and PIRLS scales.

Thank You!



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