Monitoring progress: Benchmarking

Group discussion

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Indicator 4.1.1: Minimum Proficiency Levels in Reading and Math

The objective of this session is to develop a consensus on some pending issues related to indicator 4.1.1, which reports on the percentage of students achieving the minimum proficiency levels of reading and math in a country.

1.   Indicator Definition and Pending Issues

4.1	**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 outcomes**
4.1.1	Proportion of children and young people (a) in Grade 2 or 3; (b) at the end of primary education; and (c) at the end of lower secondary education achieving at least a minimum proficiency level in (i) reading and (ii) mathematics, by sex

Indicator 4.1.1 is one of the most important indicators measured and reported by SDG 4, since it addresses the main objective of any education system: Student learning. In terms of measurement and reporting there is a need to reach a consensus.

There are several issues still pending about this indicator, but these issues have to be resolved at the country level.[1] These issues include the following:

- **Coverage***: around 80 countries do not have comparable data on learning outcomes for any breakdown of indicator 4.1.1. Specifically, at the end of primary school, data are not available for around 100 countries, while at the grade 2 or 3, only a few countries have comparable data.

- **Comparability:** various assessments produce data which allows comparison between different countries taking the same assessment. However, data from countries using different assessments cannot easily be compared. There are seven major regional assessments and, while many of them test broadly the similar learning items, no robust framework exists at the moment to compare the data they produce. Similarly, some countries use national assessments to monitor progress, however, in most cases, the data from these assessments cannot currently be compared.

- **Frequency:** the time gaps between two consecutive administrations of different assessments can be up to six years or more. For instance, six years passed between the LLECE assessments in 2013 and 2019, and a larger gap is expected for SACMEQ.

- **Development and maintenance of a country's capacity to undertake, analyse and report proficiency results**. In many low income countries there are problems with existing capacities for undertaking proficiency assessments on a regular basis. In some cases, regular assessment of proficiency at the end of ISCED 0 (Preschool), ISCED 1 (6 years of Primary), and ISCED 2 (lower secondary) is crowded out by the measurement of large international assessments, such as PISA. Hence, countries would have to examine their financial and human resources in order to determine their measurement and reporting capacity.

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[1] Gustafsson, Martin, 2019. Costs and Benefits of Different Approaches to Measuring the Learning Proficiency of Students (SDG Indicator 4.1.1). Montreal: UNESCO Institute for Statistics.

2.   What the Data Show

Table 1 shows the latest results for those countries reporting indicator 4.1.1.

Table 1. SDG 4, 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 outcomes

Indicator 4.1.1 Percent of students Achieving minimum proficiency in Reading and Math (baseline)						
Region	**Early Grades**		**End of Primary**		**End of Lower Secondary**	
	Reading	**Math**	**Reading**	**Math**	**Reading**	**Math**
Sub-Saharan Africa						
Average (for reporting countries)	38.4	32.3	34.8	18.5	32.4	26.0
Percent countries reporting	49.0	47.1	29.4	33.3	7.8	9.8
Population coverage	74.0	73.5	41.2	46.9	8.8	11.6
Northern Africa and Western Asia						
Average (for reporting countries)	42.4	27.9	56.7	48.7	47.6	32.5
Percent Reporting	42.3	46.2	3.8	11.5	34.6	69.2
Population coverage	42.6	29.0	1.9	18.6	34.5	74.9
Central and Southern Asia						
Average (for reporting countries)	30.9	27.3	49.8	52.2	33.2	27.7
Percent Reporting	50.0	50.0	42.9	42.9	28.6	42.9
Population coverage	95.1	95.1	90.8	90.8	19.8	24.9
Eastern and South-eastern Asia						
Average (for reporting countries)	72.2	62.5	72.7	70.0	68.1	67.4
Percent Reporting	50.0	55.6	16.7	11.1	61.1	61.1
Population coverage	77.1	87.8	6.3	5.6	91.3	91.3
Oceania						
Average (for reporting countries)	69.9	51.2	75.3	56.2	73.7	68.5
Percent Reporting	12.0	8.0	4.0	4.0	8.0	8.0
Population coverage	72.5	71.8	60.2	60.2	71.8	71.8
Latin America and the Caribbean						
Average (for reporting countries)	68.3	58.5	56.1	49.6	52.2	35.1
Percent Reporting	46.9	44.9	34.7	34.7	28.6	28.6
Population coverage	87.7	87.4	54.6	54.6	85.5	85.5
Europe and Northern America						
Average (for reporting countries)	89.6	68.6	82.7	76.4	78.9	73.4
Percent Reporting	33.3	29.8	19.3	24.6	64.9	66.7
Population coverage	60.5	60.1	30.5	32.7	94.0	98.0

Source: UNESCO Institute for Statistic (UIS) database

Reporting achievement of minimum proficiency levels for early grades is more prominent in Latin America and the Caribbean and, to some extent, Sub-Saharan Africa, two regions that have embraced Early Grade Reading Assessments (EGRA) and Early Grade Mathematics Assessment (EGMA) more than other regions of the world. In many high income countries, and in some large countries with decentralized administrative structure like Indonesia, and Nigeria, there is little reporting on early grades assessment. The lack of data from these countries have an impact on regional averages and, by implication, on the regional thresholds for minimum proficiency levels.

Measuring and reporting minimum proficiency levels at the end of primary is prominent in Latin America and the Caribbean, where almost 60% of the countries in the region publish assessment results.

In the case of minimum standards for lower secondary, 80% of countries in Europe and Northern America report this indicator, followed by more than half of the countries in Eastern and South-eastern Asia. Almost 40% of Latin America and the Caribbean countries also report results for lower secondary, while the majority of countries in other regions of the world fail to report this indicator.

The above results show a wide variation in the number of countries reporting across the three levels of assessment. This variation confirms that assessment instruments are yet to be consistently or uniformly applied across countries. For now, some countries emphasize early grade and primary, while others emphasize lower secondary.

3.   Practical Issues 1: Definition of Minimum Proficiency Levels (MPL)

One of the most important issues in the definition of the scales is the proficiency benchmarks or levels embedded within the numerical scale and their cut points on that numerical scale. These benchmarks are typically associated with Proficiency Level Descriptors, which describe in some detail the skills that are typical of students at any given cut point in the scale. Typically, an overarching policy statement or policy definition gives meaning to the succession of cut scores and the proficiency levels but most importantly for defining what constitutes a minimum. In the case of indicator 4.1.1, an agreement has been reached in 2017 about the definition of the MPL and contents that define the minimum proficiency level in each point. That definition "operationalizes" descriptors that can be used to drive comparisons (e.g., that can be used in policy linking).

Table 2. Minimum Proficiency Levels for Mathematics

Educational Level	Descriptor	Assessment PLD's that align with the descriptor	MPL's in the Assessments
Grades 2-3	Students demonstrate skills in number sense and computation, shape recognition and spatial orientation.	☐ PASEC 2014 – Level 2 ☐ TERCE 2014 – Level 2 ☐ SERCE 2006 – Level 2	Level 2 Level 2
Grades 4-6	Students demonstrate skills in number sense and computation, basic measurement, reading, interpreting, and constructing graphs, spatial orientation, and number patterns.	☐ PASEC 2014 – Level 3 ☐ SACMEQ 2007 – Level 5 ☐ PILNA 2015 – Level 6 ☐ SERCE (6to grade) - Level 3 ☐ TERCE 2014 (6to grade) – Level 3 ☐ TIMSS 2015 (4th grade)– Intermediate International	Level 2 Level 3 Level 5 Level 2 Intermediate International
Grades 8 & 9	Students demonstrate skills in computation, application problems, matching tables and graphs, and making use of algebraic representations.	☐ PISA 2012/2015/PISA4D – Level 2 ☐ TIMSS 2015 (8th grade) – Intermediate International	Level 2 Intermediate International

Note: alignment for the Math component of some assessment is pending upon analysis of items and test.

Table 3. Minimum Proficiency Levels for Reading

Minimum Proficiency Levels for Reading

Educational Level	Descriptor	Assessment PLDs that align with the descriptor	MPL in the assessment, if available
Grade 2	They read and comprehend most of written words, particularly familiar ones, and extract explicit information from sentences.	☐ PASEC (Gr. 2) – Level 3	☐ Level 3
Grade 3	Students read aloud written words accurately and fluently. They understand the overall meaning of sentences and short texts. Students identify the texts' topic.	☐ Uwezo – Std. 2 (Story with meaning)	☐ Std. 2 (Story with meaning
		☐ PASEC 2014 (Gr. 2) – Level 4	☐ Level 3
		☐ SERCE (Gr.3) – Level 2	☐ Level 1 (appears that way from Technical reports)
		☐ TERCE (Gr. 3) – Level 2	☐ Level 2
		☐ UNICEF MICS 6 – -**Proficient Level**	"demonstrated foundational reading skills"
		☐ EGRA – Level 9	☐ Not specified
		☐ ASER – Std. 2 (story)	☐ Std. 2 (story)
Grades 4 & 6	Students interpret and give some explanations about the main and secondary ideas in different types of texts. They establish connections between main ideas on a text and their personal experiences as well as general knowledge	☐ SACMEQ 2007 – Level 5	☐ Level 3
		☐ PASEC 2014 (Gr. 6) – Level 4	☐ Level 3
		☐ PIRLS 2011 and 2016 – Low	☐ Low
		☐ PILNA 2015 (Gr. 4 & 6) Level 5	☐ • Level 4 (grade 4) and Level 5 (grade 5)
		☐ SERCE 2006 (Gr. 6) – Level 3 ☐ TERCE 2014 (Gr. 6) – Level 3	☐ Level 2
Grades 8 & 9	Students establish connections between main ideas on different text types and the author´s intentions. They reflect and draw conclusions based on the text.	☐ PISA 2011/2015/PISA4D – Level 2	☐ Level 2

4.   Practical Issues 2: Aligning to a Global Scale

There are numerous ways and different contexts in which reading and mathematics are measured at the national level. There is a basic distinction between assessments that are informal, formative, short, or designed by teachers, inspectors and district authorities, versus formal, typically summative, longer assessments. These distinctions are important for educators because implementing short, formative assessments to monitor progress can lead to the development of more complete summative assessments.

Table 4. Comparability of Learning Assessments

		Comparability	Needs of action
School-based			
	Global	Yes, for participating countries	None
	Regional	Yes, for the countries	Translate into a global scale
	National	No but could be scaled	Translate into a global scale
Population Based		Yes but alignment of verbal definition should be completed	Translate into a global scale
National Examination		No	------

There are two main types of linking: statistical and non-statistical. Statistical linking is more accurate, but it has greater requirements, i.e., common students either taking different assessments or having common items across assessments. Non-psychometric linking based on policy descriptors is less accurate, but acceptable when requirements of statistical linking are not met due to issues such as design, logistics, or cost with some potential benefits.

Table 5. Summary table of alternatives for aligning to a global scale

Level	Non psychometric calibration	Psychometric Calibration	
		Test Based Calibration	Items based linking
Early Grades	Yes	Unlikely	Unlikely
End of Primary	Yes	Yes	Feasible
End of lower secondary	Yes	No	Feasible

In all of this, the UIS vision, at least initially, is to try carry out these tasks using a portfolio approach that adjusts over time. For instance: non-psychometric calibration might be less accurate, but might yield results faster and at much lower cost. Plus, much of what is learned, and the raw materials used for non-psychometric calibration (e.g. sample items) can be re-used for item-based linking. And no one has firmly established how much rigor can be gained by using a test-based calibration for example, and at what cost. It could be that for certain combinations of grade level and subject, non-psychometric costs 1/10th as much as some other methods, but is 80% as accurate. These factors are still unknown. Thus the rationality of a portfolio approach that can vary over time but wastes no resources in that the resources for one method can be re-purposed or simply re-used for other methods.

5.   Practical Issues 3: the Out-of-School Children and the Adjustment to Indicator 4.1.1

In 2016, 263 million children, adolescents and youth were out of school, representing nearly one-fifth of the global population of this age group. 63 million, or 24% of the total, are children of primary school age (typically 6 to 11 years old); 61 million, or 23% of the total, are adolescents of lower secondary school age (typically 12 to 14 years old); and 139 million, or 53% of the total, are youth of upper secondary school age (about 15 to 17 years old). Not all these kids will be permanently outside school, some will re-join the educational system and, eventually, complete late, while some of them will enter late. The quantity varies per country and region and demands some adjustment in the estimate of indicator 4.1.1.

Table 6. Rates of out-of-school by SDG regions and levels of education, both sexes, 2017 or latest year available

Region	Rate of out-of-school (%)		
	Primary	Lower secondary	Upper secondary
Sub-Saharan Africa	20.51	35.51	56.96
Northern Africa and Western Asia	10.58	14.22	32.17
Northern Africa	10.65	10.14	33.33
Western Asia	10.30	17.24	31.23

Central and Southern Asia	6.21	16.62	47.25
Central Asia	2.51	5.30	18.07
Southern Asia	6.32	17.22	47.83
Eastern and South-eastern Asia	3.78	8.55	19.27
Eastern Asia	3.04	6.55	15.91
South-eastern Asia	5.04	11.57	25.75
Oceania	9.21	3.66	22.81
Latin America and the Caribbean	4.72	7.15	22.79
Caribbean	…	…	…
Central America	…	…	…
South America	…	…	…
Europe and Northern America	2.94	1.78	6.54
Europe	2.37	2.25	7.43
Northern America	3.76	0.74	5.03
World total	8.88	**15.65**	**35.82**

Source: UNESCO Institute for Statistic (UIS) database.
Note: '…': data not available

To the light of these numbers, we proposed some adjustments in the current expression of the indicator to reflect all the population and the target that involves access, completion and learning. In line with UIS (2017)[2], it was assumed that children not in school would not have reached the minimum level of proficiency. The following equation could be applied to arrive at a percentage of the lower primary-aged population not being proficient:

$$indicator\ 4.1.1\ lower\ primary = S \times (1 - Out\ of\ school\ rate) \qquad (1)$$

The percentage proficient among enrolled students is multiplied by one minus the percentage of the population not in school.

However, not all kids currently out-of-school are going to be permanently out-of-school and in the same way, not all the kids that are currently in school would necessary complete the levels which is relevant for the end of primary and the end of lower secondary. In terms of estimation of indicator 4.1.1 and to better understand school exposure and its implications on measuring indicator 4.1.1, a basic classification would divide children and youth into two main groups, those who complete the level and those who do not complete it, where each group is further composed by sub groups:

1. Completers
   o Those who are in school and who complete their respective level of education;
   o Those who will start school late (now out-of-school) and are expected to complete the last grade;
2. Non Completers
   o Those who are in school but would drop out before reaching the last grade;
   o Those who will start school late and would drop out in the future;

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[2] UIS (2017a). *More than one-half of children and adolescents are not learning worldwide*. Montreal and UIS (2017b). *Counting the number of children not learning: Methodology for a global composite indicator for education*. Montreal.

- o   Those who were in school but dropped out; and

- o   Those who were never in school and would never enter.

Therefore, the soundest option is to use the rate of completion by level and make the adjustment on indicator 4.1.1b and 4.1.1c as follows using again the proficiency among enrolled students and adjust by the non-completion rate using the following formula

$$indicator\ 4.1.1\ at\ the\ end\ of\ level\ = S \times (completion\ rate\ of\ level\ i)\ (2)$$

producing the following adjusted Proficiency levels for Population:

Table 7. Indicator 4.1.1 adjusted

Indicator 4.1.1	*Indicator 4.1.1 adjusted*
Early Grades	$4.1.1a = S \times (1 - rate\ of\ out-of-school)$
End of Primary	$4.1.1b = S \times rate\ of\ completion$
End of Lower Secondary	$4.1.1c = S \times rate\ of\ completion$

6.   Benchmarks: Proposed Options

Below are different options for proposed minimum **targets for the percentage of students meeting the minimum proficiency levels in reading and math**. The three options proposed in this document are in line with the strategic objectives of the SDG 4 initiative for education. They are are based on reported data reported by countries and collected by UIS.

6.1 Option 1: Simplified Minimum Regional Targets

This option eliminates the distinction between reading and math, which facilitates monitoring, as shown in Table 8.

Table 8. Indicator 4.1.1 Proposed Targets for the Percent of Students Achieving minimum Proficiency in Reading and Math, by SDG Regions

Region	Early Grades	End of Primary	End of Lower Secondary
Sub-Saharan Africa	50	60	75
Northern Africa and Western Asia			
Central and Southern Asia	40	50	70
East and South-eastern Asia	90	70	75
Oceania	95	95	95
Latin America and the Caribbean	80	80	80
Europe and Northern America	99	99	99

6.2 Option 2: Regional Minimum Targets by Economic Vulnerability

Two key empirical findings in education are relevant for this proposal. The first one is the close relationship between economic development and education performance (Hanushek and Woeßman 2008)[3], which in turns relates student learning to poverty, and the relationship between vulnerable ethnic groups and poverty, (Hall

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[3] Hanushek, Eric A., and Luther Woessmann, 2008. The Role of Cognitive Skills in Economic Development. Journal of Economic Literature, Vo. 46, No. 3, pp. 607-668.
http://hanushek.stanford.edu/sites/default/files/publications/Hanushek%2BWoessmann%202008%20JEL%2046%2083%29.pdf

and Patrinos 2010)[4] which in turns leads to lower educational performance. Table 9 proposes two targets, one for the national average, and one for students living in extreme poverty. For practical purposes, extreme poverty is defined as per capita income in the bottom 20% of the income distribution. Poverty is used as a proxy for human vulnerability, which can come through ethnicity, religious affiliation, gender, and other societal markers where vulnerable groups tend to be marginalized and, as a result, left to suffer discrimination in education.

Table 9. Indicator 4.1.1 Proposed Targets for the Percent of Students Achieving minimum Proficiency in Reading and Math, by SDG Regions

Region	Early Grades	End of Primary	End of Lower Secondary
Sub-Saharan Africa	50	60	75
Northern Africa and Western Asia	50	60	75
Central and Southern Asia	40	50	70
Eastern and South-eastern Asia	90	70	75
Oceania	95	95	95
Latin America and the Caribbean	80	80	80
Europe and Northern America	99	99	99
Target Percent of Students in Extreme Poverty Achieving the Minimum Proficiency Levels for Reading and Math			
Region	Early Grades	End of Primary	End of Lower Secondary
Sub-Saharan Africa	35	42	53
Northern Africa and Western Asia	35	42	53
Central and Southern Asia	28	35	49
East and South-eastern Asia	63	49	53
Oceania	67	67	67
Latin America and the Caribbean	56	56	56
Europe and Northern America	69	69	69

7.   Issues for Discussion

Given these three options the discussion should answer some key questions:

I.   How can non-reporting countries be enticed to report data on indicator 4.1.1? Is the threat of reduced external aid to education a good option? Who should work with countries at the individual country level to improve capacity and ensure data quality?

II.   How high should be a target before it becomes a fantasy? Can targets be revised for each country or should regional targets be enough to monitor country performance?

III.   Which of the three options better addresses the essence of Indicator 4.1.1 while motivating countries to act, and to report results?

IV.   How should Out-of-school and Completion be factored-in indicator 4.1.1? Should the indicator being published in the in-school and population based versions?

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[4] Hall, Gillete, and Harry A. Patrinos, 2010. *Indigenous People, Poverty, and Development*. Washington DC: World Bank. http://siteresources.worldbank.org/EXTINDPEOPLE/Resources/407801-1271860301656/full_report.pdf

Indicator 4.1.4: Towards ensuring that all girls and boys complete free, equitable and quality primary and secondary education by 2030

The objective of this session is to develop a consensus on some pending issues related to indicator 4.1.4, which reports on the completion rate for primary, lower secondary and upper secondary.

1.   Indicator Definition and Pending Issues

4.1	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 outcomes
4.1.4	Increase the completion rate for primary education, lower secondary education, upper secondary education

The completion rate for an educational level (primary, lower secondary, upper secondary) is defined as the percentage of a cohort of children, adolescents or youth aged 3 to 5 years above the intended age for the last grade of each level of education who have completed that grade.   The intended age for the last grade of each level of education is the age at which pupils would enter the grade if they had started school at the official primary entrance age, had studied full-time and had progressed without repeating or skipping a grade. For example, if the official age of entry into primary education is 6 years, and if primary education has 6 grades, the intended age for the last grade of primary education is 11 years. In this case, the reference age group for calculation of the primary completion rate would be 14-16 years.[5]

Indicator 4.1.4 is calculated by expressing the number of persons in the relevant age group who have completed the last grade of the given level of education as a percentage of the total population of the same age group. The completion rate indicates how many children, adolescents and youth enter school on time and progress through the education system without excessive delays.

The completion rate is a good indicator of the level of education of the labor force and, by implication, of its potential productivity. Although target 4.1 calls for universal completion of primary and secondary education, there is a need to define specific benchmarks for 4.1.4 in the context of a wide range of performance among low and middle-income countries.

2.   Data Sources

The data can be obtained from population censuses and household surveys that collect data on the highest level of education completed by children, adolescents and youth in a household, through self- or household declaration. Data can be self-reported or given by the head of household during an interview. This information is combined with administrative data on entrance ages and duration of each educational level, along with information on the total number of persons in the country in the age groups defined for each educational level. International sample surveys, such as Demographic and Health Surveys (DHS, http://dhsprogram.com) or Multiple Indicator Cluster Surveys (MICS, http://mics.unicef.org), can also be sources of data for this indicator.[6] Although the completion rate can be disaggregated by sex, location, wealth quintiles, disability status, or other personal and household characteristics, this benchmark will refer only to the average completion rate.

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[5] Source: UIS Glossary of Indicators. http://uis.unesco.org/en/glossary-term/completion-rate
[6] Survey data for many countries can be found at https://microdata.worldbank.org/index.php/catalog/lsms

3.   What the data show

UNESCO Institute for Statistics, as the custodian and repository of education data from administrative sources, household surveys, and learning outcomes publishes education data and indicators necessary for the monitoring of SDG4. Many of these statistics are produced based on international standards while a few are produced using standards that are defined separately by each country, without expectations as to comparability across countries. Table 1 shows the latest averages by SDG regions, produced based on education completion data reported by countries.

Table 1. Completion rate by SDG regions and education level, both sexes, 2017 or latest year available

Region	Completion rate (%)		
	Primary	**Lower secondary**	**Upper secondary**
Sub-Saharan Africa	64	37	27
Northern Africa and Western Asia	84	74	39
Northern Africa	84	69	36
Western Asia	83	81	41
Central and Southern Asia	89	77	40
Central Asia	100	99	…
Southern Asia	89	76	40
Eastern and South-eastern Asia	95	79	58
Eastern Asia	97	83	61
South-eastern Asia	90	69	48
Oceania	…	…	…
Latin America and the Caribbean	91	81	62
Caribbean	93	90	65
Central America	93	79	51
South America	90	82	68
Europe and Northern America	99	98	87
Europe	…	97	84
Northern America	99	99	92

Source: UNESCO Institute for Statistics Database (http://data.uis.unesco.org/)
Note: '…': data not available

The available data show that some regions in the world—Sub-Saharan Africa, Northern Africa and Western Asia, and Southern Asia—need to improve their completion rates for primary and lower secondary, to be on par with the rest of the world. However, this statement has to be interpreted with caution, since less than one half of countries in the world report their completion rate. As Table 2 shows, the percent of countries reporting primary completion rates is highest for Sub-Saharan Africa, with 60%--which is ironic considering that the region has the lowest rates in the world—followed by Latin America and the Caribbean with 46%. Less than 11% of the countries in Europe and Northern America report the primary completion rate. The relatively low reporting of completion rates should throw some caution in the interpretation of regional of the regional averages shown in Table 1. Still, the data suggests that if indicator targets are set for 2030, they should focus on potential improvement in countries located in the Sub-Saharan Africa and Northern Africa and Western Asia regions.

Table 2. Percentage of countries reporting data on education completion by SDG regions and educational level, both sexes, 2017 or latest year available

	Primary	Lower secondary	Upper secondary
Sub-Saharan Africa	60.4%	60.4%	60.4%
Northern Africa and Western Asia	25.0%	33.3%	33.3%
Central and Southern Asia	46.2%	46.2%	38.5%
Eastern and South-eastern Asia	44.4%	44.4%	44.4%
Oceania	…	…	…
Latin America and the Caribbean	46.3%	46.3%	46.3%
Europe and Northern America	10.9%	73.9%	73.9%

Source: Estimated with data from UNESCO Institute for Statistics Database (http://data.uis.unesco.org/)
Note: '…': data not available

4.   Strengths and Weaknesses

The strength of this indicator is that it contains a lot of information about educational performance in a country. A completion rate near 100% indicates that most children have completed a level of education by the time they are 3 to 5 years older than the official age of entry into the last grade of that level of education. A low completion rate indicates low or delayed entry into a given level of education, high drop-out, high repetition, late completion, or a combination of these factors. To identify the causes of low completion rates, it is necessary to examine other indicators, for example the out-of-school rate, the gross intake ratio to the last grade, and the percentage of over-age children. When disaggregated by sex, location, and other characteristics, this indicator can identify specific population groups who are excluded from education. Hence, although the indicator cannot pinpoint a specific problem in an education system, it is a significant bellwether for examining key issues that need to be analyzed and resolved.

The main weaknesses of this indicator are: (i) Administrative data generally does not report information on completion at the level of individual detail necessary to construct the indicator, and (ii) the need to use household surveys to obtain the individual data required to build the indicator can be expensive and infrequent.

5.   Proposed Options

Since target 4.1 calls for universal completion, it is implicit that the 2030 targets for indicator 4.1.4 is 100%. However, progress towards the target is slow in many countries since 2015 and an intermediate less ambitious target may stimulate. For example, such a target could be set by looking at the completion rates achieved by countries in middle-income regions, such as Latin America and the Caribbean. However, defining a meaningful target would mean the need to make significant investment in the analysis of the underlying causes of low completion, so a country can be realistic about its prospects. Hence, there is a need to discuss options that may be more modest in the pursuit of higher completion rates in countries that are significantly below the rates of middle-income countries.

5.1. Option 1: Maintain the flexible definition of the 2030 target

This option should call for a flexible, individual 2030 target, with language indicating that countries should define their own target rates for primary, lower secondary, and secondary, based on their own assessment of what would be possible to achieve under their conditions. The main disadvantage of this approach is that it could lead to underperformance because it would release internal political pressure from low and middle-income countries with currently low completion rates.

5.2 Option 2: Use middle income countries as reference targets for 2030

Because the SDG 4 agenda has many interlocking components, many of the underlying issues affecting low completion would be resolved as part of the overall effort to reach the SDGs. Hence, defining the 2030 target for low performers in terms of reaching parity with middle income countries in Latin America could be an attainable goal. The current average indicator values for Latin America and the Caribbean are: 91% for primary, 81% for lower secondary, and 62% for upper secondary.

5.3. Option 3: Define 2030 targets selectively for low and for middle-income countries but specify a minimum completion rate.

This option is a variant of Option 1, with the proviso that completion rates should go above a minimum threshold. Because countries with very low completion rates could improve faster than countries closer to 100%, it can be proposed that minimum levels for the indicator be defined by a non-linear table of improvements. For example:

Table 3. Minimum Completion Rates proposed for 2030

Education Level	Current Completion Rate	Minimum Proposed Rate
Primary	50 or lower	80
Lower Secondary	40 or lower	60
Upper Secondary	30 or lower	50

6.   Issues for Discussion

Given these three options the discussion should answer some key questions:

   I.   Is more flexibility in the 2030 target realistic, or would reducing the parity target for some countries would discourage them to be more aggressive about school completion?

  II.   Which of the following issues should be of priority for analysis in order to target school completion effectively?

 III.   Enrolment in pre-primary programs of good quality

 IV.   Delayed entry into primary

  V.   Teacher pedagogical training

 VI.   Causes of early school leaving (e.g. grade repetition, lack or insufficient provision of educational opportunities)

VII.   Low returns to completed primary education

Indicator 4.2.2: Ensure universal access to quality early childhood development, care and pre-primary education

The objective of this session is to develop a consensus on some pending issues related to indicator 4.2.2, which reports on the percentage of girls and boys receiving pre-primary care and education.

1. Indicator Definition, Proposed Benchmark and 2030 Targets

4.2	Target 4.2: By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education
4.2.2	Participation rate in organized learning (one year before the official primary entry age), by sex

Indicator 4.2.2 measures the provision of quality early childhood development, care, and preprimary education. It is calculated by dividing the number of enrolled children one year younger than the required age for entering primary, by the total number of children of the same age, and expressing the ratio as a percent. A high percentage indicates that the system is performing well in preparing children for primary school.

The SDG 4 indicator proposes that, by 2030, **all** girls and boys will have access to early childhood development programs of good quality, as well as access to child care and to good quality pre-primary education.[7] This goal has a simple purpose: to improve the level of preparedness of children and be ready for primary education.

The main idea behind this indicator is to account for the proportion of children who are exposed to organized learning activities in the year prior to their entry into primary school. There is a consensus from the literature indicating that children participating in early childhood education benefit from improvements in their cognitive and social development, and that improvement leads to better school performance that can last for several years.[8]

2. Data Sources

This indicator is estimated on the basis of enrolment data by age, provided by the Ministry of Education, and by population by age data provided by the national statistical office. The indicator can also be calculated using data from household surveys that have information on school attendance by single year of age.

The main issues with indicator 4.2.2 are: (i) in many countries, preschool programmes are not full time, which reduce the intensity of preparedness for children and, by implication, their readiness to enter primary, and (ii) the absence of comparable minimum standards (e.g. the definition of core learning programmes and the time children spent in these programmes), which are still in process of being defined.

3. What the Data Show

UNESCO Institute for Statistics, as the custodian and repository of education data from administrative sources, household surveys, and learning outcomes publishes education data and indicators necessary for the monitoring of SDG4. Many of these statistics are produced based on international standards while a few are

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[7] UNESCO Institute for Statistics, 2018. *Quick Guide to Education Indicators for SDG 4*. Montreal: UIS Publishing.
[8] Barnett, William S., and Milagros Nores, 2012. "Investing in Early Childhood Education: A Global Perspective." National Institute for Early Education Research, Graduate School of Education, Rutgers University. https://www.researchgate.net/publication/277555787_Investing_in_Early_Childhood_Education_A_Global_Perspective

produced using standards that are defined separately by each country, without expectations as to comparability across countries. Table 1 shows aggregates by region based on the latest data reported by countries (2014 and later) on indicator 4.2.2. Since different quality standards can be expected among countries with different levels of income and socioeconomic development, caution should be exercised when comparing 4.2.2 data across countries.

Table 1. Adjusted net enrolment rate (NERA) one year before the official primary school entry age, 2017 or latest year available

Region	Both sexes	Female	Male
Sub-Saharan Africa	42.3	42.0	42.6
Percent of countries reporting data	63	60	60
Northern Africa and Western Asia	52.2	51.1	53.3
Percent of countries reporting data	63	67	67
Central and Southern Asia	…	…	…
Percent of countries reporting data	50	50	50
Eastern and South-eastern Asia	87.1	88.1	86.8$_a$
Percent of countries reporting data	67	67	67
Oceania	83.0	82.8	83.3
Percent of countries reporting data	77	77	77
Latin America and the Caribbean	94.6	95.4	93.8
Percent of countries reporting data	71	71	71
Europe and Northern America	95.3	95.6	95.1
Percent of countries reporting data	83	83	83

Source: Estimated with data from UNESCO Institute for Statistics Database (http://data.uis.unesco.org/)
Note: '…': data not available

The percentage of children participating in early childhood education programs during the year prior to entering primary school is high in Europe and Northern America, and in Latin America and the Caribbean, often surpassing 90%, and with more than 70% of countries reporting data on this indicator. Inversely, lower participation rates, and lower reporting percentages are observed in Sub-Saharan Africa and Northern Africa and Western Asia.

However, the distance in the participation rates between the regions can be surmounted in the medium term, as the evidence show that many countries that now are in the 80% range were 60% range ten years ago.[9]

4. Strengths and Weaknesses

The main strength of indicator 4.2.2 is its simplicity, which yields clear information at a simple glance. Such simplicity allows policy makers to monitor their efforts at improving school readiness, and to judge the effectiveness of the resources allocated to preprimary education. The weaknesses of indicator 4.2.2 is the lack

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[9] See Figure 9.2 in UNESCO, 2019. *Migration, Displacement, and education: Building bridges, not walls*. Global Education Monitoring Report 2019. Paris: UNESCO Publishing. https://en.unesco.org/gem-report/report/2019/migration

of clear standards in terms of hours of attendance, definition of minimum cognitive and psychosocial activities that children should participate in, and defined quality of care. Hence, the indicator measures the participation rate of children to organized learning but not the intensity of the programme, which limits the ability to draw conclusions on the extent to which target 4.2 is being achieved.

5. Proposed Options

Although the indicator measures the proportion of enrolled children who are one year younger than the age of entry to primary school, many poor countries may find this definition as too lax or too restrictive. In the former case, there are low and middle-income countries that have children who are two years younger than the mandatory age for primary already attending preschool. For those countries, indicator 4.2.2 underestimates their effort at child preparedness, suggesting that resources allocated to pre-primary education have low effectiveness. For other low and middle-income countries, indicator 4.2.2 may yield an inaccurate picture of their efforts at child preparedness in areas where children enter primary school one or two years above the mandatory age. The issue of overage relates to factors other than the resources allocated to pre-primary education. The following options may be considered for 4.2.2:

5.1 Option 1: Maintain the current definition and the 2030 target

The first option is to *keep the existing definition and proposed target of universal access*. In this case, many low and middle-income countries would present a low indicator value due to a low participation of children of the appropriate age. Consequently, countries may have to create policies aimed at expanding supply of pre-primary education, and ensuring universal participation of children at the appropriate age. These policies may have a different set of actions than those required to improve child readiness, and may strain MOE budget and resources further.

4.2 Option 2: Maintain the current definition but reduce the 2030 target to 90%

The second option would be to maintain the current definition, but instead of universal access as currently set for 2030, lower the target for low and middle-income countries to a minimum realistic target by 2030. Such a minimum target could be defined based on trend from the most performing countries in the group or in consideration to the percentage found in high-income countries (see the Annex).

6. Issues for Discussion

  i.   Would assigning a 2030 minimum realistic target tailored to low and middle income countries stimulate them more than the current universal target assigned globally?

 ii.   How best could such a minimum realistic target be determined?

iii.   Concerning data quality:

1. Improving metadata about children participation into the learning programmes

2. Improving consistency in the definition of learning programmes across data sources

Indicator 4.3.3: Ensure Equal Access to Technical and Vocational Education for Young Adults

The objective of this session is to develop a consensus on some pending issues related to indicator 4.3.3, which reports on the participation rate of youth and young adults ages 15 to 24 in Technical and Vocational Education programs.

1. Indicator Definition, Proposed Benchmark and 2030 Targets, and Data Sources

4.3	**By 2030, ensure equal access for all women and men to affordable quality technical, vocational and tertiary education, including university**
4.3.3	Participation rate in technical-vocational programs (15- to 24-year-olds)

Youth unemployment is one of the most important political issues in the world today. Technical and Vocational Education and Training (TVET) is considered as a keystone of a broad-based approach to increase job opportunities for young adults. The SDG 4 agenda calls for significant improvements in the participation of youth in TVET, as all evidence suggest that there is a pent-up demand for it. Over the next decade there will be a need to create 475 million new jobs to absorb the 73 million unemployed youth, and the 40 million per year new entrants into the labor market (UNESCO 2016).[10] A large share of these jobs call for skills that are directly provided by TVET.

The SDG 4 agenda calls for an increase in youth access to TVET, but it does not call for specific targets, as each economy has its own equilibrium point between formal university training and technical and vocational training. However, the evidence around the world is fairly clear: youth needs significantly increased access to TVET.

The SDG 4 indicator 4.3.1 measures the participation rates of youth and adults in formal and non-formal education and training in the previous 12 months, by sex, and indicator 4.3.3 measures the percentage of youth and adults 15-24 years participating in technical vocational in a given time period in a given year. Although the methodology related to indicators of participation in formal education and training is well-established throughout most countries, the methods to measure participation in non-formal education and training vary substantially worldwide.[11]

2. What the data show

UNESCO Institute for Statistics, as the custodian and repository of education data from administrative sources, household surveys, and learning outcomes publishes education data and indicators necessary for the monitoring of SDG4. Many of these statistics are produced based on international standards while a few are produced using standards that are defined separately by each country, without expectations as to comparability across countries. Table 1 shows the regional averages of the participation rates of youth in TVET programmes in 2017. Since different quality standards can be expected among countries with different levels of income and socioeconomic development, caution should be exercised when comparing 4.3.3 data across countries.

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[10] UNESCO, 2016. *UNESCO Strategy for Technical and Vocational Education and Training (TVET) 2012-2016*. Paris: UNESCO Publishing.
[11] UNESCO Institute for Statistics, 2018. *Quick Guide to Education Indicators for SDG 4*. Montreal: UIS Publishing.

Table 1. Participation rate (%) in technical-vocational education, 15- to 24 year-olds, 2017 or latest available year

Region	Both sexes	Female	Male	Region	Both sexes	Female	Male
Sustainable Development Goal Regions				**UIS Regions**			
World	**3.53**	3.10	3.94	World	3.53	3.10	3.94
Landlocked Developing Countries	3.77	3.55	4.24	Arab States	4.41	3.49	5.17
Least Developed Countries	1.09	0.81	1.46	Central and Eastern Europe	16.48	15.09	17.81
Small Island Developing States	2.71	2.43	2.95	Central Asia	12.47	12.13	12.69
Sub-Saharan Africa	**1.12**	0.95	1.26	East Asia and the Pacific	2.63	2.25	2.94
Northern Africa and Western Asia	**8.10**	7.17	8.89	Latin America and the Caribbean	6.30	6.42	6.19
Northern Africa	6.73	5.47	7.73	North America and Western Europe	9.53	8.46	10.56
Western Asia	9.29	8.65	9.91	South and West Asia	0.81	0.42	1.27
Central and Southern Asia	**1.26**	0.87	1.70	Sub-Saharan Africa	1.12	0.96	1.26
Central Asia	13.72	13.32	13.96	Small Island Developing States	2.79	2.51	3.04
Southern Asia	0.81	0.42	1.27	**World Bank Income Groups**			
Eastern and South-eastern Asia	**2.44**	2.08	2.74	Low income countries	0.91	0.79	1.24
Eastern Asia	0.87	0.74	0.99	Lower middle-income countries	2.37	1.91	2.77
South-eastern Asia	5.26	4.50	5.88	Middle income countries	3.00	2.62	3.32
Latin America and the Caribbean	**6.31**	6.42	6.19	Upper middle-income countries	3.93	3.69	4.15
Oceania	**12.73**	11.50	13.89	High income countries	9.33	8.29	10.32
Oceania (Australia/New Zealand)	18.60	17.11	20.01				
Oceania (excl. Australia/New Zealand)	2.01	1.24	2.71				
Europe and Northern America	**10.30**	9.11	11.44				
Europe	16.59	14.67	18.41				
Northern America	…	…	…				

Source: UNESCO Institute for Statistic (UIS) database.
Note: '…': data not available.

The results from Table 1 show that youth participation in TVET is low in several regions of the world. Europe has been a world leader in incorporating youth into the labor force through vocational and training programs, and its indicator should be considered as the top end of the spectrum. Sub-Saharan Africa and Central and Southern Asia show the lowest participation rates. Part of the problem with low rates is that in many countries youth are trained informally, in the informal economy, with training provided by friends and family members. The problem with this informal approach is that it lowers a person ability to transfer its skills to the formal sector, which normally requires credentials. In regard to participation by sex, the participation rates for male are higher than those for female in all regions except Latin America and the Caribbean.

3.   Strengths and Weaknesses

The main strength of indicator 4.3.3 is its simplicity, which yields clear information at a simple glance. Such simplicity allows policy makers to monitor their efforts at improving participation rates, and to judge the

effectiveness of the resources allocated to improving equity in education. The weaknesses of indicator 4.3.3 include: (i) Participation rates do not capture the intensity or quality of the provision nor the outcomes of the education and training received; (ii) the lack of information about the links between TVET and the job skills required by the labor market.

4. Proposed Options

The proposed 2030 target is left to each individual country, but to be realistic, one should look to European countries as a guide to determine the likely ceiling in participation rates. However, such a target would mean the need of significant increases in the financing of TVET infrastructure, data systems, teacher training, monitoring, and accountability. Hence, there is a need to discuss options that may be more modest in the pursuit of educational equity in countries that are far from achieving suitable rates of youth participation in TVET in the next decade.

4.1 Option 1: Maintain the flexible definition of the 2030 target

The first option is to *keep the existing definition and flexible target in participation rates*. In this case, many low and middle-income countries would try to improve their participation rates at their own pace, keeping in mind the human and financial resources need for other areas of education. Flexibility in the 2030 target may be inevitable and would depend on a country's education strategy for 2030, along with the required resources to fulfill the other SDG 4 targets. In addition, a flexible 2030 target may be a reasonable approach if the country does not have a clear approach for economic growth, which would promote a higher demand for skilled labor.

Option 2: Use Europe and North America's participation rate as the 2030 target

The second option uses the European participation rate—currently at 10.3%--as the target for other regions. For Latin America and the Caribbean this target is feasible, but it may prove difficult for Sub-Saharan Africa, However, this target should be a part of the discussion, as it is important to remember that youth employment is a crucial component of political stability in many parts of the world.

From Table 1 it is clear that the participation rate of Australia and of many countries in Europe and North America are above the threshold. Those countries should maintain their own targets. The idea here is for countries that are below these thresholds to step up their efforts and address this very important policy issue.

5. Issues for Discussion

Given these options the discussion should answer some key questions:

   I.   Is more flexibility in the 2030 target realistic, or would reducing the parity target for some countries would discourage them to be more aggressive about access to TVET?

   II.   Which of the following TVET issues should be of priority?

         3.   Recruitment and retainer of formally trained TVET teachers

         4.   Incorporation of private sector training into the TVET accreditation process

         5.   Setting of training standards for different skills

         6.   Addition of TVET activities better related to job market demands

         7.   Routine measurement and reporting of job skills and salaries to guide youth in their TVET search.

Indicator 4.5.1: Ensure Equal Access to All Levels of Education and Training for the Vulnerable

The objective of this session is to develop a consensus on some pending issues related to indicator 4.5.1, which reports on gender parity in educational access, and parity for vulnerable groups.

1. Indicator Definition, Proposed Benchmark and 2030 Targets, and Data Sources

4.5	Target 4.5: By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations
4.5.1	Parity indices (female/male, rural/urban, bottom/top wealth quintile and others such as disability status, indigenous peoples and conflict-affected, as data become available) for all education indicators on this list that can be disaggregated

The indicator for gender disparity broadly refers to the degree of fairness received by girls and boys in society. The parity index for education is the key indicator that will be used for global monitoring across all disaggregated indicators. As a result, equity-related indicators account for the largest share of the data needed to monitor SDG 4 as a whole.

Indicator 4.5.1 requires data for the specific groups of interest. Parity indices represent the ratio of the indicator value for one group to that of the other. Typically, the likely more disadvantaged group is the numerator.

- The Gender Parity Index (GPI) in education which measures how participation and/or learning opportunities available for girls is related to those available to boys is defined, for instance for the Gross Enrolment Ratio (GER) in primary education, as the GER for girls divided by that for boys;

- The Location Parity Index (LPI) which compares the performance level for a given indicator between rural and urban areas is defined, for instance for primary completion rate (PCR), as the PCR for population living in rural location divided by the PCR for population living in urban location;

- The Wealth Parity Index (WPI) which measures inequality between different wealth groups is defined, for instance between the poorest and richest household quintile, as the value of a specific indicator for the poorest 20% of population divided by the value for the richest 20%.

A parity index value of exactly 1 indicates parity between the two groups of interest. A parity index of value lower than 1 indicates that the indicator value is higher for the advantaged group than the disadvantaged group. A parity index value greater than 1 indicates that the indicator value is higher for the disadvantaged group than the advantaged group. The further from 1 the parity index is, the greater the disparity between the two groups of interest.

As example of parity index calculation, the gender parity index (GPI) in Table 1 shows the ratio of the gross enrolment rate for girls over the gross enrolment rate for boys. If both rates were exactly equal, the value of the ratio would be 1. However, since the enrolment rate of girls is lower than the enrolment rate of boys, the GPI is less than 1, indicating a disadvantage for girls that would need to be corrected.

Table 1. Example of a calculation of the parity index for primary school enrolment

	Boys	Girls
Number of children enrolled in primary school	2,500,600	2,000,000
Total number of children of primary age in the country	2,750,000	2,750,000
Gross enrollment rate for primary	90.9%	72.7%
Gender parity index (GPI) for girls	72.7/90.9 = **0.8**	
Adjusted Gender Parity Index (GPIA)	2-1/0.8 = **0.75**	

If the difference between the indicators for girls and for boys in a given group is too large, it may make a big difference in interpretation. In table 1, for example, if enrollment for girls and boys was reversed, then the GPI would be 90.9/72.7 = 1.25. This reversal gives a false impression of distance between the indicator 1.25 and 1.0, the value of perfect parity, since the distance between 0.8 and 1 is shorter than the distance between 1 and 1.25. To compensate of this shortcoming the GPI is adjusted by bounding with upper and lower limits: GPIA = 2-(1/GPI). In the above example, the distance between the GPIA for girls/boys and 1 is 0.25. which is the same as the distance between the ratio of indicators boys/girls.[12]

The SDG 4 target 4.5 proposes that, by 2030, all disparities between gender, and between the mainstream children population and disadvantaged groups should be eliminated. In the case of gender, most countries show considerable progress in girl's enrolment, to the point that in some countries, boys are the disadvantaged group. However, disparities for the disabled, for rural dwellers, and the poor, need to be reduced substantially.

UIS only reports the adjusted parity index GPIA, as shown in the Annex. Data for each indicator of parity is provided by the same sources of other indicators, as the GPI is the ratio of an indicator.

2. What the data show

UIS as the custodian and repository of education data from administrative sources, household surveys, and learning outcomes publishes education data and indicators necessary for the monitoring of SDG4. Many of these statistics are produced based on international standards while a few are produced based on standards that are defined separately by each country, without expectations as to comparability across countries. Table 1 shows the latest results for GPIA by SDG regions. Although the reference year is 2017, most countries report data from assessments made as early as 2014. Since different quality standards can be expected among countries with different levels of income and socioeconomic development, caution should be exercised when comparing 4.5.1 data across countries.

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[12] If the GPI has boys in the numerator, then GPIA = 2-1/(90.9/72.7) = 1.25, and the distance between the GPIA and 1 is also 0.25. See http://uis.unesco.org/en/glossary-term/adjusted-parity-index.

Table 2. Median Adjusted Gender Parity Index (GPIA) for completion, literacy, and enrolment, 2017 or latest year available

Region	GPIA in completion			GPIA in literacy rate		GPIA in gross enrolment ratio			
	Primary	Lower sec.	Upper sec.			Pre-primary	Primary	Sec.	Tertiary
				Youth	Adults				
Sub-Saharan Africa									
Median GPIA	1.02	0.86	0.77	0.88	0.75	1.02	0.96	0.95	0.75
Percent Reporting	60.4%	60.4%	60.4%	52.1%	54.2%	81.3%	91.7%	77.1%	72.9%
Northern Africa and Western Asia									
Median GPIA	…	1.02	1.05	1	0.95	1	0.99	1	1.19
Percent Reporting	25.0%	33.3%	33.3%	41.7%	41.7%	79.2%	87.5%	87.5%	83.3%
Central and Southern Asia									
Median GPIA	1	1	0.94	1	0.99	0.97	1	1	0.89
Percent Reporting	50.0%	50.0%	57.1%	57.1%	57.1%	92.9%	100%	92.9%	100%
Eestern and South-eastern Asia									
Median GPIA	1.02	1.08	1.15	1	0.96	1	0.99	1.01	1.15
Percent Reporting	44.4%	44.4%	44.4%	44.4%	44.4%	83.3%	94.4%	83.3%	94.4%
Oceania									
Median GPIA	…	…	…	…	…	1.01	0.99	1.05	…
Percent Reporting	0.0%	0.0%	0.0%	11.8%	11.8%	88.2%	100%	76.5%	17.6%
Latin America and the Caribbean									
Median GPIA	1.01	1.09	1.11	1.01	1	1.02	0.97	1.04	1.27
Percent Reporting	46.3%	46.3%	46.3%	46.3%	48.8%	68.3%	68.3%	68.3%	48.8%
Europe and Northern America									
Median GPIA	…	1.00	1.04	…	…	0.99	1	0.99	1.23
Percent Reporting	10.9%	76.1%	76.1%	10.9%	10.9%	87.0%	91.3%	91.3%	91.3%

Source: UNESCO Institute for Statistic (UIS) database.
Note: '…' data not available

The results from Table 2 show that the GPIA is above 1 in most regions, with the notable exception of Sub-Saharan Africa, where completion rates of primary school, literacy rates, and enrolment, are lower for girls, as the GPIA is below 1. It should also be noted that the GPIA is underreported, especially in Oceania. Therefore, the above numbers may not accurately represent the real situation in the world, since the data from most countries is not beingreported to UIS. The macro view of gender parity in Table 1 is very different from the country by country view shown in the Annex for all kinds of indicators. However, the indicators summarized in Table 1 can serve as a bellwether for the performance of gender parity in the education system of any country.

Table 3 shows the GPIA for differences in rural/urban location, and for poorest/richest income quintiles in the completion of primary and lower secondary school. The GPIA indices are very different than in Table 1, showing that one thing is to look at enrolment, and another to look at completion. The differences between rural and urban students, and between poorer and richer students reflect large disparities that need to be addressed quickly if the target of complete parity is to be achieved in 2030.

Table 3. Median Adjusted Gender Parity Index (GPIA) for location and wealth, 2017 or latest year available

	Disparity in primary completion				Disparity in lower secondary completion			
	Adjusted parity index		% of poorest completing		Adjusted parity index		% of poorest completing	
	Location	Wealth	M	F	Location	Wealth	M	F
Sub-Saharan Africa								
Median GPIA	0.67	0.45	33	34	0.42	0.15	14	5
Percent Reporting	58.3%	58.3%	58.3%	58.3%	58.3%	58.3%	58.3%	58.3%
Northern Africa and Western Asia								
Median GPIA	…	…	…	…	0.95	0.81	70	75
Percent Reporting	25.0%	25.0%	25.0%	25.0%	33.3%	33.3%	33.3%	33.3%
Central and Southern Asia								
Median GPIA	0.99	0.82	81	80	0.94	0.62	62	56
Percent Reporting	42.9%	42.9%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Eastern and South-eastern Asia								
Median GPIA	0.96	0.81	77	86	0.81	0.52	45	60
Percent Reporting	44.4%	44.4%	44.4%	44.4%	44.4%	44.4%	44.4%	44.4%
Oceania								
Median GPIA	…	…	…	…	…	…	…	…
Percent Reporting	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Latin America and the Caribbean								
Median GPIA	0.95	0.92	88	92	0.81	0.62	55	63
Percent Reporting	46.3%	48.8%	48.8%	48.8%	43.9%	43.9%	43.9%	43.9%
Europe and Northern America								
Median GPIA	…	…	…	…	1	0.99	98	98
Percent Reporting	8.7%	10.9%	10.9%	10.9%	71.7%	71.7%	71.7%	71.7%

Source: UNESCO Institute for Statistic (UIS) database.
Note: '…' data not available

As in the case of enrolment, there are many countries that do not report parity data, which reduces the effectiveness of the indicator as a tool for monitoring progress in SDG 4.

3. Strengths and Weaknesses

The main strength of indicator 4.5.1 is its simplicity, which yields clear information at a simple glance. Such simplicity allows policy makers to monitor their efforts at improving gender parity, and to judge the effectiveness of the resources allocated to improving equity in education. The weaknesses of indicator 4.5.1 is the lack of clear evidence from most countries, which reduces the ability to monitor educational progress within SDG 4. While the GPI helps explain how participation in and opportunities for schooling compare for females and males, it does not show whether improvement or regression is due to the performance of one or the other sex. In regard to progression overtime, parity in GPI for an indicator does not necessarily mean that the educational situation for a gender group has improved. Instead, it may mean that participation or opportunities for the other gender group have declined. In regard to robustness, parity indices could be biased if produced based on data from small sample sizes.

4. Proposed Options

Achieving perfect parity is an ambitious target, especially in relation to wealth and poverty. The amount of effort for achieving parity between mainstream and vulnerable groups requires well targeted compensatory policies, and significant increases in financing of infrastructure, data systems, teacher training, monitoring, and accountability. Hence, there is a need to discuss options that may be more modest in the pursuit of educational equity in countries that are far from achieving parity.

4.1 Option 1: Maintain the current definition and the 2030 target

The first option is to *keep the existing definition and proposed target of complete parity*. In this case, many low and middle-income countries would present a low indicator due to the fact that the incidence of poverty is higher than in other countries, which in turn would require massive funding of targeted programs that would address the deficiencies in education supply and education quality in poor areas. Aside from the large funding requirements, countries with low parity indices are likely to have managerial issues, as there is a correlation between poverty and access to trained human resources in all levels of education.

4.2 Option 2: Maintain the current definition but reduce the 2030 target to 80% of perfect parity.

The second option maintains the current definition, but propose flexibility to accommodate low and middle-income countries by reducing the 2030 target to a median parity index of 0.8 instead of 1.0. However, deciding which countries would follow this more lenient target is open to discussion.

4.3 Option 3: Apply the 2030 target selectively

This option would select some vulnerable groups for full compliance of complete parity, and reduce the target to a more realistic range of 0.7 or 0.8 for some key issues, like poverty.

5. Issues for Discussion

Given these three options the discussion should answer some key questions:

I.   Is more flexibility in the 2030 target realistic, or would reducing the parity target for some countries would discourage them to be more aggressive about educational equity?

II.   Which of the following parity issues should be selected for a lower target?

1. Enrolment in all levels of education, including tertiary

2. Completion of primary and lower secondary education

3. Achieving minimum proficiency levels in primary and lower secondary

4. Youth and adult literacy rates

5. Adult proficiency in reading and math

6. Parity across income levels for the above indicators

Indicator 4.c.1: Increased Supply of Qualified Teachers

The objective of this session is to develop a consensus on some pending issues related to indicator 4.c.1, which reports on teacher training, with emphasis in least developed countries and small island States, with the objective of increasing teacher quality.

1. Indicator Definition, Proposed Benchmark and 2030 Targets, and Data Sources

4.c	**Target 4.c: By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small island developing States**
4.c.1	Proportion of teachers in: (a) pre-primary education; (b) primary education; (c) lower secondary education; and (d) upper secondary education who have received at least the minimum organized teacher training (e.g. pedagogical training) pre-service or in-service required for teaching at the relevant level in a given country, by sex

This indicator is defined as the percentage of teachers in each level of education where they teach (pre-primary, primary, lower secondary and upper secondary education), who have received at least a minimum level of training in pedagogy. This training could be done pre-service and/or in-service and it should be required for teaching at the relevant level in a given country. Ideally, the indicator should be calculated separately for public and private institutions (UNESCO Institute for Statistics 2018).[13] A high percentage of trained teachers in each education level is considered important for student's learning and school performance. Because teacher training is commonly recorded at the school level, administrative records are the best source of data for this indicator.

Indicator 4.c.1 only recommends for an increase in the supply of trained teachers, so the objective of this session is to discuss a realistic target that could be proposed for 2030.

2. What the Data Show

According to the latest data available, the percentage of teachers who have received pre-service and/or in-service training is high in most regions, except Sub-Saharan Africa (Table 1). In fact, for primary school teachers, the reported data shows that, on average, more than 90 percent of them fulfill the minimum training requirement for the grade they teach, and the lower performer is Sub-Saharan Africa, where 82 percent of teachers have meet this minimum training requirement. If that is the case, then there is a need to explain why teacher quality needs substantive improvement worldwide (World Bank 2018).[14] Obviously, a good quality education also depends on a myriad of other factors, but teacher training is the necessary, albeit insufficient, condition for learning. Hence, this session focuses on this issue, while being aware that it is not the only issue influencing student learning.

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[13] UNESCO Institute for Statistics, 2018. *Quick Guide to Education Indicators for SDG 4*. Montreal: UIS Publishing.
[14] World Bank, 2018. *Learning to Realize Education's Promise. World development Report*. Washington DC: World Bank. https://www.worldbank.org/en/publication/wdr2018

Table 1. Percentage of teachers who have received at least the minimum pre-service or in-service pedagogical training required to teach at the relevant level of education, both sexes, 2017 or latest year available

	% of trained classroom teachers		
	Pre-Primary	Primary	Secondary
Sub-Saharan Africa	48	64	50
Northern Africa and Western Asia	84	84	80
Northern Africa	82	84	78
Western Asia	86	...	...
Central and Southern Asia	...	72	...
Central Asia	89	99	96
Southern Asia	...	71	...
Eastern and South-eastern Asia	...	...	...
Eastern Asia	...	...	...
South-eastern Asia	94	97	94
Oceania	...	...	...
Latin America and the Caribbean	80	89	80
Caribbean	...	...	...
Central America	...	...	...
South America	...	...	...
Europe and Northern America	...	...	...
Europe	...	...	...
Northern America	...	...	...

Source: UNESCO Institute for Statistic (UIS) database.
Note: '...' data not available.

At the country level, the data from other countries and for Sub-Saharan Africa show large degrees of variation (see the Annex and Table 2 below). The fact that some countries like Burundi, Cote d'Ivoire, Djibouti, and Mauritius in Table 2 can report that 100% of their primary school teachers have received the required training for teaching in primary, suggests that full compliance with the 2030 target is certainly possible. However, one needs to take these reports cautiously, as it should be obvious that the quality of training, and the incentives to use that training in the classroom, are issues that may hamper the impact of training on student learning.

Table 2. Percentage of teachers who have received at least the minimum pre-service or in-service pedagogical training required to teach at the relevant level of education, both sexes, 2017 or latest year available

Region	% of trained classroom teachers		
	Pre-Primary	Primary	Secondary
Sub-Saharan Africa			
Angola	...	...	51
Benin	26	68	18
Botswana	55	99	...
Burkina Faso	34	86	58
Burundi	100	100	100
Cabo Verde	29	93	94
Cameroon	67	81	54
Central African Republic	...	...	45
Chad	52	65	53
Comoros	56	51	86
Congo	...	...	...
Côte d'Ivoire	100	100	100

Region	% of trained classroom teachers		
	Pre-Primary	Primary	Secondary
D. R. Congo	21	95	24
Djibouti	...	100	100
Equatorial Guinea	89	37	...
Eritrea	40	41	83
Eswatini	...	70	73
Ethiopia	...	...	...
Gabon	...	...	...
Gambia	69	88	95
Ghana	46	55	76
Guinea	...	75	...
Guinea-Bissau	...	...	...
Kenya	82	...	...
Lesotho	100	87	89
Liberia	...	47	62
Madagascar	10	15	21
Malawi	...	91	66
Mali	...	...	...
Mauritania	...	85	97
Mauritius	100	100	55
Mozambique	...	97	85
Namibia	...	...	...
Niger	95	66	11
Nigeria	...	...	...
Rwanda	43	93	58
Sao Tome and Principe	28	27	36
Senegal	37	75	77
Seychelles	86	83	89
Sierra Leone	37	54	70
Somalia	...	...	...
South Africa	...	...	100
South Sudan	...	...	...
Togo	63	73	...
Uganda	60	80	...
United Republic of Tanzania	50	99	...
Zambia	...	...	...
Zimbabwe	27	86	73
Percent Reporting	60.8%	70.8%	64.6%

Source: UNESCO Institute for Statistic (UIS) database.
Note: '...' data not available.

3. Strengths and Weaknesses

The main strength of indicator 4.c.1 is its simplicity, which yields clear information at a simple glance. Such simplicity allows policy makers to monitor their efforts at improving the percentage of trained teachers in the country, and to judge the effectiveness of the resources allocated to improving equity in education by also monitoring learning outcomes. The weaknesses of indicator 4.c.1 is the lack of information on the quality, relevance, and use of the training in the classroom; information on the duration of training and its association with learning, and on the incentive structure for teachers that would allow them to apply themselves and use their training more effectively. Also, national minimum training requirements can vary from one country to the

next. Further work would be required if a common standard for teacher training is to be applied across countries.

4.   Proposed Options

Accounting for the proportion of teachers that have received formal training—either pre-service or in-service—is a first step in a policy aimed at improving teacher quality. As imperfect an indicator of teacher quality as 4.c.1 could be, it is still a valid first step, as the data show that large segments of the teacher labor force in the poorer countries in the world need to undergo formal training of any kind.

4.1 Option 1: Define the 2030 target

Indicator 4.c.1 does not specify a 2030 target; it just calls for substantial increases in teacher training. Hence, a first proposal would be to have all countries to reach **a target of 100% of all teachers** to have undergone formal training by 2030. This may look ambitious, but it actually requires careful management of teacher attrition and replacement to ensure that in12 years from now, all retiring teachers are replaced by teachers with formal pre-service training, and with more appropriate in-service training for those not yet retired.

4.2 Option 2: Maintain the 100% target for all countries, but reduce the 2030 target to 80% for those countries in the lowest quintile of the indicator

In essence, this option calls for more flexibility for those countries that are lagging well behind the others. On the positive side, 80% may be a more realistic goal for many countries, which in turn would help them keep them engaged on this issue and not get discouraged. On the other hand, it may lead to complacency. This is a clear topic for discussion.

4.3 Option 3: Leave the 2030 target undefined

It is clear that countries understand that teachers need to have formal training. However, training has a context, and the poorer and least developed countries may need to assign their scarce human resources in education to solving other issues such as school management, measurement and reporting data, and school accountability, letting teacher training be a by-product of these policies, rather than a policy driver that may be less effective on student learning.

5.   Issues for Discussion

Given these three options, the discussion should answer some key questions:

I.   Is the 100% by 2030 target realistic, or would reducing the target for some countries advisable in light of the need to assign scarce resources to other issues affecting educational quality?

II.   Which of these education policies, if any, should take precedence over teacher training, if financing and human resources are scarce?

   1.   School-based management
   2.   Teacher accountability
   3.   Measuring and reporting learning outcomes
   4.   Defining and enforcing proficiency levels
   5.   None of the above

Indicator 4.e: Increased Public Expenditures in Education

The objective of this session is to develop a consensus on some pending issues related to indicator 4.e, which reports Government education expenditures in education as % of Gross Domestic Product (GDP); on Government per student expenditures as % of GDP per capita, and on Government expenditures in education as % of total Government expenditures.

1. Indicator Definition, Proposed Benchmark and 2030 Targets, and Data Sources

4.e	Government Education Expenditures. Proposed Target: By 2030 increase education expenditures as % of GDP; increase per student expenditures as % of GDP per capita, and increase the share of education expenditures in total government expenditures.
4.e.1	Government expenditure on education as % of gross domestic product
4.e.2	Government current expenditure per pupil (student) as % of per capita income
4.e.3	Government expenditure on education as % of total government expenditure

Government expenditure in education should reflect its commitment to SDG 4. At the macro level, the allocation of funds to education as % of GDP should increase in order to reach SDG 4 equity goals. Such an increase would help meet the 2030 SDG, as funds could be used to improve each of the SDG 4 indicators, such as the percent of students surpassing the minimum proficiency levels for reading and math, or the participation rate of young adults in TVET. The indicators 4.e proposed here, measures the financial commitment of Government to SDG 4 in three ways: (i) Increasing Government expenditure on education as % of gross domestic product; (ii) increasing Government current expenditure per pupil (student) as % of per capita income, and (iii) increasing Government expenditure on education as % of total government expenditure.

Although the basic goal is to increase education expenditures, such an increase should be accompanied by policies aimed at improving the effectiveness of expenditures, allocating funds where they would yield the most in the pursuit of SDGs. Which areas of education should be of priority in using any increases in expenditure will be covered in the issues for discussion.

Financing education has been analyzed within the context of SDG 4 and the 2030 agenda (UNESCO 2017).[15] However, it focuses on macro issues such as systemic corruption in education finance, external assistance, and results-based financing. Still, it proposes two *Education 2030 Framework for Action Indicators*: (i) public education expenditures as a share of GDP, and (ii) public education expenditure as a share of total public expenditures, both of which are the same as the ones discussed here. The third indicator proposed here: Government current expenditure per pupil (student) as % of per capita income, addresses more specific issue of financial equity, where countries allocate expenditures in relation to their national income. In absolute terms, a low-income country may allocate one-tenth of the funding allocated by a richer country, but may well make more effort if their per student spending is higher in terms of their per capita income.

2. What the Data Show

Government expenditures in the poorer regions of the world cover between 4% and 5% of GDP (Table 1). In general, developing countries tend to use these expenditures in primary education, although not enough is spent in pre-primary education and in TVET, and too much is spent in university education (Rose and Ortiz-

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[15] UNESCO, 2017. *Accountability in Education: Meeting our commitments*. Global Education Monitoring (GEM) Report 2017/18. Paris: UNESCO Publishing (https://en.unesco.org/gem-report/report/2017/accountability-education).

Ospina 2019; Vegas and Coffin, 2013).[16] However, when comparing per student expenditures, there is a wide variation (see tables A1 to A7 in the Annex for country-level indices). The median per student expenditure in pre-primary and primary students is highest in Europe and Northern America, with an expenditure per student of almost 18% of per capita income. In poorer countries in Sub-Saharan Africa, median per student expenditures are less than 6% of the per capita income. This indicator suggests that in terms of level of effort there is still room for improvement. Finally, in terms of prioritizing education within the Government budget, two of the regions, Northern Africa and Western Asia, and Eastern and South-eastern Asia, show a lower share of their budget allocation to education than the other regions in the world, suggesting also some room for improvement.

Table 1. Government expenditures in education by SDG Regions, 2017 or latest year available

Region	Government Expenditure in education as % of GDP	Government expenditure per pre-and primary student as % of GDP per capita	Public expenditure in education as % of total government expenditure
Sub Saharan Africa			
Average	4.17	10.19	15.61
Median	4.34	5.83	15.73
Northern Africa and Western Asia			
Average	4.45	13.54	12.94
Median	4.06	12.81	12.84
Central and Southern Asia			
Average	4.41	12.34	16.08
Median	4.09	8.86	15.70
Eastern South-eastern Asia			
Average	3.77	7.70	13.80
Median	3.58	4.86	12.47
Oceania			
Average	6.25	7.59	16.19
Median	5.01	6.12	15.33
Latin America and the Caribbean			
Average	5.23	11.07	18.19
Median	5.27	11.79	18.26
Europe and Northern America			
Average	4.96	18.90	12.34
Median	4.88	17.77	12.28

Source: UNESCO Institute for Statistics database (http://data.uis.unesco.org/)
Note: regional averages and medians are calculated based on reported countries only.

3.   Strengths and Weaknesses

The main strength of indicators 4.e.1, 4.e.2 and 4.e.3 is their simplicity, which yields clear information at a simple glance. Such simplicity allows policy makers to monitor their efforts at improving the percentage public funding of education. As such, these three indicators are simple bellwethers of the overall financial base of the public education sector. Still, the indicators have some weaknesses, including: (i) little information about how funds are spent; low-income countries tend to spend an overly high proportion of basic education funding in

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[16] Roser, Max, and Esteban Ortiz-Ospina, 2019. "Financing Education". Published online at *OurWorldInData.org*. https://ourworldindata.org/financing-education ; Vegas, Emiliana, and Chelsea Coffin, 2013. *What Matters Most for School Finance: A Framework Paper*. SABER Working Paper Series No.2. Washington DC: World Bank.

teacher salaries and too little in pedagogical materials or in the maintenance of infrastructure[17]; (ii) little information about the efficiency of expenditures, especially in terms of student learning, and (iii) low information about teacher effectiveness, as salaries are often unrelated to teacher quality. However, their weaknesses notwithstanding, these indicators are important as the basis for monitoring education funding, its progress through time, and its progress in relation to other sectors in government.

4. Proposed Options

The proposed options address minimum levels considered acceptable by the international community, and likely the multilateral lending agencies.

4.1 Option 1: Define the 2030 targets

This option is a key first step. It is very surprising to find how little has been done in the area of education financing within the context of the Education 2030 Framework on topics that countries could use to guide their budgetary allocation decisions. Most of the discussion has centered on the overall macro picture and on the prospects for donors (see for example: martin and Walker 2015, Sachs and Schmidt-Traub 2015, and ODI 2014)[18] but little about the practical fiscal and budgetary implications for countries. Hence, the first option would be to define the 2030 targets for each indicator. The following targets are proposed as points of departure for discussion:

Table 3. Proposed 2030 targets for discussion

Government expenditure on education as % of gross domestic product	Current Median	Target Median
4.e.1 Government expenditure on education as % of gross domestic product (GDP)	4.61	7
4.e.2 Government expenditure per pupil (student) as % of per capita income	12.57	15
4.e.3 Government expenditure on education as % of total government expenditure	13.89	15

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[17] UNESCO UIS and UNESCO IIEP, 2011. " Financing Education in Sub-Saharan Africa : Meeting the Challenges of Expansion, Equity and Quality ". (https://unesdoc.unesco.org/ark:/48223/pf0000192186).

[18] Martin, Matthew, and Jo Walker, 2015. "Financing the Sustainable Development Goals: Lessons from Government Spending on the MDGs." Research Report. London: Development Finance International and Oxfam. https://www-cdn.oxfam.org/s3fs-public/file_attachments/rr-financing-sustainable-development-goals-110615-en.pdf.

Sachs, Jeffery, and Guido Schmidt-Traub, 2015. "Financing Sustainable Development: Implementing the SDGs through Effective Investment Strategies and Partnerships." Third Conference on Financing for Development, Addis Ababa, 2015. New York: Sustainable Development Solutions Network (SDSN). https://pdfs.semanticscholar.org/ca9a/f2d591bdc06d855abbdfa874a39964f8bdd2.pdf.

Overseas Development Institute, 2014. "The 2014 Cape Conference: The role of finance in achieving the Sustainable Development Goals." Conference Report. London: Overseas Development Institute. https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/9391.pdf.

4.2 Option 2: Proposing a percentage bracket for the targets

Table 3. Proposing a percentage bracket for the targets

Government expenditure on education as % of gross domestic product	Target
4.e.1 Government expenditure on education as % of gross domestic product (GDP)	Spend annually at least 4% to 6% of GDP on education
4.e.2 Government expenditure per pupil (student) as % of per capita income	Spend annually at least 15% to 20% of per capita income per pupil (student)
4.e.3 Government expenditure on education as % of total government expenditure	Spend annually at least 15% to 20% of government expenditure on education

Unlike Option 1, Option 2 proposes a percentage bracket for the targets which considered the benchmarks endorsed in the Education 2030 Framework for Action and which can provide countries with more flexibility depending on how much and what resources they have available for education. A possible issue with both Options is that countries may have political and fiscal problems that are in the way of sustained budget allocations to education. However, this option would mean that, as long as countries push for yearly increases in the real allocations to education, they would likely be on track to meeting their SDG 4 goals eventually. Other issues may include : (i) a reduction in the political pressure on government to allocate more funds to education, and/or (ii) an increased reliance on external donor funds or external lending, which can affect the sustainability of the goals, which betrays the principle of sustainability explicit in the SDG name.

4.3 Option 3: From base year 2020, increase yearly expenditures in real terms by at least 5% over the previous year

This option calls for real increase (meaning, after accounting for inflation) of at least 5% per year between 2020 and 2030 on each of the three indicators. For example, if in 2020 a country spend 2.5% of its GDP on education, by the year 2030 the compounded increase would result in education expenditures equal at least to 4.1% of the GDP, which for example, falls in the target range proposed for that indicator in Option 2. Basically, Option 3 is a complement – not an alternative – to Options 1 and 2 as it is more relevant to countries which are not on track with achieving the targets proposed in these 2 Options.

5. Issues for Discussion

Given these options, the discussion should answer some key questions:

I.   Are the 2030 targets realistic, or would reducing the target for some countries advisable in light of fiscal and political restrictions faced by poor countries?

II.   Which of these education policies, if any, be seriously discussed within the context of increased education funding to meet the SDG 4 goals:

1. Increased dependence on donor assistance at the risk of non-sustainability

2. Reconfiguration of the Government budget in favor of education

3. Public-Private partnerships in education funding

4. Reconfigure the internal budget of education to increase its efficiency and reduce waste

5. None of the above/all of the above

Annex I. Tables for indicator 4.1.4[19]

Table A1. Completion rate by education level in Sub Saharan Africa (%), both sexes, 2017 or latest year available

Country	Primary	Lower secondary	Upper secondary
Angola	60	36	19
Benin	54	28	10
Botswana	…	…	…
Burkina Faso	…	…	…
Burundi	53	26	12
Cabo Verde	…	…	…
Cameroon	74	43	16
Central African Republic	…	…	…
Chad	27	14	10
Comoros	…	…	…
Congo	…	…	…
Côte d'Ivoire	57	28	16
D. R. Congo	69	53	26
Djibouti	…	…	…
Equatorial Guinea	…	…	…
Eritrea	…	…	…
Eswatini	70	51	32
Ethiopia	52	21	13
Gabon	…	…	…
Gambia	62	48	30
Ghana	66	52	20
Guinea	…	…	…
Guinea-Bissau	29	17	7
Kenya	84	71	42
Lesotho	65	27	11
Liberia	34	26	13
Madagascar	…	…	…
Malawi	47	22	14
Mali	48	28	16
Mauritania	53	36	16
Mauritius	…	…	…
Mozambique	…	…	…
Namibia	83	56	37
Niger	…	…	…
Nigeria	68	52	50
Rwanda	54	28	18
Sao Tome and Principe	83	34	8
Senegal	50	22	9
Seychelles	…	…	…
Sierra Leone	67	40	20
Somalia	…	…	…
South Africa	…	…	…
South Sudan	…	…	…
Togo	61	24	15

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[19] **Source:** Estimated with data from UNESCO Institute for Statistics Database (http://data.uis.unesco.org/)
   Note: '…': data not available

Country	Primary	Lower secondary	Upper secondary
Uganda	44	26	18
United Republic of Tanzania	80	29	8
Zambia	75	51	28
Zimbabwe	88	73	13
Percent Reporting	60.4%	60.4%	60.4%

Table A2. Completion rate by education level in Northern Africa and Western Asia (%), both sexes, 2017 or latest year available

Country	Primary	Lower secondary	Upper secondary
Algeria	94	57	29
Armenia	99	97	65
Azerbaijan	…	…	…
Bahrain	…	…	…
Cyprus	…	99	93
Egypt	91	80	42
Georgia	…	99	96
Iraq	…	…	…
Israel	…	…	…
Jordan	…	…	…
Kuwait	…	…	…
Lebanon	…	…	…
Libya	…	…	…
Morocco	…	…	…
Oman	…	…	…
Palestine	99	86	62
Qatar	…	…	…
Saudi Arabia	…	…	…
Sudan	65	51	31
Syrian Arab Republic	…	…	…
Tunisia	…	…	…
Turkey	…	…	…
United Arab Emirates	…	…	…
Yemen	62	46	31
Percent Reporting	25.0%	33.3%	33.3%

Table A3. Completion rate by education level in Central and Southern Asia (%), both sexes, 2017 or latest year available

Country	Primary	Lower secondary	Upper secondary
Afghanistan	55	37	23
Bangladesh	80	55	19
Bhutan	…	…	…
India	92	81	43
Iran, Islamic Republic of	…	…	…
Kazakhstan	100	100	94
Kyrgyzstan	99	96	81
Maldives	…	…	…
Nepal	73	63	…
Pakistan	…	…	…
Sri Lanka	…	…	…
Tajikistan	…	…	…
Turkmenistan	100	100	96
Uzbekistan	…	…	…

Table A4. Completion rate by education level in Eastern and South-eastern Asia (%), both sexes, 2017 or latest year available

Country	Primary	Lower secondary	Upper secondary
Brunei Darussalam	...	...	...
Cambodia	72	41	21
China	97	83	61
DPR Korea	...	...	...
Hong Kong, China	...	...	...
Indonesia	...	...	...
Japan	...	...	...
Lao PDR	...	...	...
Macao, China	...	...	...
Malaysia	...	...	...
Mongolia	98	89	63
Myanmar	83	44	17
Philippines	87	71	67
Republic of Korea	...	...	...
Singapore	...	...	...
Thailand	99	85	56
Timor-Leste	80	66	52
Viet Nam	97	83	55
Percent Reporting	44.4%	44.4%	44.4%

Table A5. Completion rate by education level in Oceania (%), both sexes, 2017 or latest year available

Country	Primary	Lower secondary	Upper secondary
Australia	...	...	...
Cook Islands	...	...	...
Fiji	...	...	...
Kiribati	...	...	...
Marshall Islands	...	...	...
Micronesia, F. S.	...	...	...
Nauru	...	...	...
New Zealand	...	...	...
Niue	...	...	...
Palau	...	...	...
Papua New Guinea	...	...	...
Samoa	...	...	...
Solomon Is	...	...	...
Tokelau	...	...	...
Tonga	...	...	...
Tuvalu	...	...	...
Vanuatu	...	...	...
Percent Reporting	0.0%	0.0%	0.0%

Table A6. Completion rate by education level in Latin America and the Caribbean (%), both sexes, 2017 or latest year available

Country	Primary	Lower secondary	Upper secondary
Anguilla	…	…	…
Antigua and Barbuda	…	…	…
Argentina	…	…	…
Aruba	…	…	…
Bahamas	…	…	…
Barbados	…	…	…
Belize	96	61	49
Bolivia, P. S.	96	92	80
Brazil	85	82	63
British Virgin Islands	…	…	…
Cayman Islands	…	…	…
Chile	99	98	87
Colombia	92	76	73
Costa Rica	95	67	55
Cuba	100	98	86
Curaçao	…	…	…
Dominica	…	…	…
Dominican Republic	89	82	55
Ecuador	97	86	66
El Salvador	88	72	54
Grenada	…	…	…
Guatemala	78	48	35
Guyana	98	84	56
Haiti	…	…	…
Honduras	83	52	42
Jamaica	…	…	…
Mexico	96	88	53
Montserrat	…	…	…
Nicaragua	…	…	…
Panama	94	78	59
Paraguay	88	78	59
Peru	96	87	82
Saint Kitts and Nevis	…	…	…
Saint Lucia	…	…	…
Saint Vincent/Grenadines	…	…	…
Sint Maarten	…	…	…
Suriname	…	…	…
Trinidad and Tobago	…	…	…
Turks and Caicos Islands	…	…	…
Uruguay	97	69	40
Venezuela, B. R.	95	79	71
Percent Reporting	46.3%	46.3%	46.3%

Table A7. Completion rate by education level in Europe and Northern America (%), both sexes, 2017 or latest year available

Country	Primary	Lower secondary	Upper secondary
Albania	…	…	…
Andorra	…	…	…
Austria	…	99	88
Belarus	…	…	…
Belgium	…	92	86
Bermuda	…	…	…
Bosnia and Herzegovina	…	…	…
Bulgaria	…	93	80
Canada	…	…	…
Croatia	…	99	95
Czechia	…	99	94
Denmark	…	99	82
Estonia	…	98	83
Finland	…	100	89
France	…	99	86
Germany	…	92	80
Greece	…	99	93
Hungary	…	99	86
Iceland	…	100	70
Ireland	…	97	94
Italy	…	99	83
Latvia	…	99	84
Liechtenstein	…	…	…
Lithuania	…	98	89
Luxembourg	…	90	69
Malta	…	…	…
Monaco	…	…	…
Montenegro	100	99	84
Netherlands	…	94	79
Norway	…	99	78
Poland	…	98	92
Portugal	…	94	65
Republic of Moldova	…	…	…
Romania	…	96	81
Russian Federation	100	99	87
San Marino	…	…	…
Serbia	99	98	76
Slovakia	…	100	92
Slovenia	…	100	93
Spain	…	93	67
Sweden	…	100	93
Switzerland	…	99	79
TFYR Macedonia	…	…	…
Ukraine	100	99	95
United Kingdom	…	100	83
United States	99	99	92
Percent Reporting	10.9%	73.9%	73.9%

Annex II. Tables for indicator 4.2.2[20]

Table A1. Adjusted net enrolment rate (NERA) one year before the official primary school entry age, 2017 or latest year available (2014 or later)

Sub-Saharan Africa	Both sexes	Female	Male
Angola	66	61	70
Benin	88	88	88
Botswana	34	34	33
Burkina Faso	17	16	17
Burundi	42	42	42
Cabo Verde	80	80	79
Cameroon	46	46	46
Central African Republic	...	...	...
Chad	10	10	11
Comoros	39	38	40
Congo	...	...	...
Côte d'Ivoire	22	22	22
D. R. Congo	...	...	...
Djibouti	7	9	9
Equat. Guinea	44	44	43
Eritrea	17	17	18
Eswatini	...	...	...
Ethiopia	38	37	39
Gabon	...	...	...
Gambia	...	...	...
Ghana	91	92	87
Guinea	41	39	43
Guinea-Bissau	...	...	...
Kenya	...	...	...
Lesotho	36	37	35
Liberia	87	82	87
Madagascar	...	...	...
Malawi	...	...	...
Mali	50	48	52
Mauritania	...		
Mauritius	91	90	92
Mozambique	...	...	...
Namibia	67	69	65
Niger	22	22	22
Nigeria	...	...	...
Rwanda	42	42	41
Sao Tome and Principe	54	55	53
Senegal	19	20	18
Seychelles	97	100	97
Sierra Leone	36	37	35
Somalia	...	...	...
South Africa	...	...	...
South Sudan	19	17	20
Togo	...	...	...

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[20] **Source:** Estimated with data from UNESCO Institute for Statistics Database (http://data.uis.unesco.org/)
   Note: '...': data not available

Sub-Saharan Africa	Both sexes	Female	Male
Uganda	...	...	...
United Republic of Tanzania	52	53	51
Zambia	...	...	...
Zimbabwe	36	...	...
Average (for reporting countries)	46	46	47
Percent Reporting	62.5%	60.4%	60.4%

Table A2. Adjusted net enrolment rate (NERA) one year before the official primary school entry age, 2017 or latest year available (2014 or later)

Northern Africa and Western Asia	Both sexes	Female	Male
Algeria	...	...	...
Armenia	...	...	...
Azerbaijan	61	61	61
Bahrain	77	76	77
Cyprus	95	95	95
Egypt	38	38	38
Georgia	...	...	...
Iraq	...	...	...
Israel	99	100	98
Jordan	...	...	...
Kuwait	76	77	75
Lebanon	96	93	99
Libya	...	...	...
Morocco	54	49	58
Oman	83	85	82
Palestine	62	62	62
Qatar	93	95	91
Saudi Arabia	38	39	37
Sudan	...	...	......
Syrian Arab Republic	39	...	...
Tunisia	...	...	...
Turkey	66	64	67
United Arab Emirates	88	...	...
Yemen	...	...	...
Average (for reporting countries)	71	72	72
Percent Reporting	62.5%	66.7%	66.7%

Table A3. Adjusted net enrolment rate (NERA) one year before the official primary school entry age, 2017 or latest year available (2014 or later)

Central and Southern Asia	Both sexes	Female	Male
Afghanistan	...	...	...
Bangladesh	...	...	...
Bhutan	...	...	...
India	...	...	...
Iran, Islamic Republic of	48	48	49
Kazakhstan	64	65	63
Kyrgyzstan	95	96	94
Maldives	98	97	99
Nepal	85	82	88
Pakistan	...	...	...
Sri Lanka	...		
Tajikistan	13	12	13

Turkmenistan	...	...	...
Uzbekistan	37	36	37
Average (for reporting countries)	63	62	63
Percent Reporting	50.0%	50.0%	50.0%

Table A4. Adjusted net enrolment rate (NERA) one year before the official primary school entry age, 2017 or latest year available (2014 or later)

Eastern and South-eastern Asia	Both sexes	Female	Male
Brunei Darussalam	95	95	95
Cambodia	...	...	...
China	...	...	...
DPR Korea	...	...	...
Indonesia	97	100	94
Japan	...	...	...
Lao PDR	63	64	63
Macao, China	94	...	...
Malaysia	99	99	98
Mongolia	96	95	97
Myanmar	...	...	...
Philippines	80	81	79
Republic of Korea	96	96	96
Singapore	...	...	...
Thailand	97	97	97
Timor-Leste	33	33	32
Viet Nam	99	98	100
Average (for reporting countries)	86	86	85
Percent Reporting	66.7%	66.7%	66.7%

Table A5. Adjusted net enrolment rate (NERA) one year before the official primary school entry age, 2017 or latest year available (2014 or later)

Oceania	Both sexes	Female	Male
Australia	91	87	88
Cook Islands	99	100	98
Fiji	...	...	...
Kiribati	...	...	...
Marshall Islands	66	65	66
Micronesia, F. S.	76	73	80
Nauru	75	84	67
New Zealand	92	97	96
Niue	56	100	23
Palau	90	80	100
Papua New Guinea	74	73	74
Samoa	37	39	35
Solomon Islands	65	66	65
Tokelau	88	100	78
Tonga	...	...	...
Tuvalu	97	100	94
Vanuatu	...	...	...
Average (for reporting countries)	81	82	74
Percent Reporting	76.5%	76.5%	76.5%

Table A6. Adjusted net enrolment rate (NERA) one year before the official primary school entry age, 2017 or latest year available (2014 or later)

Latin America and the Caribbean	Both sexes	Female	Male
Anguilla	...	...	...
Antigua and Barbuda	96	88	86
Argentina	99	100	99
Aruba	100	100	100
Bahamas	...	...	...
Barbados	90	88	92
Belize	84	84	84
Bolivia, P. S.	92	91	92
Brazil	97	99	96
British Virgin Islands	84	...	...
Cayman Islands	...	...	...
Chile	97	97	97
Colombia	87	88	87
Costa Rica	89	89	90
Cuba	100	100	100
Curaçao	...	...	...
Dominica	71	70	71
Dominican Republic	87	88	87
Ecuador	98	100	96
El Salvador	81	82	81
Grenada	84	83	86
Guatemala	81	81	81
Guyana	...	...	...
Haiti	...	...	...
Honduras	82	82	81
Jamaica	96	100	93
Mexico	99	100	99
Montserrat	...	...	...
Nicaragua	...	...	...
Panama	73	74	72
Paraguay	71	71	71
Peru	97	97	97
Saint Kitts and Nevis	...	...	...
Saint Lucia	96	100	92
Saint Vincent/Grenadines	94	100	88
Sint Maarten	...	...	...
Suriname	97	93	90
Trinidad and Tobago	...	...	...
Turks and Caicos Islands	...	...	...
Uruguay	97	98	97
Venezuela, B. R.	82	82	83
Average (for reporting countries)	90	90	89
Percent Reporting	70.7%	70.7%	70.7%

Table A7. Adjusted net enrolment rate (NERA) one year before the official primary school entry age, 2017 or latest year available (2014 or later)

Europe and Northern America	Both sexes	Female	Male
Albania	89	89	90
Austria	99	99	100
Belarus	97	96	99
Belgium	100	100	100
Bermuda	…	…	…
Bosnia and Herzegovina	…	…	…
Bulgaria	95	96	95
Canada	…	…	…
Croatia	95	93	98
Czechia	92	92	92
Denmark	98	98	97
Estonia	91	93	90
Finland	99	99	98
France	100	100	100
Germany	…	…	…
Greece	89	89	88
Hungary	91	91	92
Iceland	99	100	98
Ireland	98	98	98
Italy	98	97	99
Latvia	98	99	98
Liechtenstein	100	100	100
Lithuania	99	100	99
Luxembourg	99	99	100
Malta	98	100	96
Monaco	…	…	…
Montenegro	69	68	69
Netherlands	99	100	98
Norway	97	97	96
Poland	100	100	100
Portugal	100	99	100
Republic of Moldova	94	96	93
Romania	88	88	88
Russian Federation	96	96	97
Serbia	97	97	97
Slovakia	82	83	81
Slovenia	95	94	96
Spain	96	96	96
Sweden	99	99	98
Switzerland	100	100	100
TFYR Macedonia	44	…	…
Ukraine	…	…	…
United Kingdom	100	100	100
United States	91	92	90
Average (for reporting countries)	94	95	95
Percent Reporting	82.6%	82.6%	82.6%

Annex III. Tables for indicator 4.3.3[21]

Table A1. Participation rate (%) in technical-vocational education, 15- to 24 year-olds, 2017 or latest available year

Sub-Saharan Africa	Both sexes
Angola	...
Benin	1
Botswana	...
Burkina Faso	1
Burundi	3
Cabo Verde	1
Cameroon	7
Central African Republic	...
Chad	...
Comoros	...
Congo	...
Côte d'Ivoire	2
D. R. Congo	...
Djibouti	...
Equatorial Guinea	...
Eritrea	0.3
Eswatini	...
Ethiopia	2
Gabon	...
Gambia	...
Ghana	1
Guinea	1
Guinea-Bissau	...
Kenya	...
Lesotho	1
Liberia	...
Madagascar	1
Malawi	...
Mali	4
Mauritania	0.3
Mauritius	1
Mozambique	1
Namibia	...
Niger	1
Nigeria	...
Rwanda	...
Sao Tome and Principe	4
Senegal	...
Seychelles	2
Sierra Leone	...
Somalia	...
South Africa	2
South Sudan	...
Togo	3

[21] **Source:** Estimated with data from UNESCO Institute for Statistics Database (http://data.uis.unesco.org/)
   Note: '...': data not available

Sub-Saharan Africa	Both sexes
Uganda	...
United Republic of Tanzania	0.1
Zambia	...
Zimbabwe	...

Table A2. Participation rate (%) in technical-vocational education, 15- to 24 year-olds, 2017 or latest available year

Northern Africa and Western Asia	Both sexes
Algeria	...
Armenia	...
Azerbaijan	11
Bahrain	3
Cyprus	6
Egypt	11
Georgia	2
Iraq	...
Israel	16
Jordan	1
Kuwait	...
Lebanon	...
Libya	...
Morocco	3
Oman	...
Palestine	0.4
Qatar	0.2
Saudi Arabia	2
Sudan	...
Syrian Arab Republic	2
Tunisia	...
Turkey	26
United Arab Emirates	1
Yemen	...

Table A3. Participation rate (%) in technical-vocational education, 15- to 24 year-olds, 2017 or latest available year

Central and Southern Asia	Both sexes
Afghanistan	1
Bangladesh	1
Bhutan	...
India	...
Iran, Islamic Republic of	6
Kazakhstan	8
Kyrgyzstan	5
Maldives	...
Nepal	...
Pakistan	1
Sri Lanka	3
Tajikistan	...
Turkmenistan	...
Uzbekistan	23

Table A4. Participation rate (%) in technical-vocational education, 15- to 24 year-olds, 2017 or latest available year

Eastern and South-Eastern Asia	Both sexes
Brunei Darussalam	6
Cambodia	...
China	...
DPR Korea	-
Hong Kong, China	1
Indonesia	11
Japan	...
Lao PDR	0.4
Macao, China	1
Malaysia	6
Mongolia	6
Myanmar	0.1
Philippines	-
Republic of Korea	15
Singapore	-
Thailand	6
Timor-Leste	4
Viet Nam	...

Table A5. Participation rate (%) in technical-vocational education, 15- to 24 year-olds, 2017 or latest available year

Oceania	Both sexes
Australia	22
Cook Islands	...
Fiji	...
Kiribati	...
Marshall Islands	1
Micronesia, F. S.	...
Nauru	...
New Zealand	5
Niue	...
Palau	...
Papua New Guinea	2
Samoa	...
Solomon Is	...
Tokelau	...
Tonga	2
Tuvalu	2
Vanuatu	1

Table A6. Participation rate (%) in technical-vocational education, 15- to 24 year-olds, 2017 or latest available year

Latin America and the Caribbean	Both sexes
Anguilla	...
Antigua and Barbuda	1
Argentina	...
Aruba	...
Bahamas	...
Barbados	...
Belize	3
Bolivia, P. S.	30
Brazil	4

Latin America and the Caribbean	Both sexes
British Virgin Islands	1
Cayman Islands	...
Chile	18
Colombia	4
Costa Rica	8
Cuba	12
Curaçao	...
Dominica	...
Dominican Republic	2
Ecuador	9
El Salvador	7
Grenada	...
Guatemala	8
Guyana	...
Haiti	...
Honduras	10
Jamaica	...
Mexico	12
Montserrat	...
Nicaragua	...
Panama	...
Paraguay	5
Peru	1
Saint Kitts and Nevis	...
Saint Lucia	0.4
Saint Vincent/Grenadines	...
Sint Maarten	...
Suriname	19
Trinidad and Tobago	...
Turks and Caicos Islands	...
Uruguay	10
Venezuela, B. R.	2

Table A7. Participation rate (%) in technical-vocational education, 15- to 24 year-olds, 2017 or latest available year

Europe and North America	Both sexes
Albania	5
Andorra	...
Austria	28
Belarus	8
Belgium	25
Bermuda	...
Bosnia and Herzegovina	...
Bulgaria	15
Canada	...
Croatia	23
Czechia	25
Denmark	13
Estonia	12
Finland	22
France	19
Germany	...

Europe and North America	Both sexes
Greece	12
Hungary	13
Iceland	10
Ireland	8
Italy	23
Latvia	16
Liechtenstein	25
Lithuania	9
Luxembourg	23
Malta	11
Monaco	…
Montenegro	22
Netherlands	22
Norway	18
Poland	19
Portugal	17
Republic of Moldova	7
Romania	…
Russian Federation	14
San Marino	…
Serbia	24
Slovakia	22
Slovenia	34
Spain	15
Sweden	12
Switzerland	23
TFYR Macedonia	…
Ukraine	4
United Kingdom	22
United States	…

Annex IV. Tables for indicator 4.c.1[22]

Table A1. Percentage of teachers who have received at least the minimum pre-service or in-service pedagogical training required to teach at the relevant level of education, both sexes, 2017 or latest year available

	% of trained classroom teachers		
	Pre-Primary	Primary	Secondary
Sub-Saharan Africa	48	64	50
Northern Africa and Western Asia	84	84	80
Northern Africa	82	84	78
Western Asia	86	…	…
Central and Southern Asia	…	72	…
Central Asia	89	99	96
Southern Asia	…	71	…
Eastern and South-eastern Asia	…	…	…
Eastern Asia	…	…	…
South-eastern Asia	94	97	94
Oceania	…	…	…
Latin America and the Caribbean	80	89	80
Caribbean	…	…	…
Central America	…	…	…
South America	…	…	…
Europe and Northern America	…	…	…
Europe	…	…	…
Northern America	…	…	…

Table A2. Percentage of teachers who have received at least the minimum pre-service or in-service pedagogical training required to teach at the relevant level of education, both sexes, 2017 or latest year available

Region	% of trained classroom teachers		
	Pre-Primary	Primary	Secondary
Sub-Saharan Africa			
Angola	…	…	51
Benin	26	68	18
Botswana	55	99	…
Burkina Faso	34	86	58
Burundi	100	100	100
Cabo Verde	29	93	94
Cameroon	67	81	54
Central African Republic	…	…	45
Chad	52	65	53
Comoros	56	51	86
Congo	…	…	…
Côte d'Ivoire	100	100	100
D. R. Congo	21	95	24
Djibouti	…	100	100
Equatorial Guinea	89	37	…
Eritrea	40	41	83
Eswatini	…	70	73

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[22] **Source:** Estimated with data from UNESCO Institute for Statistics Database (http://data.uis.unesco.org/)
    Note: '…': data not available

Region	% of trained classroom teachers		
	Pre-Primary	Primary	Secondary
Ethiopia	…	…	…
Gabon	…	…	…
Gambia	69	88	95
Ghana	46	55	76
Guinea	…	75	…
Guinea-Bissau	…	…	…
Kenya	82	…	…
Lesotho	100	87	89
Liberia	…	47	62
Madagascar	10	15	21
Malawi	…	91	66
Mali	…	…	…
Mauritania	…	85	97
Mauritius	100	100	55
Mozambique	…	97	85
Namibia	…	…	…
Niger	95	66	11
Nigeria	…	…	…
Rwanda	43	93	58
Sao Tome and Principe	28	27	36
Senegal	37	75	77
Seychelles	86	83	89
Sierra Leone	37	54	70
Somalia	…	…	…
South Africa	…	…	100
South Sudan	…	…	…
Togo	63	73	…
Uganda	60	80	…
United Republic of Tanzania	50	99	…
Zambia	…	…	…
Zimbabwe	27	86	73
Percent Reporting	60.4%	70.8%	64.6%

Table A3. Percentage of teachers who have received at least the minimum pre-service or in-service pedagogical training required to teach at the relevant level of education, both sexes, 2017 or latest year available

Region	% of trained classroom teachers		
	Pre-Primary	Primary	Secondary
Northern Africa and Western Asia			
Algeria	…	100	…
Armenia	82	…	…
Azerbaijan	88	98	…
Bahrain	52	84	85
Cyprus	…	…	…
Egypt	77	74	67
Georgia	…	…	…
Iraq	…	…	…
Israel	…	…	…
Jordan	100	100	100
Kuwait	75	79	…
Lebanon	…	…	…

Region	% of trained classroom teachers		
	Pre-Primary	Primary	Secondary
Libya	…	…	…
Morocco	…	100	100
Oman	100	100	100
Palestine	100	100	100
Qatar	…	…	…
Saudi Arabia	100	100	100
Sudan	…	…	…
Syrian Arab Republic	35	…	…
Tunisia	100	100	…
Turkey	…	…	…
United Arab Emirates	100	100	100
Yemen	…	…	…
Percent Reporting	50.0%	54.2%	33.3%

Table A4. Percentage of teachers who have received at least the minimum pre-service or in-service pedagogical training required to teach at the relevant level of education, both sexes, 2017 or latest year available

Region	% of trained classroom teachers		
	Pre-Primary	Primary	Secondary
Central and Southern Asia			
Afghanistan	…	…	…
Bangladesh	…	50$_i$	66
Bhutan	100	100	100
India	…	70	…
Iran, Islamic Republic of	…	100	100
Kazakhstan	100	100	100
Kyrgyzstan	…	95	85
Maldives	88	90	…
Nepal	89	97	89$_i$
Pakistan	…	82	…
Sri Lanka	…	85	…
Tajikistan	100	100	…
Turkmenistan	…	…	…
Uzbekistan	98	99	98
Percent Reporting	42.9%	85.7%	50.0%

Table A5. Percentage of teachers who have received at least the minimum pre-service or in-service pedagogical training required to teach at the relevant level of education, both sexes, 2017 or latest year available

Region	% of trained classroom teachers		
	Pre-Primary	Primary	Secondary
Eastern and South-eastern Asia			
Brunei Darussalam	59	85	90
Cambodia	100	100	…
China	…	…	…
DPR Korea	…	…	…
Hong Kong, China	…	97	97
Indonesia	…	…	…
Japan	…	…	…
Lao PDR	90	97	96
Macao, China	99	98	91
Malaysia	91	99	95

Mongolia	100	100	98
Myanmar	98	98	93
Philippines	100	100_{-1}	100_{-1}
Republic of Korea	...	...	...
Singapore	...	99	99
Thailand	...	100	100
Timor-Leste	...	...	...
Viet Nam	99	100	...
Percent Reporting	50.0%	72.2%	55.6%

Table A6. Percentage of teachers who have received at least the minimum pre-service or in-service pedagogical training required to teach at the relevant level of education, both sexes, 2017 or latest year available

	% of trained classroom teachers		
Region	Pre-Primary	Primary	Secondary
Oceania			
Australia	...	...	...
Cook Islands	78	95	98
Fiji	...	90	...
Kiribati	...	73	...
Marshall Islands	...	...	...
Micronesia, F. S.	...	...	...
Nauru	100	100	...
New Zealand	...	...	...
Niue	100	92	100
Palau	...	...	...
Papua New Guinea	...	...	...
Samoa	100	...	...
Solomon Is	59	74	76
Tokelau	42	67	...
Tonga	...	92	59
Tuvalu	88	77	46
Vanuatu	46	...	...
Percent Reporting	47.1%	52.9%	29.4%

Table A7. Percentage of teachers who have received at least the minimum pre-service or in-service pedagogical training required to teach at the relevant level of education, both sexes, 2017 or latest year available

Region	% of trained classroom teachers		
	Pre-Primary	Primary	Secondary
Latin America and the Caribbean			
Anguilla	...	...	...
Antigua and Barbuda	65	65	73
Argentina	...	...	...
Aruba	...	...	...
Bahamas	76	90	85
Barbados	73	80	47
Belize	45	73	54
Bolivia, P. S.	92	58	57
Brazil	...	...	...
British Virgin Islands	...	92	86
Cayman Islands	...	100	100
Chile	...	...	...
Colombia	97	95	98

Region	% of trained classroom teachers		
	Pre-Primary	Primary	Secondary
Costa Rica	89	94	96
Cuba	…	100	100
Curaçao	…	…	…
Dominica	19	66	49
Dominican Republic	…	…	…
Ecuador	83	82	74
El Salvador	94	95	93
Grenada	37	64	45
Guatemala	…	…	…
Guyana	…	…	…
Haiti	…	…	…
Honduras	51	…	…
Jamaica	75	96	100
Mexico	85	97	87
Montserrat	82	77	72
Nicaragua	…	…	…
Panama	100	99	60
Paraguay	…	…	…
Peru	…	97	89_i
Saint Kitts and Nevis	…	72	62
Saint Lucia	70	89	71
Saint Vincent/Grenadines	14	84	58
Sint Maarten	…	…	…
Suriname	99	98	81
Trinidad and Tobago	…	…	…
Turks and Caicos Islands	…	89	98
Uruguay	…	100	…
Venezuela, B. R.	…	…	…
Percent Reporting	46.3%	61.0%	58.5%

Table A7. Percentage of teachers who have received at least the minimum pre-service or in-service pedagogical training required to teach at the relevant level of education, both sexes, 2017 or latest year available

Region	% of trained classroom teachers		
	Pre-Primary	Primary	Secondary
Albania	…	…	…
Andorra	100	100	100
Austria	…	…	…
Belarus	92	100	94
Belgium	…	…	…
Bermuda	100_{-1}	100_{-1}	100_{-1}
Bosnia and Herzegovina	…	…	…
Bulgaria	…	…	…
Canada	…	…	…
Croatia	…	…	…
Czechia	…	…	…
Denmark	…	…	…
Estonia	…	…	…
Finland	…	…	…
France	…	…	…
Germany	…	…	…

Region	% of trained classroom teachers		
	Pre-Primary	Primary	Secondary
Greece	…	…	…
Hungary	…	…	…
Iceland	…	…	…
Ireland	…	…	…
Italy	…	…	…
Latvia	…	…	…
Liechtenstein	…	…	…
Lithuania	…	…	…
Luxembourg	…	…	…
Malta	…	…	…
Monaco	…	…	…
Montenegro	…	…	…
Netherlands	…	…	…
Norway	…	…	…
Poland	…	…	…
Portugal	…	…	…
Republic of Moldova	90	99	98
Romania	…	…	…
Russian Federation	…	…	…
San Marino	…	…	…
Serbia	…	…	…
Slovakia	…	…	…
Slovenia	…	…	…
Spain	…	…	…
Sweden	…	…	…
Switzerland	…	…	…
TFYR Macedonia	…	…	…
Ukraine	…	87	…
United Kingdom	…	…	…
United States	…	…	…
Percent Reporting	8.7%	10.9%	8.7%

Annex V. Tables for indicator 4.2[23]

Table A1. Government expenditures in education by SDG regions, 2017 or latest year available

Region	Government Expenditure in education as % of GDP	Government expenditure per pre- and primary student as % of GDP per capita	Public expenditure in education as % of total government expenditure
Sub-Saharan Africa			
Angola	...	...	...
Benin	3.99	11.90	18.79
Botswana	...	...	...
Burkina Faso	4.17	9.07	18.03
Burundi	4.34	...	20.40
Cabo Verde	5.22	1.27	16.38
Cameroon	3.08	...	15.47
Central African Republic	...	...	...
Chad	...	...	...
Comoros	4.34	20.08	15.27
Congo	4.56	...	7.95
Côte d'Ivoire	4.36	22.67	18.62
D. R. Congo	1.47	...	11.71
Djibouti	...	...	...
Equatorial Guinea	...	...	...
Eritrea	...	...	...
Eswatini	7.13	...	...
Ethiopia	4.74	3.54	27.10
Gabon	2.67	...	11.23
Gambia	3.09	...	10.36
Ghana	4.51	2.23	20.10
Guinea	2.21	...	13.38
Guinea-Bissau	...	...	...
Kenya	5.24	1.36	17.58
Lesotho	...	...	...
Liberia	3.83	...	7.06
Madagascar	...	...	18.97
Malawi	4.03	...	14.34
Mali	3.09	1.63	13.90
Mauritania	...	24.64	13.15
Mauritius	5.02	2.76	19.93
Mozambique	...	...	...
Namibia	3.10	...	7.64
Niger	3.54	46.21	13.25
Nigeria	...	...	...
Rwanda	3.21	...	11.08
Sao Tome and Principe	4.86	...	18.40
Senegal	6.20	2.05	21.56
Seychelles	4.42	12.11	...
Sierra Leone	4.64	...	19.92

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[23] **Source:** Estimated with data from UNESCO Institute for Statistics Database (http://data.uis.unesco.org/)
   Note: '...': data not available

Region	Government Expenditure in education as % of GDP	Government expenditure per pre- and primary student as % of GDP per capita	Public expenditure in education as % of total government expenditure
Somalia	…	…	…
South Africa	6.13	6.33	18.73
South Sudan	0.98	0.43	1.07
Sudan	…	…	…
Togo	5.06	5.34	15.99
Uganda	2.64	…	12.01
United Republic of Tanzania	…	9.86	…
Zambia	…	…	…
Zimbabwe	7.53	…	30.01
Average	**4.17**	**10.19**	**15.61**
Median	**4.34**	**5.83**	**15.73**

Table A2. Government expenditures in education by SDG regions, 2017 or latest year available

Region	Government Expenditure in education as % of GDP	Government expenditure per pre- and primary student as % of GDP per capita	Public expenditure in education as % of total government expenditure
Northern Africa and Western Asia			
Algeria	…	…	…
Armenia	2.76	14.78	10.20
Azerbaijan	2.90	25.64	8.20
Bahrain	2.34	…	7.18
Cyprus	6.38	12.57	16.28
Egypt	…	10.27	…
Georgia	3.83	…	12.95
Iraq	…	…	…
Israel	5.88	12.81	15.04
Jordan	3.60	1.58	12.53
Kuwait	…	17.12	…
Lebanon	…	…	…
Libya	…	…	…
Morocco	…	…	…
Oman	6.67	….	15.34
Palestine	5.25	…	…
Qatar	2.85	…	8.88
Saudi Arabia	…	…	…
Syrian Arab Republic	…	…	…
Tunisia	6.60	…	22.90
Turkey	4.29	…	12.84
United Arab Emirates	…	…	…
Yemen	…	…	…
Average	**4.45**	**13.54**	**12.94**
Median	**4.06**	**12.81**	**12.84**

Table A3. Government expenditures in education by SDG regions, 2017 or latest year available

Region	Government Expenditure in education as % of GDP	Government expenditure per pre- and primary student as % of GDP per capita	Public expenditure in education as % of total government expenditure
Central and Southern Asia			
Afghanistan	3.93	…	15.66
Bangladesh	1.54	…	11.42
Bhutan	7.05	…	24.04
India	…	…	…
Iran, Islamic Republic of	3.79	1.19	20.04
Kazakhstan	2.88	7.66	11.42
Kyrgyzstan	7.21	27.34	18.64
Maldives	4.25	8.86	11.29
Nepal	5.10	2.19	15.75
Pakistan	2.76	11.30	13.85
Sri Lanka	2.81	…	14.50
Tajikistan	5.23	27.83	16.44
Turkmenistan	…	…	…
Uzbekistan	6.41	…	19.96
Average	**4.41**	**12.34**	**16.08**
Median	**4.09**	**8.86**	**15.70**

Table A4. Government expenditures in education by SDG regions, 2017 or latest year available

Region	Government Expenditure in education as % of GDP	Government expenditure per pre- and primary student as % of GDP per capita	Public expenditure in education as % of total government expenditure
Eastern and South-eastern Asia			
Brunei Darussalam	4.43	1.03	11.44
Cambodia	…	…	…
China	…	…	…
China, Hong Kong Special Administrative Region	3.31	6.90	17.84
DPR Korea	…	…	…
Indonesia	3.58	2.75	20.50
Japan	3.47	…	9.13
Lao PDR	2.94	8.44	…
Malaysia	4.74	4.86	21.06
Mongolia	4.07	13.52	13.49
Myanmar	2.17	3.18	10.15
Philippines	…	…	…
Republic of Korea	5.25	26.21	…
Singapore	…	…	…
Thailand	…	…	…
Timor-Leste	…	2.37	6.77
Viet Nam	…	…	…
Average	**3.77**	**7.70**	**13.80**
Median	**3.58**	**4.86**	**12.47**

Table A5. Government expenditures in education by SDG regions, 2017 or latest year available

Region	Government Expenditure in education as % of GDP	Government expenditure per pre- and primary student as % of GDP per capita	Public expenditure in education as % of total government expenditure
Oceania			
Australia	5.32	10.52	14.08
Cook Islands	4.65	...	...
Fiji	...	...	...
Kiribati	...	...	...
Marshall Islands	...	...	...
Micronesia, F. S.	12.46	...	22.31
Nauru	...	...	...
New Zealand	6.30	18.01	16.57
Niue	...	...	...
Palau	...	...	...
Papua New Guinea	...	...	...
Samoa	4.08	1.73	...
Solomon Is	...	...	...
Tokelau	...	...	...
Tonga	...	...	...
Tuvalu	...	...	...
Vanuatu	4.70	0.09	11.78
Average	**6.25**	**7.59**	**16.19**
Median	**5.01**	**6.12**	**15.33**

Table A6. Government expenditures in education by SDG regions, 2017 or latest year available

Region	Government Expenditure in education as % of GDP	Government expenditure per pre- and primary student as % of GDP per capita	Public expenditure in education as % of total government expenditure
Latin America and the Caribbean			
Anguilla	...	...	...
Antigua and Barbuda	...	...	...
Argentina	5.57	12.65	13.38
Aruba	6.14	...	...
Bahamas	...	...	...
Barbados	4.66	...	12.88
Belize	7.09	16.12	21.68
Bolivia, P. S.	7.29	11.79	...
Brazil	6.24	...	16.25
British Virgin Islands	6.32	0.08	...
Cayman Islands	...	...	...
Chile	5.35	17.70	21.16
Colombia	4.40	...	15.17
Costa Rica	7.43	18.10	...
Cuba	...	...	...
Curaçao	...	...	...
Dominica	3.39	2.80	10.52
Dominican Republic	...	7.96	...
Ecuador	5.00	25.07	12.60
El Salvador	3.75	10.08	15.63

Region	Government Expenditure in education as % of GDP	Government expenditure per pre- and primary student as % of GDP per capita	Public expenditure in education as % of total government expenditure
Grenada	10.29	6.02	42.79
Guatemala	2.80	10.44	23.09
Guyana	6.25	…	18.28
Haiti	2.45	…	13.13
Honduras	5.96	…	22.02
Jamaica	5.27	5.36	18.40
Mexico	5.24	…	19.02
Montserrat	…	…	…
Nicaragua	4.35	…	…
Panama	…	…	…
Paraguay	4.52	14.61	…
Peru	3.92	12.43	18.24
Saint Kitts and Nevis	2.78	14.22	8.64
Saint Lucia	5.71	3.43	21.98
Saint Vincent/Grenadines	5.75	3.20	18.98
Suriname	…	…	…
Trinidad and Tobago	…	…	…
Turks and Caicos Islands	3.27	…	…
Uruguay	…	…	…
Venezuela, B. R.	…	18.20	…
Average	5.23	11.07	18.19
Median	5.27	11.79	18.26

Table A7. Government expenditures in education by SDG regions, 2017 or latest year available

Region	Government Expenditure in education as % of GDP	Government expenditure per pre- and primary student as % of GDP per capita	Public expenditure in education as % of total government expenditure
Europe and Northern America			
Albania	3.95	…	13.60
Andorra	3.20	12.95	…
Austria	5.45	17.38	10.69
Belarus	4.82	32.35	12.28
Belgium	6.55	17.13	12.17
Bermuda	1.49	17.66	…
Bosnia and Herzegovina	…	…	…
Bulgaria	…	…	…
Canada	…	…	…
Croatia	…	…	…
Czechia	5.79	14.77	13.88
Denmark	7.63	…	…
Estonia	5.22	…	12.97
Finland	7.09	22.47	12.41
France	5.46	18.00	9.62
Germany	4.81	16.63	10.99
Greece	…	16.75	…
Hungary	4.58	24.37	9.14
Iceland	7.71	22.01	18.16
Ireland	3.77	4.45	13.03

Region	Government Expenditure in education as % of GDP	Government expenditure per pre- and primary student as % of GDP per capita	Public expenditure in education as % of total government expenditure
Italy	4.08	17.88	8.11
Latvia	5.34	20.89	14.13
Liechtenstein	…	…	…
Lithuania	4.22	15.70	12.29
Luxembourg	3.92	19.24	9.43
Malta	…	24.64	13.15
Monaco	1.37	…	…
Montenegro	…	…	…
Netherlands	5.40	11.63	12.25
Norway	7.55	18.54	15.73
Poland	4.81	19.13	11.58
Portugal	4.88	15.49	10.15
Republic of Moldova	6.68	40.07	18.33
Romania	3.11	11.75	9.08
Russian Federation	3.82	…	10.87
Serbia	3.86	…	…
Slovakia	4.65	16.43	10.28
Slovenia	4.91	18.82	11.22
Spain	4.28	15.81	9.77
Sweden	7.55	28.10	15.50
Switzerland	5.12	19.70	15.53
Ukraine	5.01	32.82	12.35
United Kingdom	5.54	9.30	13.92
United States	…	11.92	…
Average	**4.96**	**18.90**	**12.34**
Median	**4.88**	**17.77**	**12.28**