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More Than One-Half of Children and Adolescents Are Not Learning Worldwide

The UNESCO Institute for Statistics (UIS) is the official source of internationally-comparable data on education and literacy used to monitor progress towards the Sustainable Development Goals.

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This paper presents the first estimates for a key target of Sustainable Development Goal 4, which requires primary and secondary education that lead to relevant and effective learning outcomes. By developing a new methodology and database, the UIS has produced a global snapshot of the learning situation facing children and adolescents who are in school and out. The data show the critical need to improve the quality of education while expanding access to ensure that no one is left behind. The paper also discusses the importance of benchmarking and the concept of minimum proficiency levels.

More than 617 million children and adolescents are not achieving minimum proficiency levels (MPLs) in reading and mathematics, according to new estimates from the UNESCO Institute for Statistics (UIS). This is the equivalent of three times the population of Brazil being unable to read or undertake basic mathematics with proficiency. The new data signal a tremendous waste of human potential that could threaten progress towards the Sustainable Development Goals (SDGs).

Many of the global goals depend on the achievement of SDG 4, which demands an inclusive and equitable quality education and the promotion of “lifelong learning opportunities for all”. In particular, Target 4.1 demands that all children complete primary and secondary education of sufficient quality to ensure that they have “relevant and effective learning outcomes”. To measure progress globally, the international community has agreed to use following indicator: *Proportion of children and young people: (a) in Grades 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.*

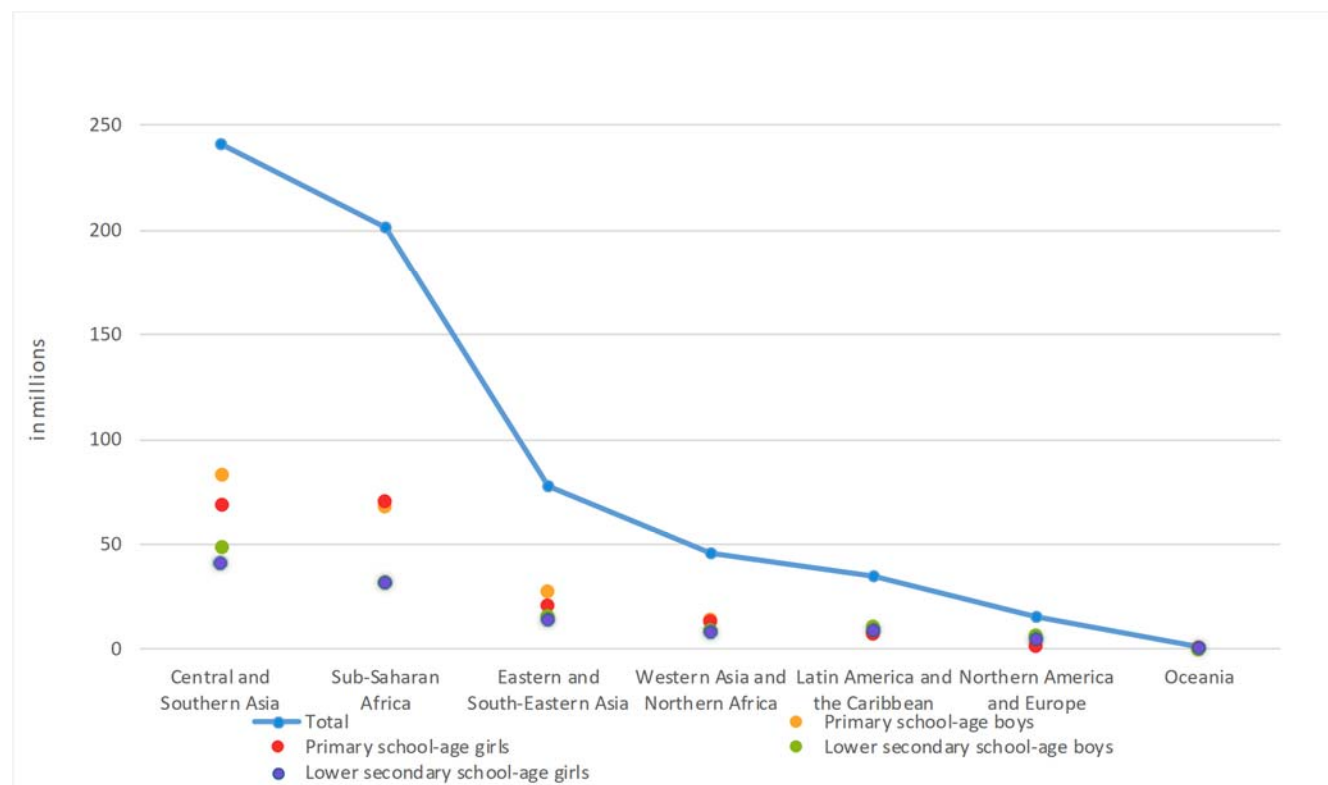


This paper presents the first estimates for this global indicator and discusses the impact of benchmarks. As the official source of SDG 4 data, the UIS has developed a methodology that captures data not only on children and adolescents who are in school but also the out-of-school populations who have little or no opportunity to achieve minimum levels of proficiency.

Six out of ten children and adolescents are not learning globally

Globally, six out of ten children and adolescents are not achieving minimum proficiency levels in reading and mathematics (see **Figure 1** for reading and **Annex Table A1** for mathematics). The total – 617 million – includes more than 387 million children of primary school age (about 6 to 11 years old) and 230 million adolescents of lower secondary school age (about 12 to 14 years old). This means that more than one-half – 56% – of all children won't be able to read or handle mathematics with proficiency by the time they are of age to complete primary education. The proportion is even higher for adolescents, with 61% unable to achieve minimum proficiency levels when they should be completing lower secondary school.

Figure 1. Global number of children and adolescents who do not achieve MPLs in reading, by age group, SDG region and sex



Source: [UNESCO Institute for Statistics](https://www.unesco.org/en/uis)



Table 1. Numbers of children and adolescents not reaching MPLs in reading, by SDG region, 2015

Region	Reading								
	Proportion of school-age population not achieving minimum proficiency levels				Number of school-age children/adolescents not achieving minimum proficiency levels (in millions)			Proportion of school-age children/adolescents in world population	Regional share of global proportion of children/adolescents not learning
	Total	Male	Female	GPIA	Total	Male	Female		
Total (primary and lower secondary school-age children and adolescents)									
Sub-Saharan Africa	88	86	90	1.04	202	100	102	21	33
Western Asia and Northern Africa	57	58	56	0.96	46	24	22	7	7
Central and Southern Asia	81	84	77	0.91	241	132	109	28	39
Eastern and South-eastern Asia	31	32	28	0.88	78	43	34	24	13
Latin America and the Caribbean	36	38	34	0.88	35	19	16	9	6
Northern America and Europe	14	17	12	0.71	15	9	6	10	3
Oceania	22	24	19	0.76	1.2	0.6	0.6	1	0
World	58	59	56	0.95	617	328	290	100	100
Primary school-age children									
Sub-Saharan Africa	87	85	90	1.06	138	68	70	23	36
Western Asia and Northern Africa	54	54	53	1.00	28	14	14	7	7
Central and Southern Asia	81	85	77	0.90	152	83	69	27	39
Eastern and South-eastern Asia	29	31	26	0.85	48	27	21	24	12
Latin America and the Caribbean	26	27	25	0.94	16	8	7	9	4
Northern America and Europe	7	8	6	0.70	5	3	2	9	1
Oceania	21	22	19	0.86	0.8	0.4	0.4	1	0
World	56	57	55	0.96	387	204	183	100	100
Lower secondary school-age adolescents									
Sub-Saharan Africa	89	89	89	1.01	63	32	31	19	28
Western Asia and Northern Africa	64	67	61	0.91	18	10	8	7	8
Central and Southern Asia	80	83	76	0.92	89	48	40	29	39
Eastern and South-eastern Asia	34	36	33	0.92	30	16	14	23	13
Latin America and the Caribbean	53	58	48	0.84	19	11	9	10	8
Northern America and Europe	25	29	21	0.72	11	6	4	11	5
Oceania	24	29	18	0.61	0.4	0.2	0.2	0	0
World	61	63	59	0.92	230	124	107	100	100

Notes: GPIA = adjusted gender parity index (female/male rate of children not learning, see **Box 1**).

Source: [UNESCO Institute for Statistics](#)



Box 1. The Adjusted Gender Parity Index (GPIA)

Parity indices are the main indicator used to monitor progress towards SDG Target 4.5: “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”. The most widely-known index of this kind is the gender parity index (GPI). The GPI is calculated by dividing the female value of an indicator by the male value. If both values are the same, the GPI has a value of 1. To allow small variations in indicator values, gender parity is usually assumed to exist at values between 0.97 and 1.03.

However, the GPI is an imperfect measure because it is not symmetrical around 1 and has no upper limit, with a theoretical range of 0 to infinity. To address these disadvantages, the UIS has developed an adjusted GPI (GPIA) that is symmetrical around 1 and limited to a range between 0 and 2. The adjusted GPI is calculated as follows:

- If female indicator value \leq male indicator value:
Adjusted GPI = female value / male value
- If female indicator value $>$ male indicator value:
Adjusted GPI = $2 - 1 / (\text{female value} / \text{male value})$

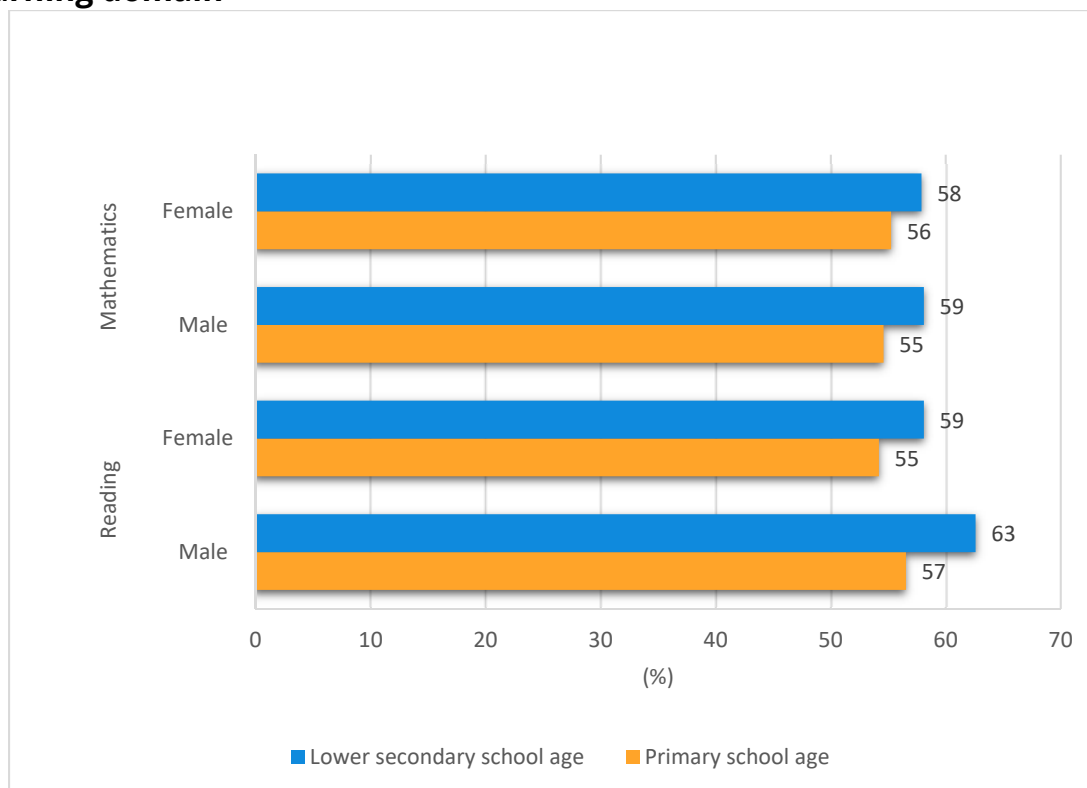
If the female value of an indicator is less than or equal to the male value, the unadjusted and adjusted GPI are identical. If the female value is greater than the male value, the adjusted GPI is systematically smaller than the unadjusted GPI. If the rate of girls not learning is 50% and the male rate is 40%, then the adjusted GPI will be 1.2, which is the same distance from 1 as the value 0.8 (calculated from a female rate of 40% and a male rate of 50%), in contrast to the unadjusted GPI value of 1.25.

For the rates of children not learning, an adjusted GPI (GPIA) greater than 1 means that girls are less likely to be learning than boys and thus at a relative disadvantage, whereas a value below 1 means that boys are facing the disadvantage. As with the unadjusted GPI, values of the adjusted GPI (GPIA) between 0.97 and 1.03 are interpreted to indicate gender parity.

The data in **Figure 2** underscore the urgent need to dramatically improve education access, retention and quality. The international community must not only make good on the longstanding promise to get all children in school but also ensure that they stay in school and learn, while completing an education that prepares them for decent employment and a fulfilling life in the 21st Century.



Figure 2. Proportion of children and adolescents not achieving MPLs, by age group and learning domain



Source: [UNESCO Institute for Statistics](#)

The next section presents more detailed information on the rates and numbers of children and adolescents lacking minimum proficiency levels in reading for the regions used to monitor the SDGs (see **Box 2**).

The regional view: Uneven distribution of children unable to read proficiently

The global figures on children not learning hide large regional differences. **Figures 3a** and **3b** present the regional distribution of the primary and lower secondary school-age population in contrast to the regional distribution of the number of children and adolescents not achieving minimum proficiency levels in reading. It provides an initial look at the scale of the challenges facing certain regions. For example, one out of five (21%) children and adolescents of primary and lower secondary school age lives in sub-Saharan Africa. Yet the region is home to one out of three (33%) of all children and adolescents unable to read proficiently. A similar situation is found in Central and Southern Asia.



Figure 3a. Distribution of the primary and lower secondary school-age population, by region

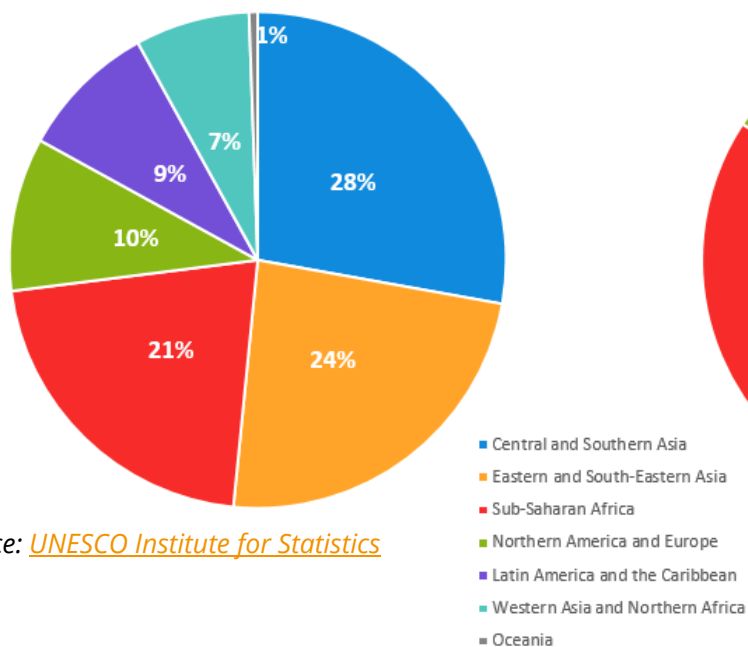
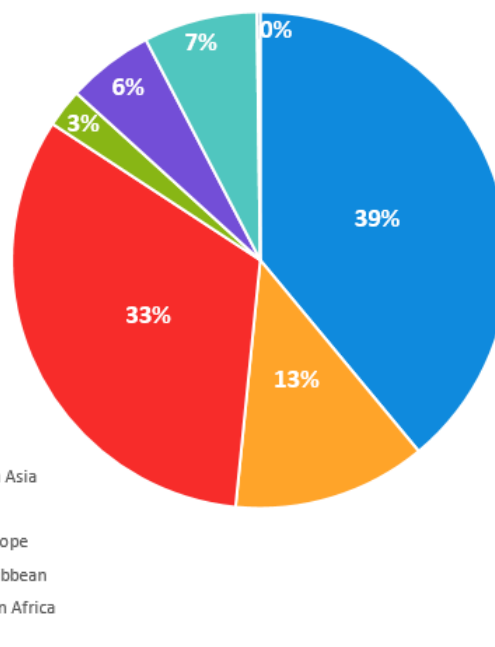


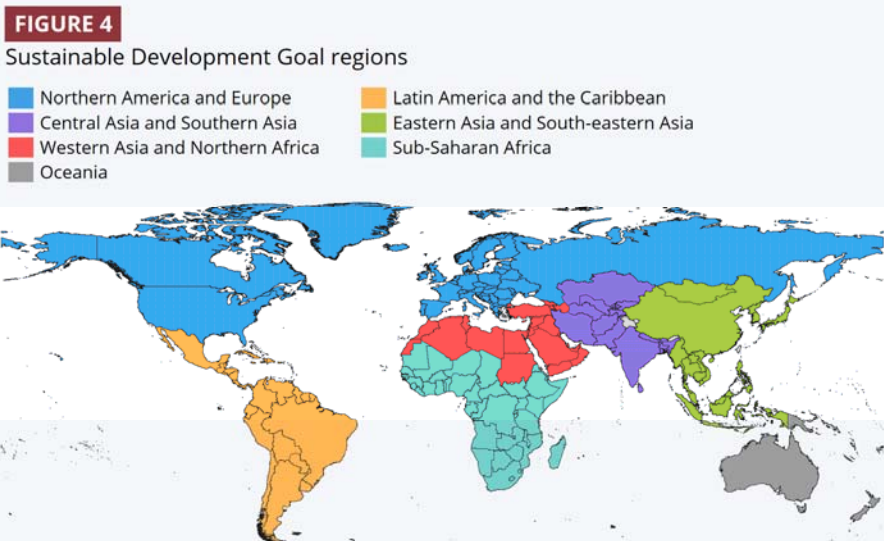
Figure 3b. Distribution of children and adolescents not learning, by region



Source: [UNESCO Institute for Statistics](#)

Box 2. Regional groupings used to monitor the SDGs

This analysis applies a new set of regional groupings that are used to monitor the SDGs. It is important to note that they are different from the 10 regions used to monitor the Millennium Development Goals (MDGs) between 2000 and 2015. For SDG monitoring, the world is divided into the seven regions as displayed in **Figure 4**.



Note: The depiction and use of boundaries and related data shown on this map are not warranted to be error free nor do they necessarily imply official endorsement or acceptance by UNESCO.
Source: [UNESCO Institute for Statistics database](#).

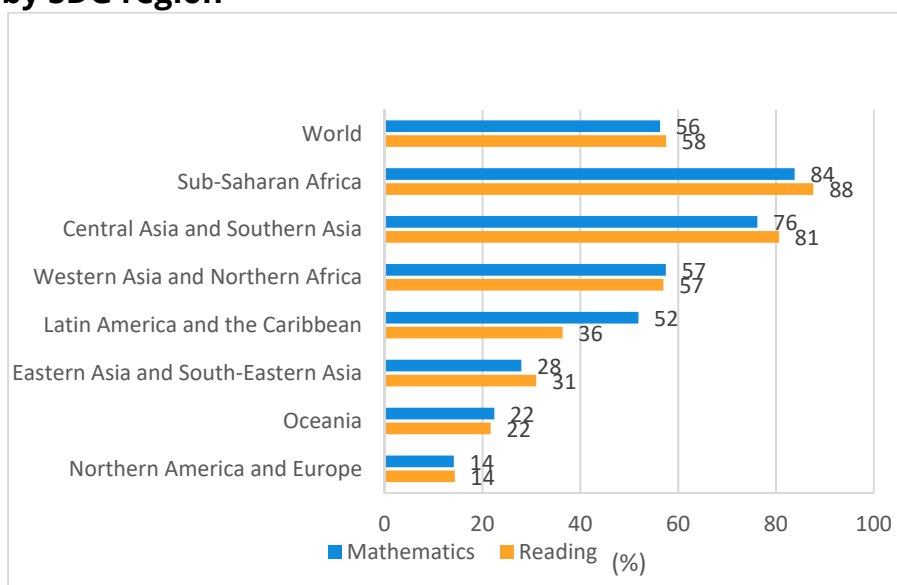


More than 85% of children in sub-Saharan Africa are not learning the minimum

Despite years of steady growth in enrolment rates, the education situation in sub-Saharan Africa continues to threaten the future of entire generations. New UIS data show that 88% of all children and adolescents will not be able to read proficiently by the time they are of age to complete primary and lower secondary education (see **Figure 5**). If current trends continue, this crisis will affect about 202 million children and adolescents, including 138 million of primary school age and 63 million of lower secondary school age.

Across the region, girls of primary school age face the greatest disadvantage. More than 70 million girls – or 90% – will not meet minimum proficiency levels in reading by the time they are of age to complete primary education. This is the case for 85% of boys.

Figure 5. Proportion of children and adolescents not achieving MPLs in mathematics and reading, by SDG region



Source: [UNESCO Institute for Statistics](#)

Central and Southern Asia has the second-highest rate of children and adolescents not learning. Across the region, 81% of children and adolescents (241 million) will not meet minimum proficiency levels in reading by the time they are of age to complete primary and lower secondary education. The total number includes 152 million children of primary school age and almost 89 million adolescents of lower secondary school age.

Boys of both age groups face greater challenges to read than girls in Central and Southern Asia. In total, almost 132 million boys of primary and lower secondary school age (84% of the male population) will not read proficiently. In contrast, the rate is 77% for girls (108 million).

In Western Asia and Northern Africa, 57% – or 46 million – children and adolescents will not achieve minimum proficiency levels in reading if current trends continue. This includes 28 million children of primary school age and 17 million adolescents of lower secondary school age.



In Latin America and the Caribbean, the total rate of children and adolescents not reading proficiently is 36%. The situation is more extreme for adolescents, with more than one-half (53% or 19 million) unable to meet minimum proficiency levels by the time they should be completing lower secondary school. This is the case for 26% of primary school-age children.

In Eastern and South-Eastern Asia, almost one-third or 78 million children and adolescents will not read proficiently if current trends continue. The rates for primary and lower secondary school ages are similar in comparison to other regions, at 29% and 34% respectively.

In contrast, the learning situation is significantly better in Northern America and Europe as well as Oceania, although improvements are needed, especially among lower secondary school-age populations.

Across almost all regions, the rates of adolescents not learning are higher than those for children. However, the opposite is true for total numbers, because they are calculated for a smaller age cohort (377 million adolescents versus 694 million children of primary school age). Eight out of ten adolescents not learning live in three regions: sub-Saharan Africa (63 million), Central Asia and Southern Asia (89 million) and Eastern and South-Eastern Asia (30 million). Sub-Saharan Africa is the region with the highest rate of adolescents not learning (89%), followed by Central Asia and Southern Asia (80%) and Western Asia and Northern Africa (64%).

Gender disparities in the regions

This section examines gender disparities by using the adjusted gender parity index (*see Box 1*) for the rates of children and adolescents not learning. As shown in **Figure 6**, girls and boys are just as likely to achieve minimum proficiency levels in mathematics at the global level. However, girls are more likely than boys to read proficiently. These gaps are seen more clearly at the regional level.

Girls tend to make the most of the opportunity to learn

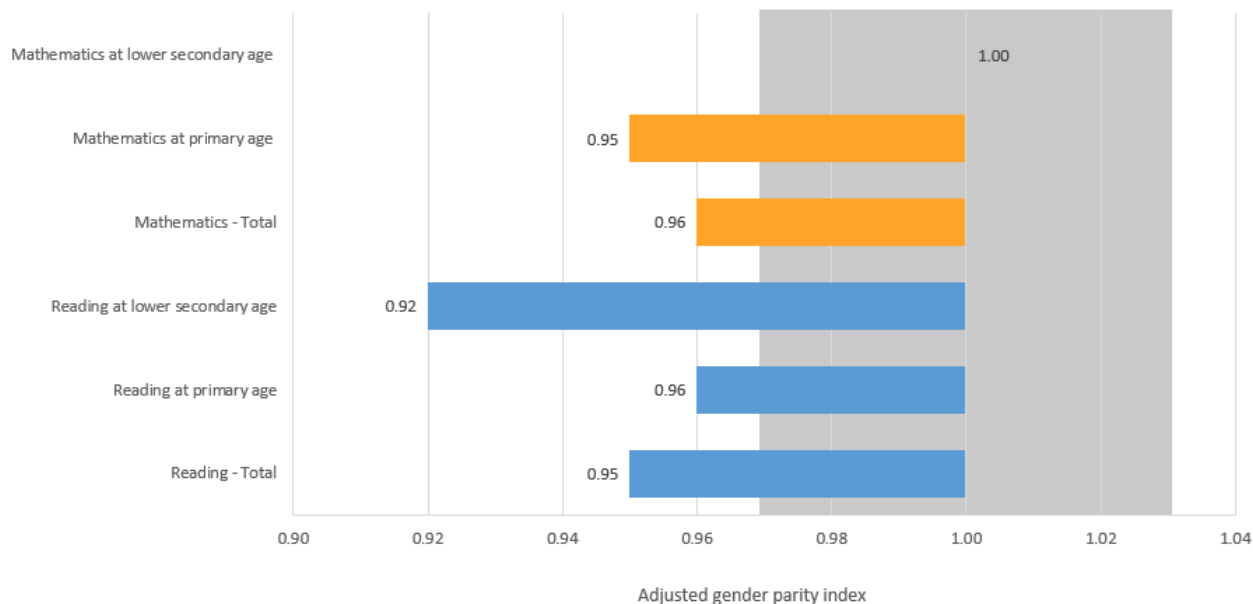
Figure 7 presents the adjusted GPI for the rates of children and adolescents not achieving minimum proficiency levels in reading and mathematics by region. While there are exceptions, the data suggest that once girls gain access to school and the opportunity to learn they tend to pursue their studies and strive to perform.

This is the case even in sub-Saharan Africa, where girls struggle just to start school. For the primary school-age population, the adjusted GPI for reading and mathematics is 1.06, which largely reflects the ongoing barriers that prevent girls from starting school on time or at all. Yet it seems that those who do gain access are successful. The adjusted GPI indicates parity for the lower-secondary school-age population, whereby girls and boys have equal chances of acquiring reading and mathematics skills.

In the other regions, boys face a disadvantage, especially in reading. While there are exceptions, the gaps tend to widen when comparing the adjusted GPI values for primary and lower secondary school age groups.



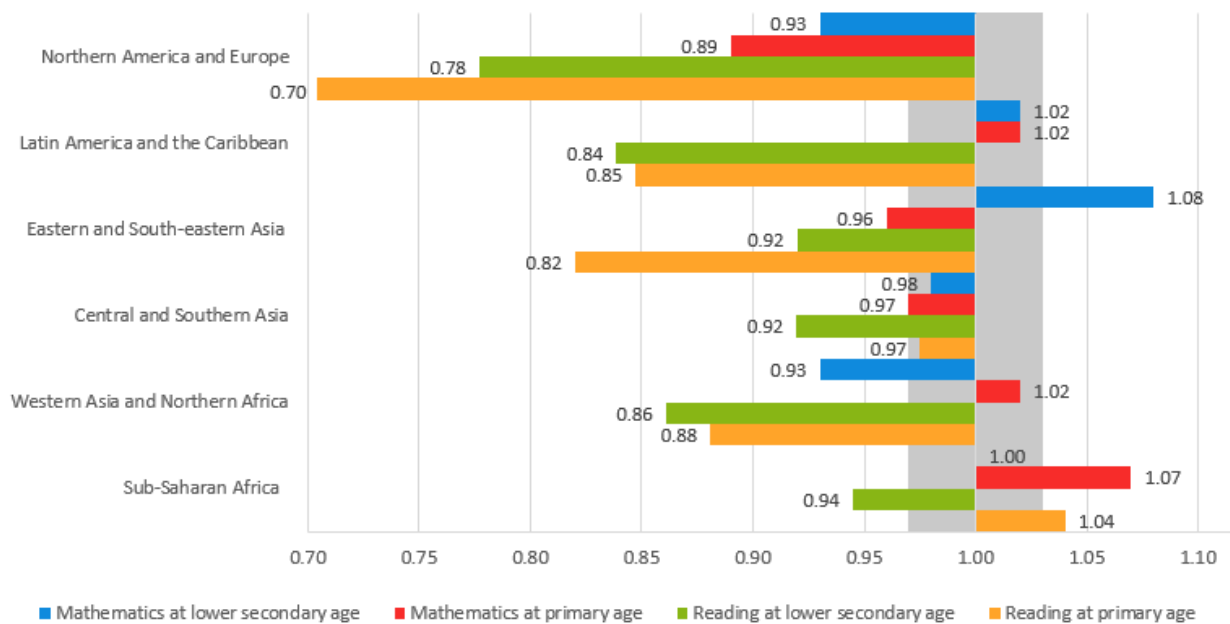
Figure 6. Adjusted gender parity index for children and adolescents not achieving MPLs in mathematics and reading, by level and learning domain



Note: GPIA <0.97 indicates male disadvantage; GPIA >1.03 indicates female disadvantage.

Source: [UNESCO Institute for Statistics](#)

Figure 7. Adjusted gender parity index for children and adolescents not achieving MPLs in mathematics and reading, by level, learning domain and SDG region



Note: GPIA <0.97 indicates male disadvantage; GPIA >1.03 indicates female disadvantage.

Source: [UNESCO Institute for Statistics](#)



The school exposure of children and adolescents not learning

To better understand why so many children and adolescents are not learning, the UIS has produced more detailed data on their school exposure. They can be divided into six main groups:

1. Those who are in school and who are expected to reach the last grade of their respective level of education;
2. Those who are in school but who are expected to drop out before reaching the last grade of the cycle;
3. Those who will start school late and who are expected to reach the last grade;
4. Those who will start school late but who are expected to drop out in the future;
5. Those who were in school but dropped out; and
6. Those who were never in school and are expected to never enter.

To develop the estimates, the UIS created a new learning outcomes database that anchors the assessment results of more than 160 countries/territories (Altinok, 2017). Based on this data, the UIS produced learning estimates for children and adolescents in school as well as those out of school (based on UIS administrative data). The methodology assumes that groups 1 and 3 (both of which are expected to reach the last grade) will have been assessed at some point during their education (*see **Box 3** for the methodology*). Based on these results, the UIS has estimated the rates and numbers of those unable to achieve minimum proficiency levels.

Figure 8 presents estimates for the distribution of children of primary school age unable to read proficiently by school exposure.

UIS data show that two-thirds (68%) of these children – or 262 million out of 387 million – are in school and will reach the last grade of primary but will not achieving minimum proficiency levels in reading. These findings show the extent to which education systems around the world are failing to provide a quality education and decent classroom conditions in which children can learn.

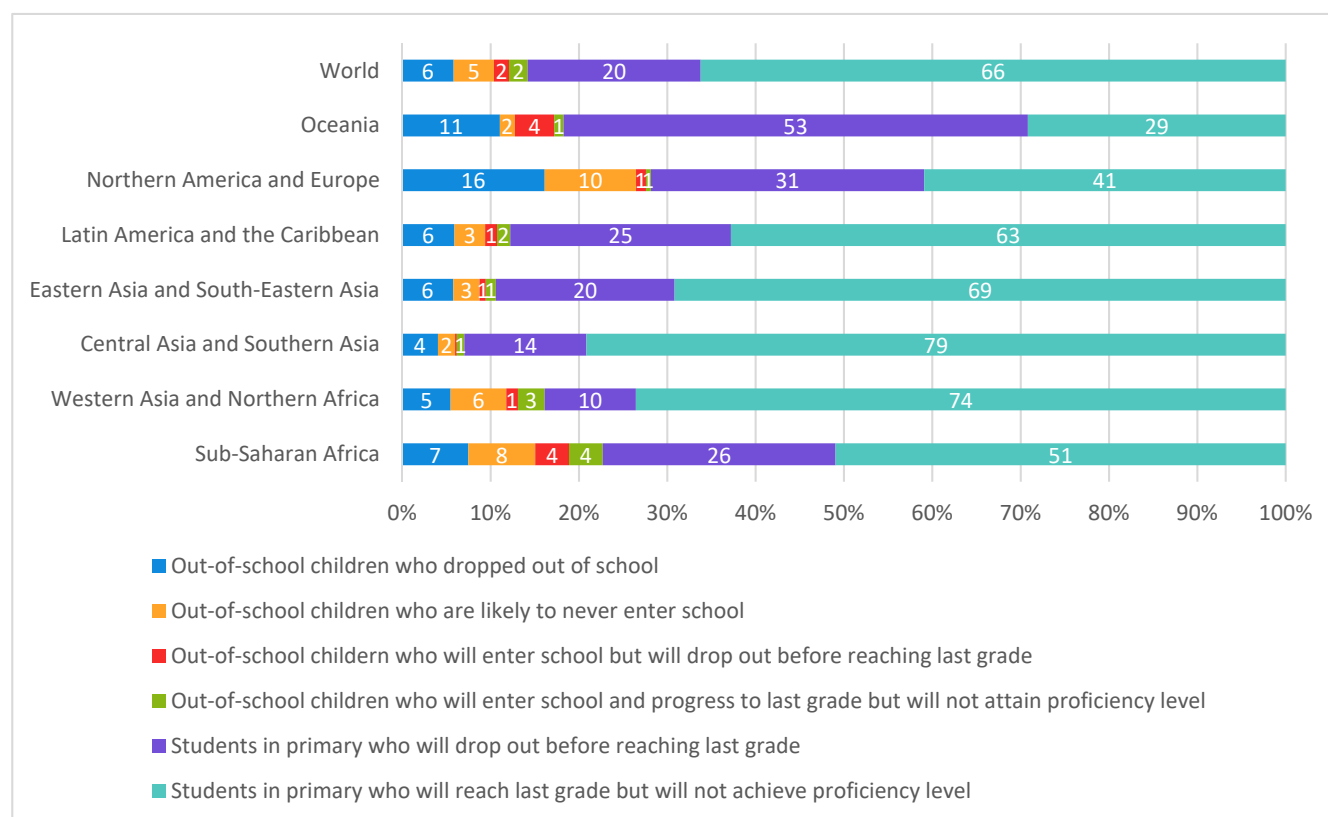
Another 78 million (20%) are in school but are not expected to reach the last grade of primary. Unfortunately, according to UIS data, 60% of the dropout happens in the first three grades of the school cycle, leaving many children without basic skills. While there are many reasons for high dropout rates, the data underscore the need to improve education policies by tailoring programmes to meet the needs of different types of students, especially those living in poverty. The benefits of education must outweigh the opportunity costs for students and their households.

It is not surprising to find that 40 million children (10% of the total) unable to read proficiently have either left school and will not re-enrol or have never been in school and will probably never start. If current trends continue, they will remain permanently excluded from education.



Finally, there are roughly another 21 million children of primary school age who are currently not in school but are expected to start late. About 6.9 million of these children will not reach the last grade and will therefore not achieve minimum proficiency levels in reading. The data confirm numerous studies showing the difficulties over-age students face in pursuing their studies and learning but it is positive to highlight that despite the late start many children will succeed and progress towards the end of the cycle (about 14 million).

Figure 8. Distribution of primary school-age children not achieving MPLs in reading, by SDG region and school exposure



Source: [UNESCO Institute for Statistics](#)

137 million adolescents are in school but not learning the minimum

It is currently not possible to provide a full account of the school exposure of adolescents of lower secondary school age. However, UIS estimates show that the vast majority of adolescents unable to read proficiently are in school. As shown in **Figure 9**, a total of 230 million adolescents will not achieve minimum proficiency levels in reading by the time they should be completing lower secondary education. About 60% or 137 million are in school. The remaining 93 million are either not in school or will drop out before completing this level of education.

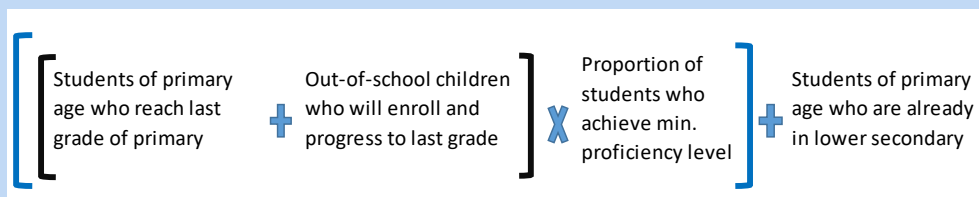


Box 3. Methodology for estimating the rates and numbers of children and adolescents not learning

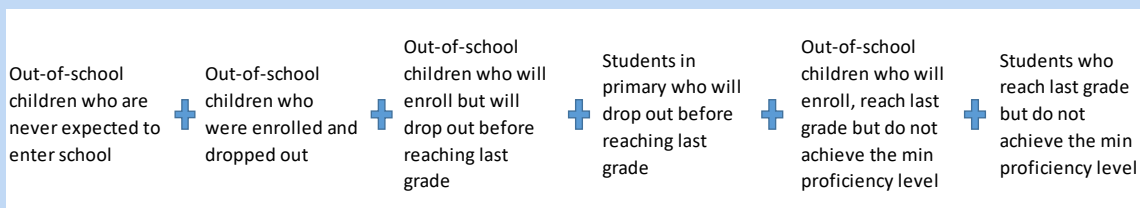
It is very complicated to generate estimates of the rates and numbers of children and adolescents not learning. To begin with, learning assessment data vary in coverage and comparability. In addition, it is difficult to estimate the likelihood that children and adolescents will start school and reach the last grade of primary and lower secondary education. Generating estimates on school exposure with a probability analysis of future entry and non-entry is no easy feat because of imperfect input data. In response, the UIS is constantly seeking to improve its approaches to resolving these methodological challenges.

The estimates published in this paper are based on a new methodology (UIS 2017, forthcoming) that is briefly summarised below.

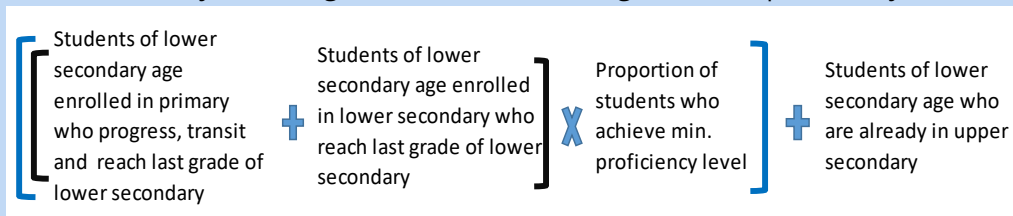
1. Primary school-age children achieving minimum proficiency level



2. Primary school-age children **not** achieving minimum proficiency level



3. Lower secondary school-age adolescents achieving minimum proficiency level



4. Lower secondary school-age adolescents **not** achieving minimum proficiency level

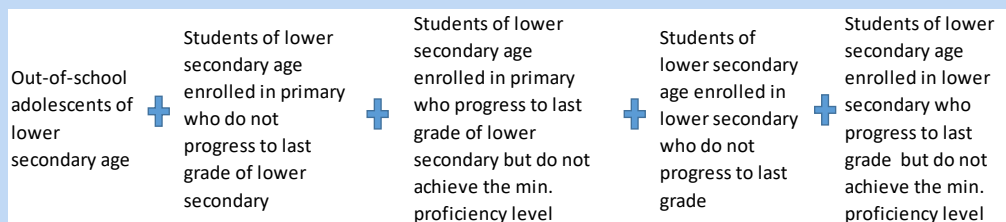
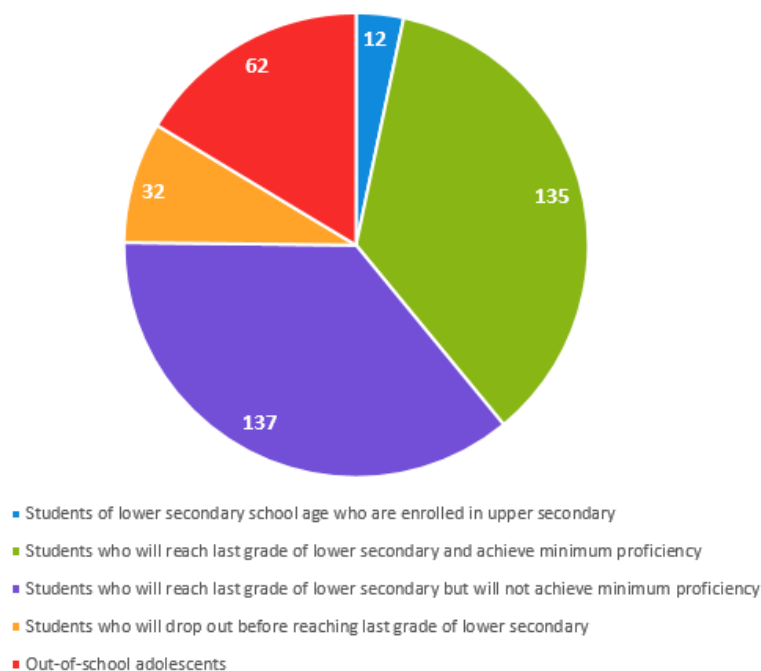


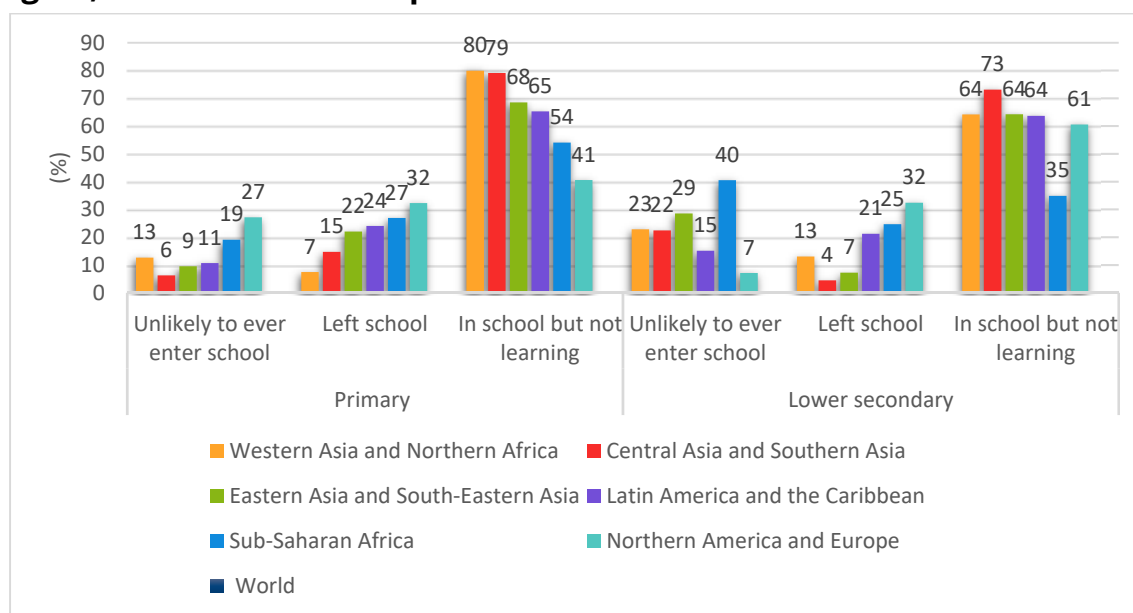


Figure 9. Distribution of lower secondary school-age adolescents by school exposure (in millions)



Source: [UNESCO Institute for Statistics](#)

Figure 10. Proportion of children and adolescents not achieving MPLs in reading, by SDG region, level and school exposure



Source: [UNESCO Institute for Statistics](#)



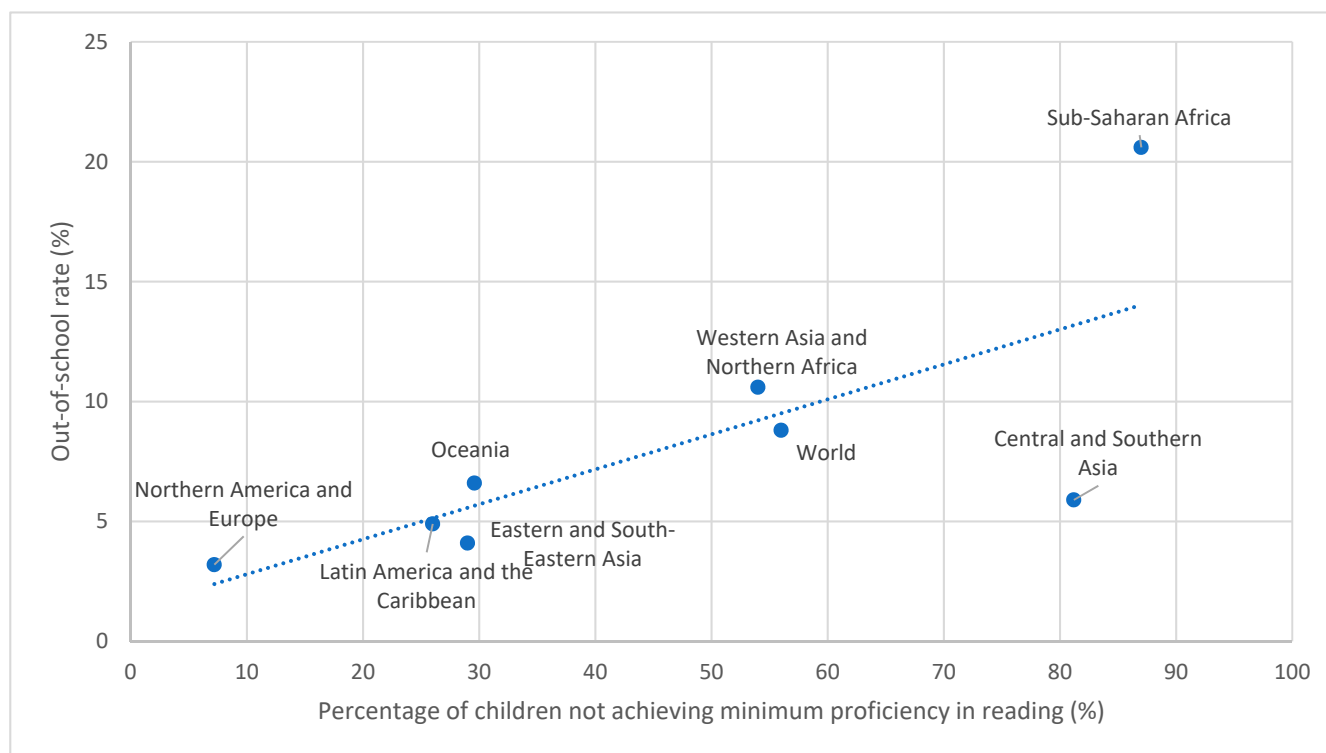
In every region, most children not learning are in school

Figure 10 offers a more detailed look at the regional data on children and adolescents who are not learning by showing their school exposure in relation to their age. Once again, it clearly shows that the vast majority of children and adolescents who are not learning are in school across every region. This has tremendous policy implications regarding the quality of education.

As previously shown, the three regions with the highest rates of children and adolescents who are not learning are sub-Saharan Africa, Central and Southern Asia, followed by Western Asia and Northern Africa.

Figure 11 shows the correlation between out-of-school rates and the rates of children and adolescents not achieving minimum proficiency levels in reading. Sub-Saharan Africa, as well as Western Asia and Northern Africa, have the highest out-of-school rates and the highest rates of children and adolescents not learning. This correlation highlights the urgency in improving access to education and the quality of schooling as part of wider efforts to reduce high dropout rates. In short, there is a critical need to enrol and retain students by improving the quality of their educational experience.

Figure 11. Correlation between out-of-school rate and proportion of primary school-age children not achieving MPLs in reading



Source: [UNESCO Institute for Statistics](#)



Low-income countries are home to a disproportionately large share of children and adolescents not learning

The World Bank assigns countries to four groups according to their gross national income (GNI) per capita (World Bank, 2017). In low-income countries, the rates of children and adolescents not learning are systematically higher than in lower-middle-income, upper-middle-income and high-income countries (see **Table 2**).

Table 2. Children and adolescents not achieving MPLs by country income level, 2015

	School-age population (in millions)	Share of world's school-age population (%)	Reading			Mathematics		
			School-age population who will not attain minimum proficiency levels (in millions)	School-age population who will not attain minimum proficiency levels (%)	Share of world total of children not learning	School-age population who will not attain minimum proficiency levels (in millions)	School-age population who will not attain minimum proficiency levels (%)	Share of world total of children not learning
Primary and lower secondary school age								
High-income countries	117	11	15	13	2	15	13	2
Upper-middle-income countries	307	29	94	31	15	97	32	16
Lower-middle-income countries	493	46	369	75	60	358	73	59
Low-income countries	154	14	139	90	23	134	87	22
World	1,072	100	617	58	100	604	56	100
Primary school age								
High-income countries	75	11	4	5	1	6	8	2
Upper-middle-income countries	197	28	48	24	12	53	27	14
Lower-middle-income countries	318	46	240	76	62	234	73	61
Low-income countries	104	15	94	91	24	90	87	24
World	694	100	387	56	100	383	55	100
Lower secondary school age								
High-income countries	42	11	11	26	5	9	21	4
Upper-middle-income countries	110	29	46	42	20	44	40	20
Lower-middle-income countries	175	46	129	73	56	124	71	56
Low-income countries	50	13	45	90	20	44	87	20
World	378	100	231	61	100	221	58	100

Source: [UNESCO Institute for Statistics](#)

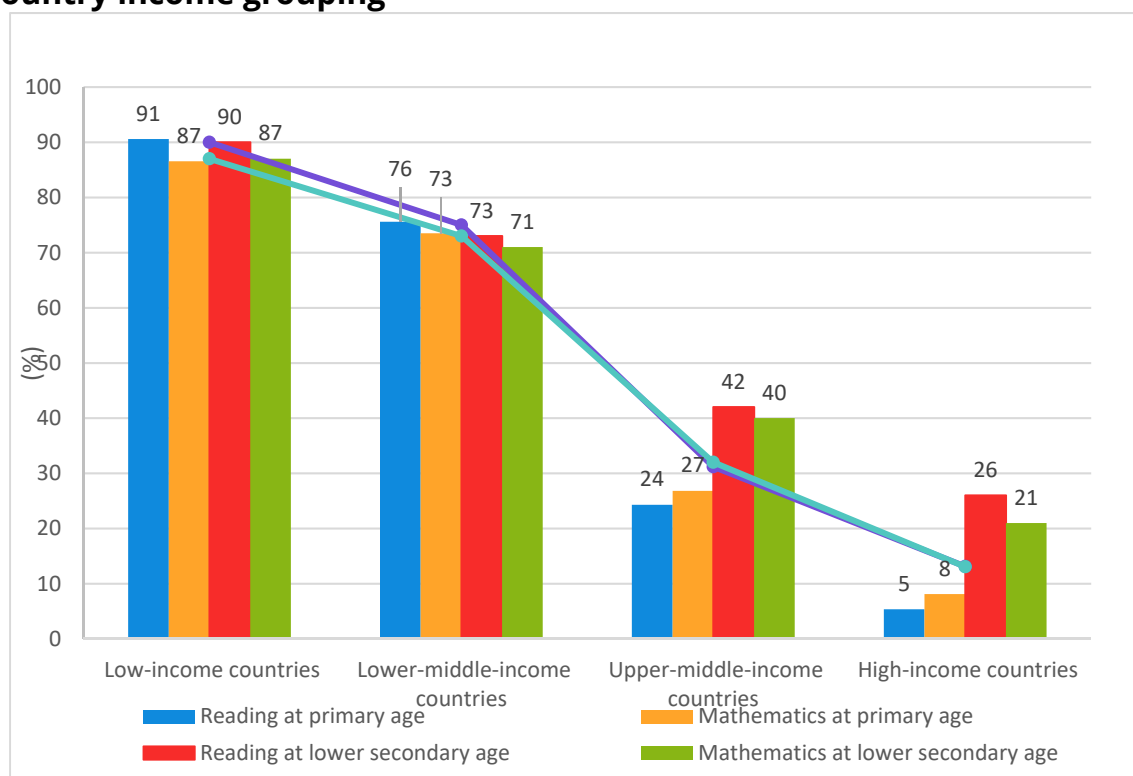


For example, 91% of primary school-age children in low-income countries will not achieve minimum proficiency levels in reading and the rate is 87% in math compared to 5% and 8% respectively in high-income countries. For the lower secondary school-age group, the reading rate is 90% (45 million) in low-income countries compared to 26% (11 million) in high-income countries. As a group, low-income countries combined have the highest rates of children and adolescents not learning.

Low-income countries account for a disproportionately large share of the global number of children and adolescents not learning. They are home to 14% (139 million) of the world's primary and lower secondary school-age populations but 23% of the global population not achieving minimum proficiency levels in reading and 22% in mathematics. By contrast, high-income countries account for 11% (117 million) of the global primary and lower secondary school-age populations and only 2% (15 million) of the global number of children and adolescents not achieving minimum proficiency levels in reading and 2% (15 million) in mathematics.

Figure 12 shows an inverse relationship between the income of the region and the rates of children and adolescents not learning. Low-income and lower-middle-income countries have higher rates than countries with medium and higher levels of national income. Unfortunately, poorer countries not only tend to have higher out-of-school rates, they also tend to have larger absolute numbers (UIS-GEMR, 2017).

Figure 12. Proportion of children and adolescents not achieving MPLs, by domain and country income grouping



Source: [UNESCO Institute for Statistics](http://unesco.org)



About the data

As previously explained, the international community has agreed to use following indicator for SDG Target 4.1: *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.*

However, there is currently no global consensus on how to define minimum proficiency levels in reading and mathematics. To monitor progress, the international community needs a set of benchmarks – or points of reference – to determine whether or not children and adolescents are achieving minimum proficiency levels.

The UIS is working with partners through the Global Alliance to Monitor Learning ([GAML](#)) to develop a common learning reporting scale that will describe how the knowledge, skills and understandings in a domain typically progress. For example, the reading scale will describe how reading skills develop from the basic capacity to extract meaning from print to sophisticated levels of comprehension. While the scales show the progression of learning skills, they do not define the ages or grades at which children are expected to acquire them, which are decisions made by countries.

Setting benchmarks to track progress

The Education 2030 Framework for Action commits all countries to establish benchmarks for measuring progress towards SDG 4 targets. By describing the progression of learning skills, the scales will help countries identify and agree on the benchmarks needed to define minimum proficiency levels for reporting purposes. This consensus-building process is being led by the Technical Cooperation Group on SDG 4–Education 2030 Indicators ([TCG](#)), which brings together representatives of governments and development partners.

It is important to recognise that several years will be required to resolve all of the methodological and political issues needed to report on SDG Indicator 4.1.1 on the same scale. The challenges are primarily due the fact that learning assessment initiatives use different definitions of performance levels. While discussions continue on an interim reporting strategy, the UIS has developed an alternative methodology to produce the very first comparable estimates, which are presented in this paper (*see Box 3*).

The difference between basic and minimum proficiency levels

The new dataset is designed to help countries explore the benchmarking options in defining minimum proficiency levels for reading and mathematics. In theory, countries could collectively decide to use their own national definitions of minimum proficiency levels. However, this would make it impossible to produce globally-comparable indicators. A more pragmatic approach might be to use an existing set of benchmarks that are widely used (and validated) by countries participating in regional or international assessments as part of the process of reporting.



In response, the new UIS database uses two different benchmarks in order to reflect the contexts of countries with different income levels. For example, the Southern and Eastern Africa Consortium for Monitoring Education Quality ([SACMEQ](#)) is a regional survey used to assess students at the end of primary school. The decision was therefore to use the SACMEQ benchmark (referred to as the basic proficiency level) for reading and mathematics at the primary level for all countries in the database.

In addition, the database includes results using the minimum proficiency level defined by the International Association for Evaluation of Educational Achievement ([IEA](#)) for the Progress in International Reading Literacy Study ([PIRLS](#)) and Trends in International Mathematics and Science Study ([TIMSS](#)). Both of these international assessments have global coverage primarily involving middle- and high-income countries.

SACMEQ is only conducted at the primary level so the benchmarking options for secondary education are limited to either TIMSS or the OECD's Programme for International Student Assessment ([PISA](#)), which involves about 70 countries. The decision was made to use PISA benchmarks, since there is no specific analysis for reading in secondary education in the TIMSS study.

Box 4. What are children expected to know at the primary level?

According to the SACMEQ benchmarks, children in Grade 6 who have achieved the minimum proficiency level in reading can "interpret meaning (by matching words and phrases completing a sentence, matching adjacent words) in a short and simple text by reading forwards or backwards" ([SACMEQ III](#)).

In mathematics, students can "translate verbal information (presented in a sentence, simple graph or table using one arithmetic operation) in several repeated steps". Moreover, he/she "translates graphical information into fractions, interprets place value of whole numbers up to thousands and interprets simple common everyday units of measurement" (Hungu et al., 2010).

The IEA benchmarks used in PIRLS and TIMSS are more demanding. For example, "when reading Informational Texts, students can locate and reproduce explicitly stated information that is at the beginning of the text" (Mullis et al., 2012). For mathematics, "students can add and subtract whole numbers. They have some recognition of parallel and perpendicular lines, familiar geometric shapes and coordinate maps. They can read and complete simple bar graphs and tables" (Mullis et al., 2016).

**Box 5. What are adolescents expected to know at the secondary level?**

According to PISA benchmarks, students enrolled in secondary education can typically do several basic tasks in reading. For instance, "some tasks at this level require the reader to locate one or more pieces of information, which may need to be inferred and may need to meet several conditions. Others require recognising the main idea in a text, understanding relationships or construing meaning within a limited part of the text when the information is not prominent and the reader must make low-level inferences" (OECD, 2016).

In mathematics, students can typically "interpret and recognise situations in contexts that require no more than direct measure. They can extract relevant information from a single source and make use of a single representational mode. Students at this level can employ basic algorithms, formulae, procedures or conventions to solve problems involving whole numbers. They are capable of making literal interpretations of the results" (OECD, 2016).

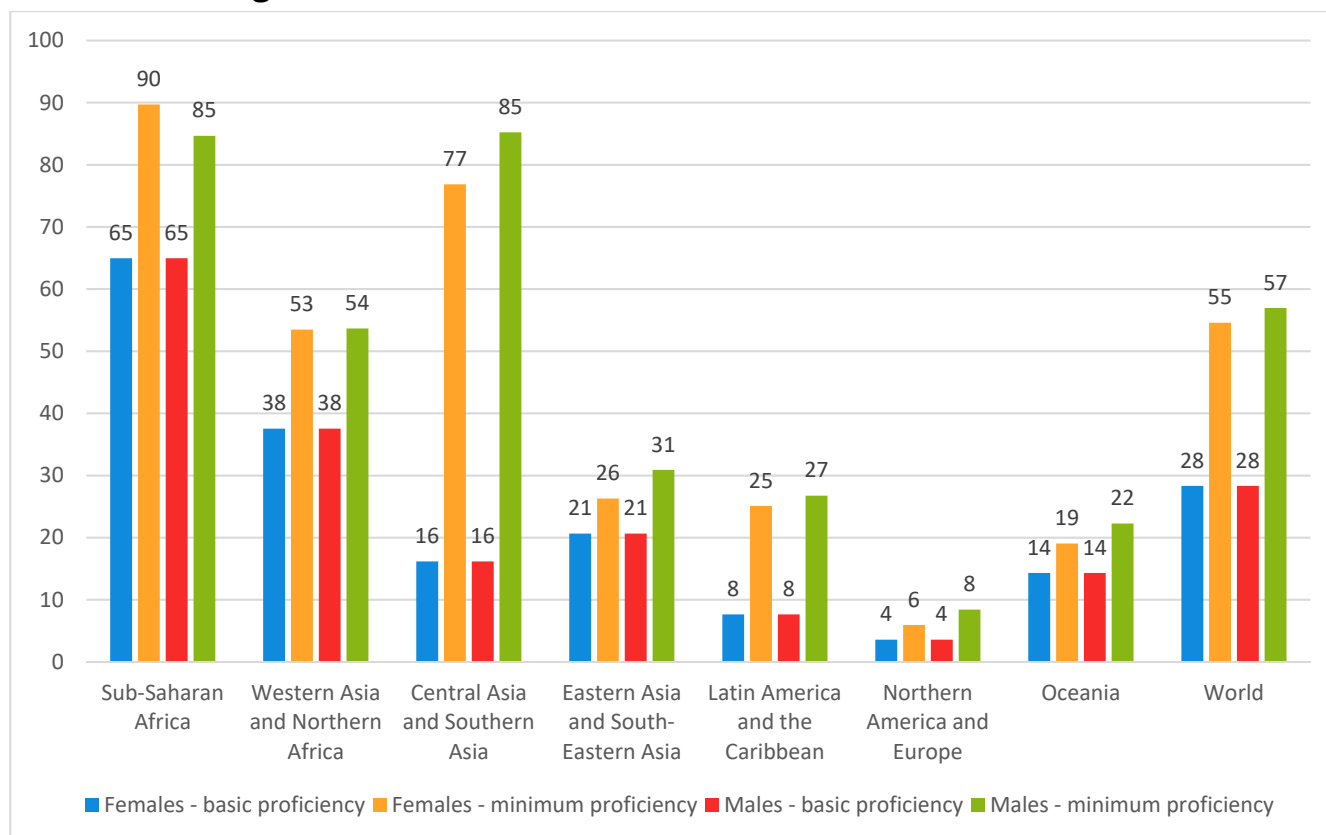
Figure 13 shows the percentage of primary and lower secondary students not achieving the basic proficiency level and the minimum proficiency level. The minimum proficient level is more difficult and requires a higher level of skills and concepts, which explains why less students are achieving it.

It is also important to note the variation in rates between regions. The change in percentage of students below the basic and the minimum proficiency level is not linear. Linearity could occur if there were a similar distribution of pupils for all possible scores between countries. A high proportion of students concentrated around the basic proficiency level implies that a minor change in the levels of the threshold to the minimum proficiency level will produce a dramatic reduction in the proportion of children who reach minimum proficiency levels. There are regions with a high proportion of children with very basic sets of skills for whom the minimum proficiency level is too high of a bar. This explains why such a high share is not reaching the benchmark.

The differences in the results highlight the need to accelerate discussions on benchmarks. Is it possible to define appropriate benchmarks for all countries? Would it be best to define different benchmarks within the continuum of skills? There is a clear need to define concepts as well as to examine the feasibility and utility of setting benchmarks at different levels of monitoring. Both the technical and political aspects of the process must be taken into account in these discussions.



Figure 13. Proportion of children not achieving basic and minimum proficiency levels in reading



Source: [UNESCO Institute for Statistics](#)

The benefits of data far outweigh the costs

The UIS has produced the very first global estimates of SDG Target 4.1 based on data currently available and developed a new indicator, referred to as the children not learning rate. While the Institute continues to develop the methodological tools needed to monitor learning globally, it is essential to make the case for more and better data.

On average, it costs roughly US\$500,000 to conduct an assessment. This includes data collection and technical assistance, although the costs can vary depending on national labour costs and the size and complexity of the survey. Currently, about 100 countries do not assess learning. It would cost a total of about US\$1 million every four years – or US\$250,000 per year – for all of these countries to conduct assessments at the end of primary and lower secondary education.



Rather than looking at these amounts as “costs”, they should be considered as investments into better education for all, as a simple comparison between costs and benefits show. According to UIS data, low- and middle-income countries spend on average about US\$5.8 billion per year to run their pre-primary to secondary education systems ([UIS database](#)). Studies have shown that at least 10% of the running costs are lost to inefficiencies in the system. In total, countries are losing about US\$580 million per year.

Learning assessment data empower countries to directly address these inefficiencies by improving the quality of education and reducing the rates at which students repeat grades and drop out. In a conservative scenario, the effective use of assessment data could lead to a 5% reduction in inefficiency costs. This would mean that the average country would benefit from about US\$30 million per year in savings.

This analysis shows the tremendous benefits that could arise if all countries assessed learning. If the remaining 100 countries were to make the investment and conduct two assessments during a four-year period, they could collectively see savings of \$120 million.

Conclusion

The new data signal a learning crisis that could threaten progress, not only towards the global education goal, but many of the other SDGs that depend on having literate and numerate populations.

The waste of human potential signalled by the new data confirms that getting children into the classroom is only half the battle. The international community must ensure that every child in school is learning the minimum skills they need in reading and mathematics.

UIS data suggest that the numbers are rooted in three common problems. First, lack of access, with children who are out of school having little or no chance to reach a minimum level of proficiency. Second, a failure to retain every child in school and keep them on track. Third, the issue of education quality and what is happening within the classroom itself.

While the numbers are staggering, they show the way forward. More than two-thirds of the children and youth not learning are actually in school. They are not hidden or isolated from their governments and communities – they are sitting in classrooms with their own aspirations and potential. We can reach these children. But not by simply hoping that they stay in school and grasp the basics. We must understand their needs and address the shortcomings of the education currently on offer.

This will require commitment and resources but also a new approach to improving the quality of education. This can only happen with data – which is why the UIS is working so closely with countries and partners to help them explore the options and move forward.

The discussions on benchmarks touch every major education issue. What are the minimum levels of learning we expect children to achieve? Should there be one benchmark for developing countries and another for



developed countries? Or should they be defined at the country level? Perhaps most importantly, do children and their households have the right or entitlement to a minimum level of learning? To help further these discussions, the UIS is exploring with partners the possibility of developing a global composite indicator that would reflect issues related to the access, quality and equity of education (UIS forthcoming).

How can any government be expected to improve learning outcomes if they cannot assess the skills of their children? This paper shows how countries can save millions of dollars by investing in learning assessments. But these savings pale in comparison to the individual and collective benefits arising if each of those 617 million children and adolescents were able to meet and beat the minimum proficiency levels and assume their right to a quality education.



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Annex

Table A1. Children not achieving MPLs in mathematics

Region	Mathematics								
	Proportion of school-age population not achieving minimum proficiency levels				Number of school-age children/adolescents not achieving minimum proficiency levels (in millions)			Proportion of school-age children/adolescents in world population	Regional share of global proportion of children/adolescents not learning
	Total	Male	Female	GPIA	Total	Male	Female		
Total (primary and lower secondary school-age children and adolescents)									
Sub-Saharan Africa	84	82	86	1.05	193	95	98	21	32
Western Asia and Northern Africa	57	57	56	0.99	45	23	22	7	8
Central and Southern Asia	76	77	75	0.97	228	121	107	28	38
Eastern and South-eastern Asia	28	28	28	1.01	72	38	34	24	12
Latin America and the Caribbean	52	51	52	1.02	50	25	25	9	8
Northern America and Europe	14	15	14	0.91	15	8	7	10	3
Oceania	22	23	21	0.92	1.3	0.8	0.5	1	0
World	56	56	57	1.01	605	311	293	100	100
Primary school-age children									
Sub-Saharan Africa	83	80	86	1.07	132	64	67	23	34
Western Asia and Northern Africa	54	53	54	1.02	28	14	14	7	7
Central and Southern Asia	77	78	75	0.97	144	76	67	27	37
Eastern and South-eastern Asia	27	28	27	0.96	46	25	21	24	12
Latin America and the Caribbean	46	45	46	1.02	27	14	13	9	7
Northern America and Europe	10	11	9	0.89	7	4	3	9	2
Oceania	23	24	23	0.98	1.0	0.5	0.5	1	0
World	55	55	56	1.01	384	197	187	100	100
Lower secondary school-age adolescents									
Sub-Saharan Africa	86	86	86	1.00	61	31	30	19	28
Western Asia and Northern Africa	62	64	60	0.93	17	9	8	7	8
Central and Southern Asia	76	76	75	0.98	84	44	40	29	38
Eastern and South-eastern Asia	30	29	31	1.08	26	13	13	23	12
Latin America and the Caribbean	62	62	63	1.02	22	11	11	10	10
Northern America and Europe	21	21	20	0.93	9	5	4	11	4
Oceania	20	23	18	0.78	0.4	0.2	0.2	0	0



World	58	59	58	1.00	221	114	106	100	100
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Source: [UNESCO Institute for Statistics](#)