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Combining Data on Out-of-school Children, Completion and Learning to Offer a More Comprehensive View on SDG 4

UNESCO

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The UIS is the official source of internationally comparable data used to monitor progress towards the Sustainable Development Goal on education and key targets related to science, culture, communication and gender equality.

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Background

The UNESCO Institute for Statistics (UIS) is the custodian agency for data for the Sustainable Development Goal on education (SDG 4) and responsible for developing the methodologies, standards and indicators needed to monitor progress across countries and time. This paper evaluates a methodology to combine access, completion and learning indicators that results in an adjustment of the SDG Indicator 4.1.1 in order to provide a more accurate view of the education situation facing children and adolescents, especially in regions with the greatest challenges.

SDG Target 4.1 aims to *“ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes”* by 2030.

SDG Indicator 4.1.1 is used to measure progress towards this target. It is defined as *“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.”*

Participation in primary and lower secondary (basic) education has increased substantially since the World Declaration of Education for All in 1990 and the decision by countries to make universal primary education a Millennium Development Goal in 2000. Despite this progress, learning outcomes tend to be low, especially in low- and middle-income countries. This suggests that while a growing number of children are in school, they are not necessarily learning. As a result, SDG Target 4.1 highlights the need for effective learning outcomes while ensuring universal primary and secondary education.

Progress towards target 4.1 is currently measured by indicator 4.1.1, which calculates the percentage of children *in school* achieving a minimum learning proficiency level. A common benchmark for defining and measuring minimum proficiency in mathematics and reading does not currently exist; however, the Global Alliance to Monitor Learning ([GAML](http://gaml.uis.unesco.org/)) is developing a framework for a common benchmark that links existing learning assessment studies.¹ Currently, indicator 4.1.1 relies on definitions of minimum proficiency used at different points of measurement of the school trajectories (i.e. Grade 2/3 of primary education, end of primary education and end of lower secondary education) by the existing international learning assessments.

The need for better measurement of SDG Target 4.1

Target 4.1 reflects three major dimensions: access to education, completion and learning outcomes. To achieve the target, all children must complete primary and secondary education *and* achieve sufficient learning outcomes. While the current definition of indicator 4.1.1 provides a clear measure of progress towards the learning outcomes dimension of the target, it omits the access and completion dimensions,

¹ Global Alliance to Monitor Learning: <http://gaml.uis.unesco.org/>

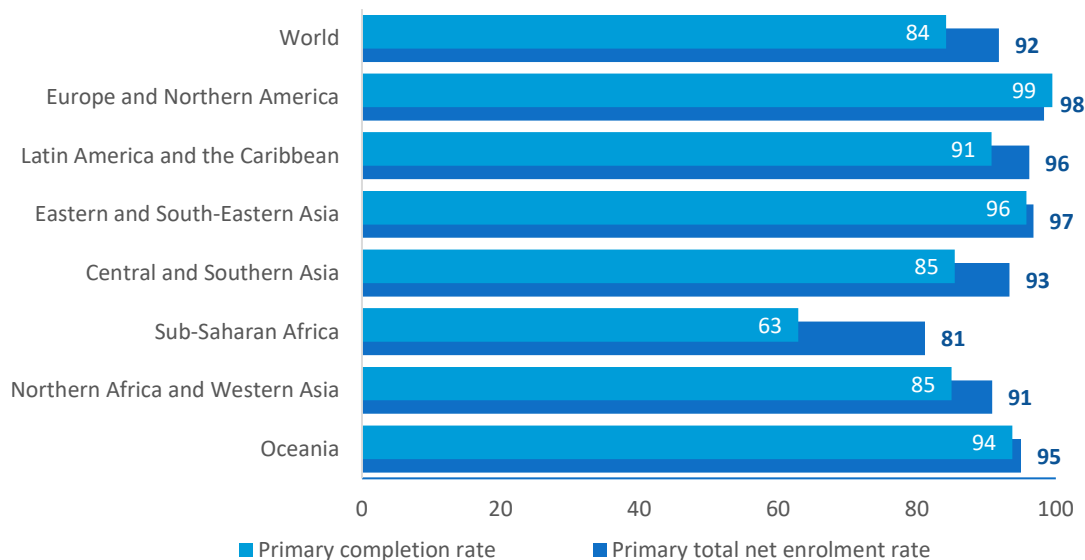


which are critical priorities for several regions. As shown in **Figures 1 and 2**, 81% of children are in school in sub-Saharan Africa and just 63% complete primary education. The rates fall even further for lower secondary education, with just 63% of adolescents between the ages of about 12 to 14 years old enrolled in school and only 38% completing this level.

To achieve target 4.1, significant improvements are needed to expand access to education while also improving the quality of education needed to strengthen learning outcomes. The ideal solution would involve measuring the learning outcomes of children who are in and out of school to show the extent to which a country's education system educates its entire school-age *population* to a particular standard of learning. However, this is generally not feasible because it would require a significant investment in household surveys, which can be expensive. A more practical approach involves the use of school-based measures of learning because the data are already available. This approach also makes it possible to track the access dimension of target 4.1 and the extent to which children complete primary and lower-secondary school as part of the wider goal of achieving universal primary and secondary education.

Large proportions of children and adolescents are not in school or completing primary and secondary education

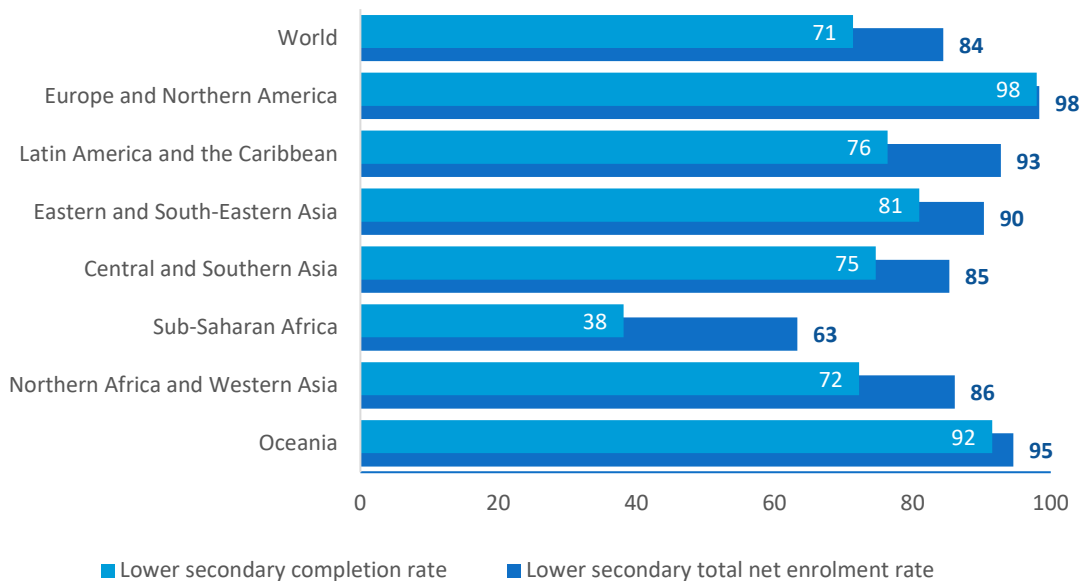
Figure 1. Percentage of children in and completing primary school



Source: UIS database. Regional averages for completion rates calculated by the UIS for this paper.



Figure 2. Percentage of children in and completing lower secondary school



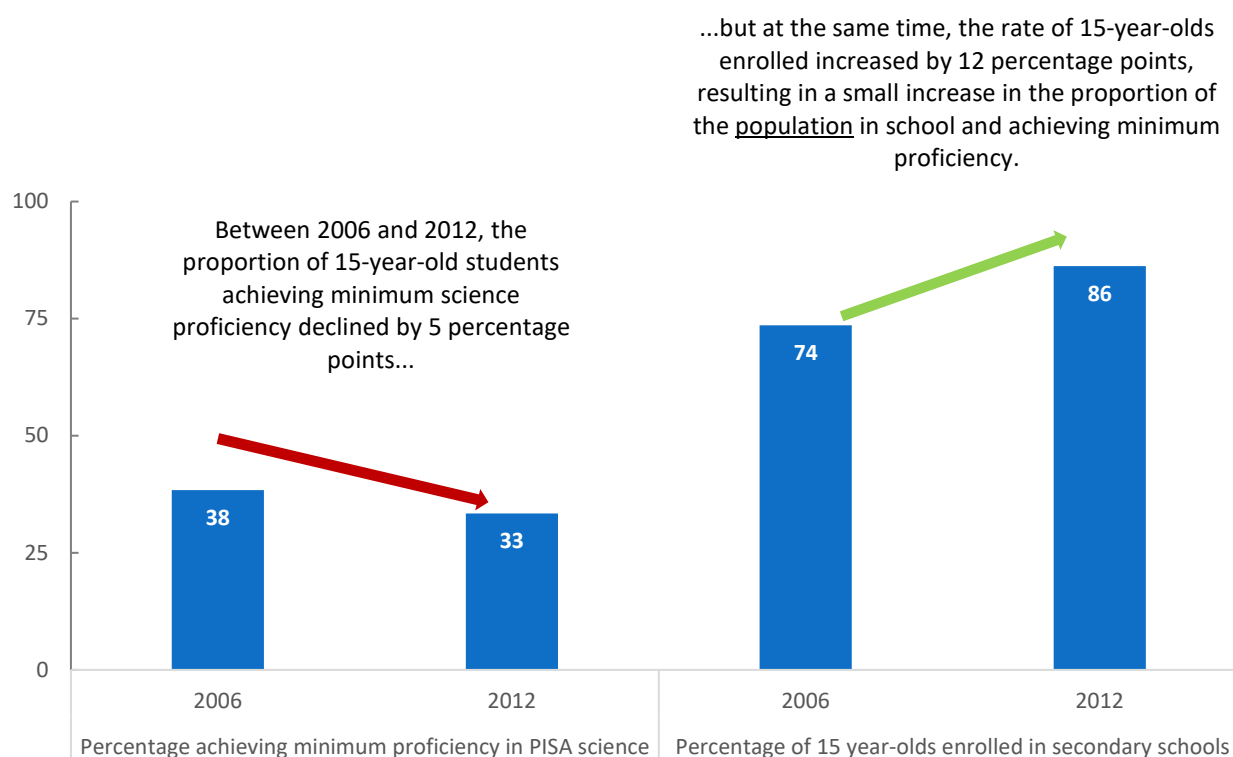
Source: UIS database. Regional averages for completion rates calculated by the UIS for this paper.

A narrow focus on the learning outcomes of students can actually hide progress towards target 4.1. For example, in Indonesia, between 2006 and 2012, the proportion of 15-year-old students achieving minimum proficiency in science, according to the OECD PISA definition, fell from 38% to 33%. Yet, it would be wrong to conclude that Indonesia lost ground in providing children with quality education—enrollment of 15-year-olds increased substantially from 74% to 86% over the same period, resulting in a slight increase in the total rate of 15-year-olds in school and achieving the minimum proficiency in science (see **Figure 3**).



Real progress in learning can be hidden by enrolment and a narrow focus on students achieving a minimum proficiency level

Figure 3. Percent of 15 year-old students achieving minimum science proficiency in PISA and percentage enrolled in 2006 and 2012, Indonesia



Source: OECD PISA, <http://www.oecd.org/pisa/>, and UIS database.

In fact, as education systems expand access, learning outcomes can be expected to decline, especially as they approach universal participation. This is because education systems must reach more excluded and inherently disadvantaged populations who may be more difficult to educate—at least at first. Excluded populations may be poorer or marginalized, and these characteristics are, unfortunately, important determinants of learning outcomes in many education systems. It may take time for systems to adjust and provide quality education to more disadvantaged students. Consequently, the values for indicator 4.1.1, as currently defined, could decline despite progress towards target 4.1. with increased education participation of the world's most disadvantaged children.



How to improve the indicator

To offer a more accurate view of the situation, the UIS has explored a simple methodology, combining enrollment and completion indicators with SDG Indicator 4.1.1, to produce a quality-adjusted enrollment and completion rate defined as follows:

Indicator 4.1.1 adjusted by enrollment and completion rates: *Proportion of children (a) enrolled in primary, (b) completing primary and (c) completing lower secondary and achieving minimum proficiency in (i) mathematics and (ii) reading, measured at the 2nd or 3rd grade level, approximate end of primary, and approximate end of lower-secondary, respectively, by sex.*

This adjusted indicator effectively measures enrollment and completion but only counts students as learning if they attain minimum proficiency. For example, if 80% of children complete primary school but only 60% of children *in school* attain minimum reading proficiency, then the proportion of children completing primary school and achieving minimum learning proficiency is 48% (the product of the two numbers).

Another important point to consider is what a value of 100% means according to the two indicators. For the original indicator, 100% means that only children in school are achieving minimum proficiency levels. If the adjusted indicator reaches 100%, all children would be both in school and learning at a sufficient level, which is the objective of target 4.1.

Comparison of the original and adjusted indicators

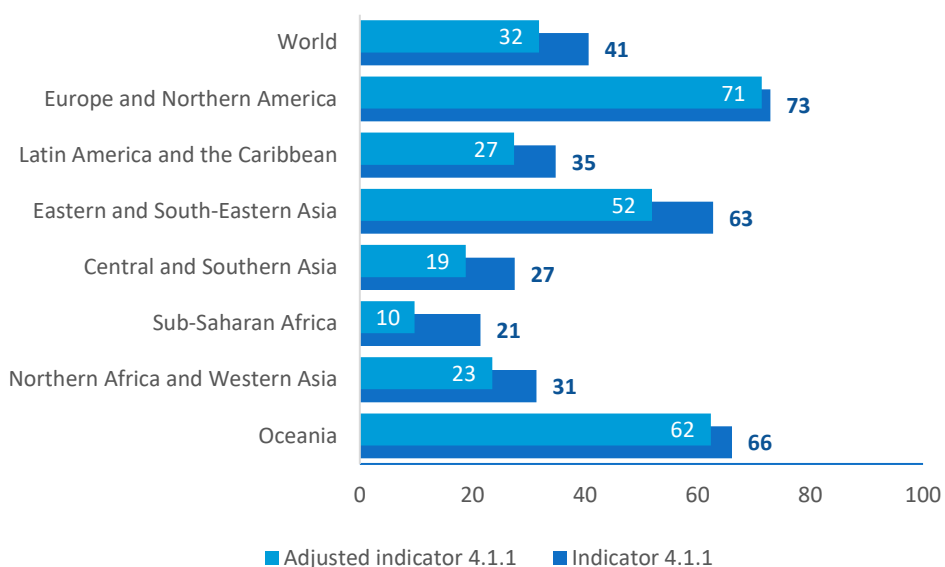
The greatest differences between the two indicators are found in regions or countries with lower completion and enrollment rates because the adjusted indicator is based on a quality-adjusted completion rate. This also explains why the largest differences occur at the lower-secondary level. Globally, 41% of lower-secondary students achieve minimum proficiency in mathematics according to the original indicator but the value for the adjusted indicator would fall to 32% of adolescents completing lower secondary and achieving minimum proficiency in mathematics.

As shown in **Figures 4 and 5**, there are significant differences between the two indicators at the lower secondary level in regions with low completion rates. In sub-Saharan Africa, for example, 21% of lower-secondary students are achieving minimum proficiency level in mathematics according to the original indicator, while the value for the adjusted indicator falls to 10%, nearly half of the original.



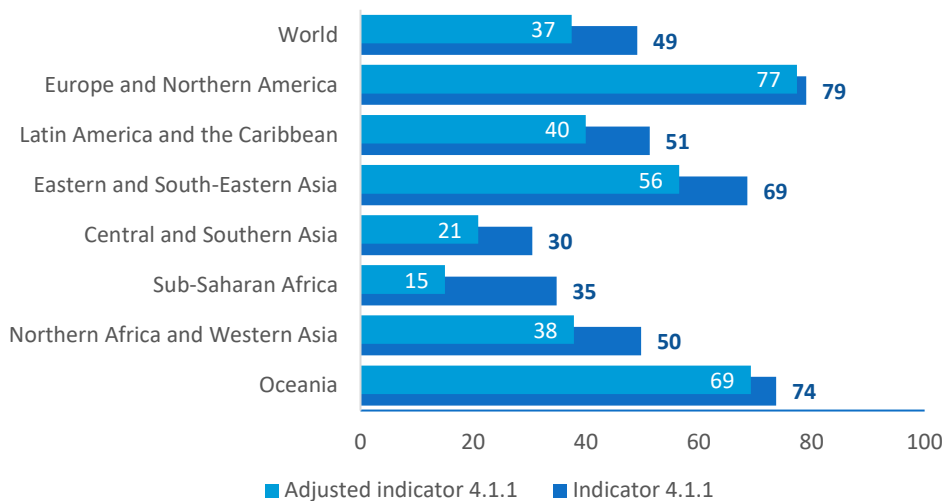
Combining completion rates with learning outcomes improves our understanding of progress towards target 4.1.

Figure 4. Comparison of results for adjusted and original 4.1.1. indicators; lower secondary, mathematics



Source: UIS database. Regional averages for completion rates calculated by the UIS for this paper.

Figure 5. Comparison of results for 4.1.1 adjusted and original indicators, lower secondary, reading





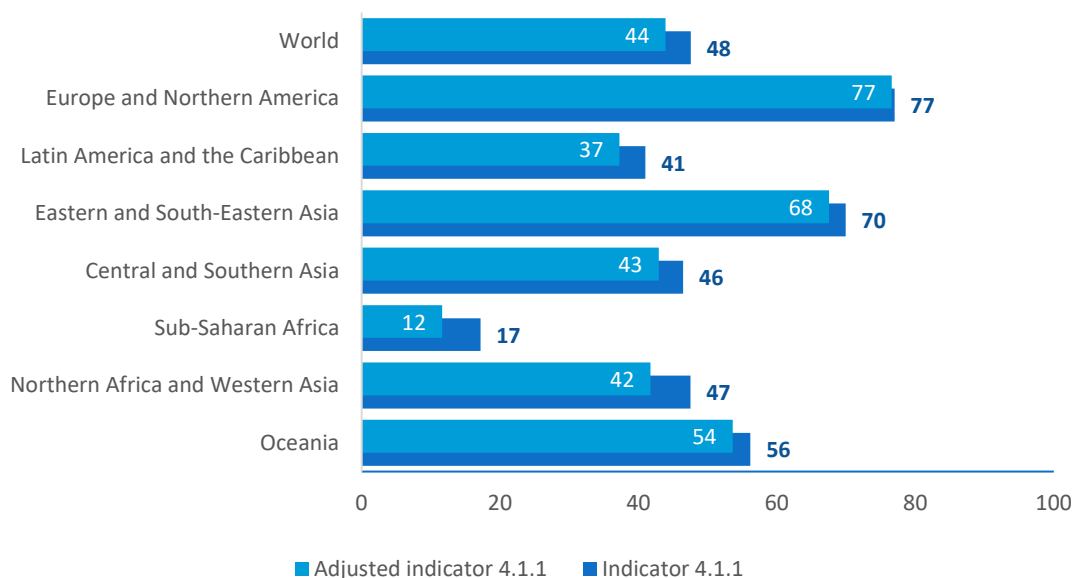
Source: UIS database. Regional averages for completion rates calculated by the UIS for this paper.

As shown in **Figures 6 to 9**, the differences between the original and adjusted indicators become less pronounced at the primary school level, where enrollment and completion rates are closer to 100%. Globally, 48% of primary students nearing completion achieve minimum proficiency levels in mathematics according to indicator 4.1.1, while 44% of children are completing primary education and achieving minimum proficiency levels in mathematics according to the adjusted indicator. The largest differences emerge, again, in regions with lower levels of education participation. For example, the original and proposed adjusted indicators would be 17% and 12%, respectively, in sub-Saharan Africa.

These comparisons reveal how the original and adjusted indicators differ in their measurement of progress towards target 4.1. Clearly, when completion or enrollment is near 100%, there is little difference between the results of the two indicators. However, when access to education remains a significant barrier, the adjusted indicator provides a better understanding of how far we are from achieving target 4.1. The greatest differences between the two indicators are found in the most poverty-stricken regions of the world, where having the clearest picture of progress—or lack thereof—is most vital.

The challenges facing sub-Saharan Africa are even greater when completion rates are considered

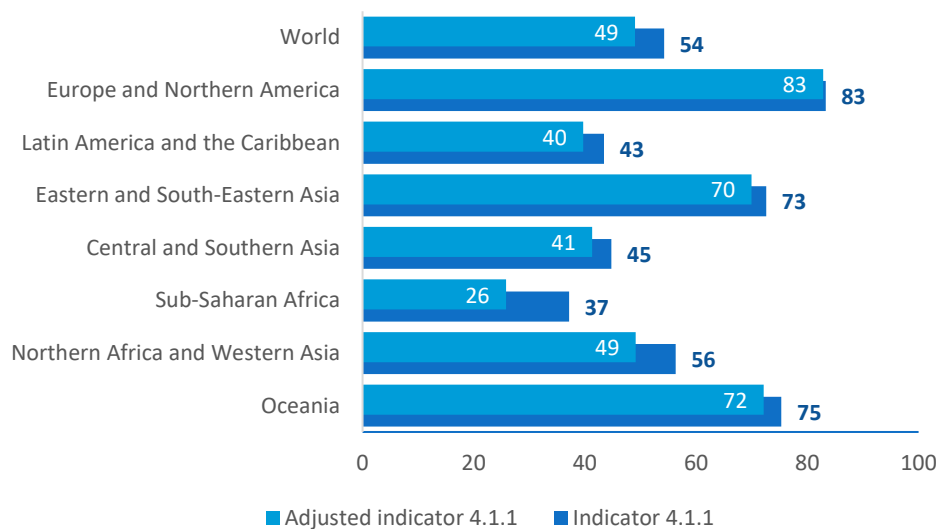
Figure 6. Comparison of results for 4.1.1 adjusted and original indicators, primary, mathematics



Source: UIS database. Regional averages for completion rates calculated by the UIS for this paper.



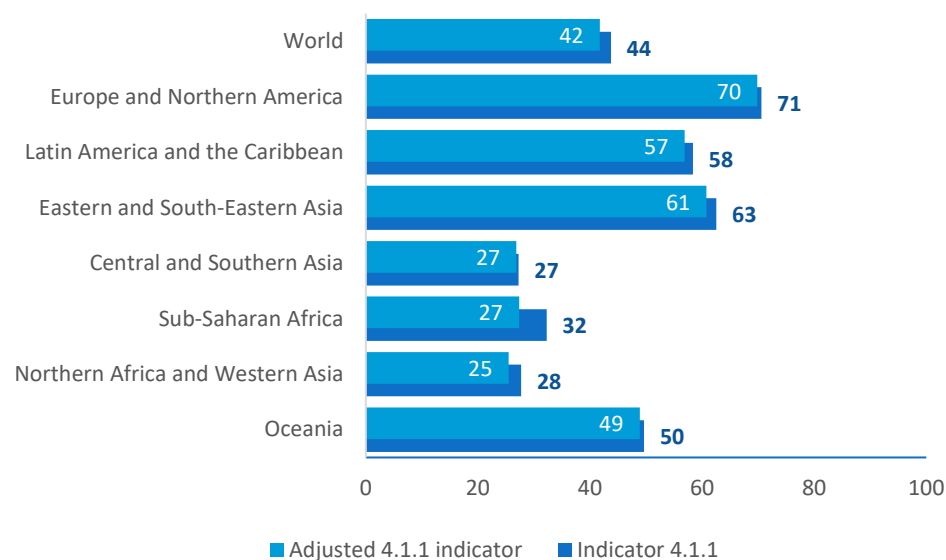
Figure 7. Comparison of results for 4.1.1 adjusted and original indicators, primary, reading



Source: UIS database. Regional averages for completion rates calculated by the UIS for this paper.

At the 2nd/3rd grade level, the adjusted indicator suggests less progress towards SDG Target 4.1 especially in sub-Saharan Africa

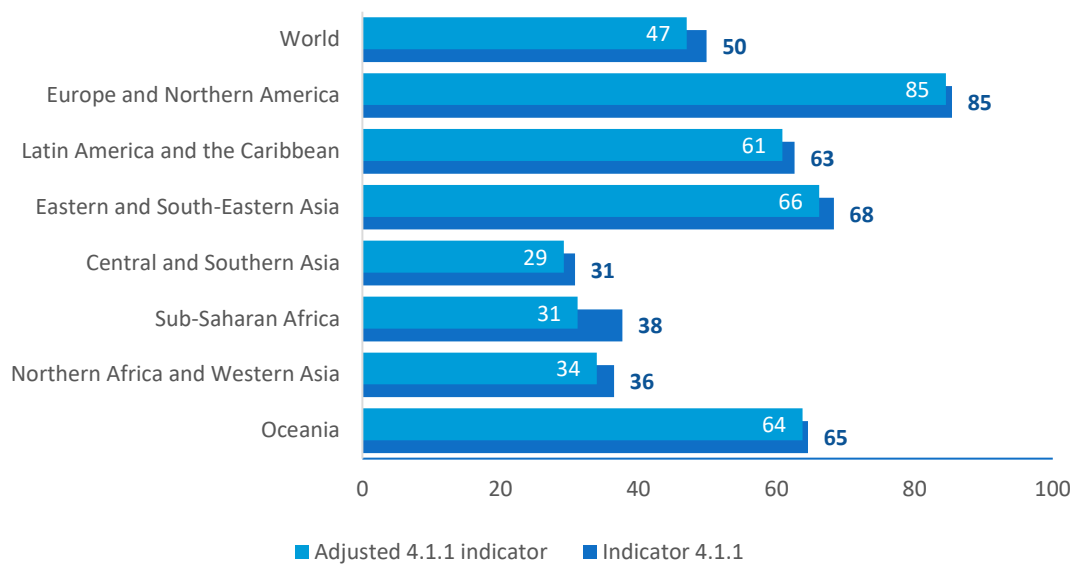
Figure 8. Comparison of results for 4.1.1 adjusted and original indicators, grades 2/3, mathematics



Source: UIS database. Regional averages for completion rates calculated by the UIS for this paper.



Figure 9. Comparison of results for 4.1.1 adjusted and original indicators, grades 2/3, reading



Source: UIS database. Regional averages for completion rates calculated by the UIS for this paper.