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International Association for the Evaluation of Educational Achievement

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Researching education, improving learning

UN set SDGs in 2015 and adopted targets and indicators in July 2017

17 SDGs
169 targets
231 unique indicators

Will focus on SDG 4 „Quality Education“

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SDG 4 targets

- **Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all**.
- 10 targets
  - 4.1: Free primary and secondary education
  - 4.2: Equal access to quality pre-primary education
  - 4.3: Equal access to affordable technical, vocational and higher education
  - 4.4: Increase the number of people with relevant skills for financial success
  - 4.5: Eliminate all discrimination in education
  - 4.6: Universal literacy and numeracy
  - 4.7: Education for sustainable development and global citizenship
  - 4.a: Build and upgrade inclusive and safe schools
  - 4.b: Expand higher education scholarships for developing countries
  - 4.c: Increase the supply of qualified teachers in developing countries

SDG 4 indicators

- For all targets, indicators are defind, for example:
- Target 4.1 „By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcome"
  - Indicator 4.1.1: Proportion of children and young people (a) in grades 2/3; (b) at the end of primary; and (c) at the end of lower secondary achieving at least a minimum proficiency level in (i) reading and (ii) mathematics, by sex
  - Indicator 4.1.2: Completion rate (primary education, lower secondary education, upper secondary education)

SDG Indicator 4.1.1

- Proportion of children and young people achieving at least a minimum proficiency level
  - (a) in grades 2/3
    - 4.4.1.a (i) reading
    - 4.4.1.a (ii) mathematics
  - (b) at the end of primary
    - 4.4.1.b (i) reading
    - 4.4.1.b (ii) mathematics
  - (c) at the end of lower secondary
    - 4.4.1.c (i) reading
    - 4.4.1.c (ii) mathematics

- … by sex (= 3 x 2 x 2 = 12 data points only for indicator 4.1.1!)

Education also included in other SDGs

- Target 12.8: By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature

- Indicator 12.8.1: Extent to which (i) global citizenship education and (ii) education for sustainable development are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment

Some history…

- Previously UN Millennium Goals adopted in 2000
- Target 2A: By 2015, all students can complete a full course of Primary education/primary schooling, girls and boys
  - Enrollment in primary education
  - Completion in primary education

Important change!

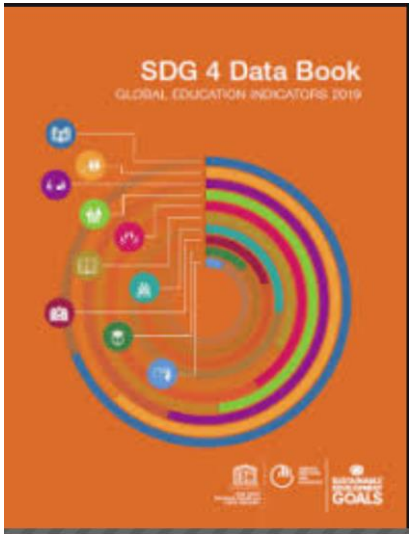
- Millennium Goals focused on „Enrollment and completion rates“
- SDGs focus on „ **quality education** “
- Major improvement to avoid negative effects – for example enrolling children in schools without appropriate resourcing
- ….BUT much more difficult to collect (and agree on) data
  - Instead of tracking simple statistics like percentage of students in school
  - Measure percentage of students reaching minimum literacy and numeracy levels

Questions

- Indicator 4.1.1: Proportion of children and young people at the end of primary achieving at least a minimum proficiency level in mathematics
  - What is end of primary education?
  - How to account for out-of-school children?
  - What is mathematics at end of primary / which domains (Geometry, Algebra, Numbers) to be included to which extend?
  - What is the minimum proficiency in mathematics?
    - Is there an international minimum proficiency standard or is it up to countries to set national standards?
  - How can we measure the percentage comparably?
    - International Studies
    - Regional studies
    - National (low stakes/high-stakes) assessments
  - Even more complicate: Measuring Change!

UIS manages measurement of SDG 4

- UIS organizes discussion with different stake holders (researchers, policy makers, other UN groups)
- UIS reports on SDG 4 indicators
- IEA included in
  - Early discussions
  - GAML (Global Alliance for Measuring Learning)
  - Data source



Challenge

- Need to report timely
  - indicators that are not measurable might get droped
- Need to emphasize quality
  - IEA is very familiar with the challenges of measuring trends
  - Reporting unreliable trends might have negative impacts on national education policies (& for ministers of education) for trust in SDG 4 data
  - IEA together with OECD is emphasizing focus on quality data!

IEA study results feed into UIS re

Table 4. SDG Indicator 4.1.1: Primary education – Mathematics

Proportion of students at the end of primary education achieving at least a minimum proficiency level in ma
both sexes (%)

Region/Country	2010	2011	2012	2013	2014	2015	2016
Central and Southern Asia							
Afghanistan	..	..	..	63	..	..	..
Bangladesh	..	51	..	89	..	81	..
Kazakhstan	..	88	..	..	..	96	..
Kyrgyzstan	..	..	..	..	35	..	..
Pakistan	..	..	..	..	..	..	48
Eastern and South-Eastern Asia							
Malaysia	..	87	..	..	..	..	..
Viet Nam	..	87	..	..	..	..	..
Europe and Northern America							
Albania	..	..	..	..	..	..	87
Austria	..	95	..	..	..	..	..
Bulgaria	..	..	..	..	..	92	..
Croatia	..	9	..	..	..	93	..
Germany	..	97	..	..	..	96	..
Hungary	..	89	..	..	..	..	..
Lithuania	..	96	..	..	..	96	..
Russian Federation	..	97	..	..	..	98	..

Notes:

.. Data not available

For data from earlier years, consult the UIS database http://data.uis.unesco.org

Sources: TERCE, PASEC, PIRLS, PISA, SACMEQ, TIMSS and national learning assessments.

Country	Low International Benchmark (400)				
	Percent of Students				
	2015	2011	2007	2003	1995
Singapore	99	99	98	97	96 ▲
Hong Kong SAR	100	99	100	99 ▲	97 ▲
Korea, Rep. of	100	100			99 ▲
Chinese Taipei	100	99	99 ▲	99 ▲	
Japan	99	99	98 ▲	98 ▲	98 ▲
Northern Ireland	97	96			
Russian Federation	98	97 ▲	95 ▲	95 ▲	
England	96	93 ▲	94	93 ▲	82 ▲
Kazakhstan	96	88 ▲			
United States	95	96 ▼	95	93 ▲	92 ▲
Ireland	97	94 ▲			91 ▲
Hungary	92	90	88 ▲	94 ▼	91
Portugal	97	97			70 ▲
Denmark	96	97	95		
Serbia	91	90			
Lithuania	96	96	94 ▲	96	
Belgium (Flemish)	99	99		99	
Cyprus	93			89 ▲	79 ▲
Australia	91	90	91	88 ▲	86 ▲
Finland		98			
Czech Republic	96	93 ▲	88 ▲		95
New Zealand	84		85	86	78 ▲
Slovenia			92 ▲	84 ▲	77 ▲
Germany	96	97	96		
Sweden			93		
United Arab Emirates		64 ▲			

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Data from different sources is used by UIS

Table 6. SDG Indicator 4.1.1: Lower secondary education – Mathematics

Proportion of students at the end of lower secondary education achieving at least a minimum proficiency level in mathematics, both sexes (%)

Region/Country	2010	2011	2012	2013	2014	2015	2016	2017	2018
Malaysia	..	65	48	..	..	76	..	42	..

Table 5. SDG Indicator 4.1.1: Lower secondary education – Reading

Proportion of students at the end of lower secondary education achieving at least a minimum proficiency level in reading, both sexes (%)

Region/Country	2010	2011	2012	2013	2014	2015	2016	2017	2018
Argentina	76	..	46	60	..	..	62	..	..
Brazil	..	100	49	..	..	49	..	..	..
Chile	..	..	67	61	47	72	..	..	..
Colombia	..	..	49	..	..	57	84	89	..

Are trends like this useful??

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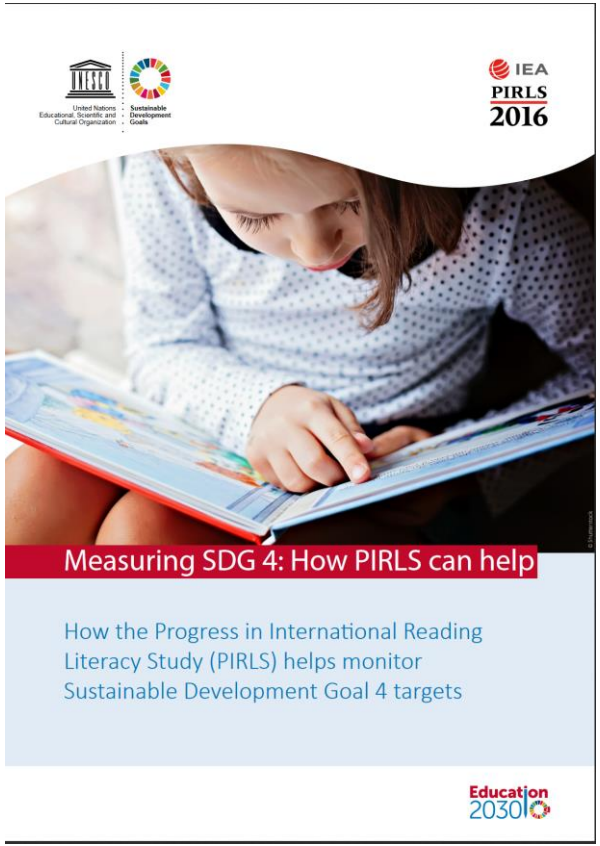
Recent development

- To increase the amount of reportable data UIS decided to explore political linkage to use results from more national assessments to report on SDG indicators
- The idea is that a group of experts compare the difficulty of items from a national study and items from an international metric and by this map the difficulty (and results) of the national assessment onto the international metric

IEA's approach

- Use data from international assessments (like TIMSS, PIRLS, ICILS, or ICCS) whenever possible
- Map regional assessments (ERCE, SACMEQ, PASEC,…) to the international TIMSS and PIRLS scale by administering an assessment based on TIMSS and PIRLS to the same students as the regional assessment.
  This is the Rosetta Stone project – currently conducted with PASEC and ERCE 4
- Use LaNA (The Literacy and Numeracy Assessment) which is currently developed by IEA and the TIMSS and PIRLS International Study Center at Boston College

But there is more…



Also for TIMSS 2019 we are planing a joint report with UNESCO based on TIMSS 2019 results which will be released on December 8th.

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IEA studies and the SDGs

PIRLS and TIMSS measure literacy and numeracy achievement towards end of primary

PIRLS and TIMSS have data on participation in pre-primary

ICILS measures computer skills at secondary level

ICCS asses citizenship competencies of secondary students

All IEA studies measure percentage of boys and girls and their respective

All IEA studies collect rich data on school context

ALL IEA studies collect rich data of assessed students including qualifications of teachers

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Thank you!

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IEA TIMSS

PIRLS 2016

ICCS IEA

ICILS 2013 IEA