

RECOVERING LEARNING:

Are children and
youth on track in
skills development?

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Foreword

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It is clear that we are in the midst of a learning crisis: more than half of the world's 10-year-olds are unable to read a simple text, and a growing body of evidence suggests prolonged school closures due to COVID-19 will further deepen this crisis. The crisis we face, however, goes far beyond these poor learning outcomes in basic literacy. The large majority of children and young people are lacking socioemotional skills, digital skills and skills for future jobs, which will shape their paths to success in school, work and life. In response, UNICEF, together with Generation Unlimited and Giga, have developed an ambitious initiative to Reimagine Education: to end the learning crisis by connecting every child and young person to world-class digital learning solutions that help build the full range of skills they need to leapfrog to a brighter future.

To give young people the best chance to succeed, we need to support them holistically and give importance to every aspect of their development. We need to know where children and youth are in building the range of skills they need, monitor progress in their development and ensure no child or young person is left behind. Doing so begins with gathering evidence on the state of skills development among children and youth. To this end, UNICEF, the Education Commission and its partners have been working to address data gaps, including the launch of the [World Skills Clock](#) to help track progress on youth's secondary-level and digital skills attainment.

This report supports these efforts by providing a comprehensive view of skills attainment among children and youth. Today, most young people are not building the full range of skills they need to succeed. Poor levels of skills development can be found across all country income groups, but are particularly evident among youth in low- and lower-middle-income countries, home to more than half of the world's children and young people.

What we know so far, however, may be just the tip of the iceberg. To succeed in our global commitment to support the holistic development of children and young people, we will need better and more inclusive data. Tracking progress in skills development is more crucial than ever, given the substantial losses and widening inequalities as a result of school closures. UNICEF's recent report [Where Are We on Education Recovery](#), released in partnership with UNESCO and the World

Bank, reveals that a quarter of low-income countries surveyed do not have the data to show how many students have returned to school, and only half of low-income countries have a plan in place to measure learning after school reopening. To recover education, countries will need to act under a RAPID framework for learning recovery and acceleration: Reach every child and keep them in school; Assess learning levels regularly; Prioritize teaching the fundamentals; Increase the efficiency of instruction, including through catch-up learning; and Develop psychosocial health and well-being. With many young people behind in learning and skills development even prior to the pandemic, we must act now before it is too late to reverse the impacts of COVID-related education disruptions.

Importantly, we need to ramp up support for education transformation by mobilizing additional and more effective investment in education, including through innovative instruments such as the International Finance Facility for Education (IFFEd) that can multiply scarce resources – a key conclusion of the Global Education Forum 2022. It is critical that we amplify efforts towards ensuring the development of the full range of skills among children and youth. We have no time to waste in preparing them for a better future.



Robert Jenkins,

Director of Education and Adolescent Development
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Executive Director
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Executive Summary

To thrive in today's world, children and youth will need a full range of skills for success in school, work and life.

In addition to *foundational skills* such as basic literacy and numeracy, young people will need *transferable skills*, also known as 'life skills' or 'socio-emotional skills'; *digital skills*, which allow them to use and understand technology; *job-specific skills*, which support their transition into the workforce; and *entrepreneurial skills*, which support business and social entrepreneurship. Recognizing the need for comprehensive skills development, UNICEF's [Reimagine Education](#) initiative, in partnership with [Generation Unlimited](#) (GenU) and [Giga](#), aims to connect every child and young person – some 3.5 billion by 2030 – to world-class digital learning solutions that help build this breadth of skills. Amid the COVID-19 crisis, substantial losses and widening inequalities in learning driven by school closures have further highlighted the urgency of recovering learning and skills development – a joint endeavor led by UNICEF, UNESCO and the World Bank through [Mission: Recovering Education in 2021](#).

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Skills development is a cumulative process: early childhood development sets the stage for future learning and skills attainment; for children of primary school age, the acquisition of various skills, but most especially foundational skills, is critical; and for youth, the full range of skills is needed, including those required for active citizenship and decent work. Drawing on the latest available data within the past decade from various large-scale assessments and household surveys, this report provides a baseline on skills development as it relates to children aged 36-59 months, children at approximately age 10, and youth aged 15-24 years. It is important to note that the figures presented in this report do not yet account for the impacts of the COVID-19 pandemic, which has likely significantly worsened the picture.

Based on 77 countries with data, less than three-quarters of children aged 36-59 months are developmentally on track. These children have met developmental milestones in at least three of the following four domains: literacy-numeracy, physical, social-emotional and learning. Wealth disparities are observed, with children in wealthier countries more likely to be developmentally on track than those in lower-income countries. Providing all children – especially the most vulnerable – with the best start in life sets them on positive trajectories in learning and skills development.

At approximately age 10, only about half of children have developed foundational reading skills. Wealth continues to have a substantial effect on child development outcomes: about one in 10 children in low-income countries, compared to about nine in 10 in high-income countries, have acquired foundational reading skills. It is critical that no child is left behind in attaining these basic skills, which are the building blocks for further learning and skills development.

Less than half of youth are on track to attain the full range of skills needed to thrive in school, work and life. Only about two-fifths of youth are on track to attain secondary-level reading and math skills, transferable skills concerning global citizenship and competence (based on 38 countries with data), and digital skills to perform simple computer-based activities. A little over a quarter of youth are on track to acquire job-specific skills (as proxied by the proportion of youth who are in education, employment and training and who have secondary-level skills), while about a third are on track to attain entrepreneurial skills (as proxied by financial literacy rates). Youth in wealthier countries are more likely than their counterparts in lower-income countries to develop this range of skills. Among countries with

data, gender gaps are observed for transferable skills in favor of females, and for digital and entrepreneurial skills in favor of males.

Evidence suggests poor skills attainment among youth, but particularly so among those in low-income countries where the share of youth on track in skills acquisition is lowest. This report assigns five progressive levels of skills attainment corresponding to the proportion of youth on track to attain each skill: Marginal (0-15 per cent), Emerging (16-35 per cent), Developing (36-55 per cent), Advanced (56-75 per cent) and Leading (76-100 per cent). Based on countries with data, the attainment of the full range of skills has only reached Emerging or Developing Levels overall (*see Figure 1*). Among low-income countries, skills attainment has reached only Marginal or Emerging Levels, with large shares of youth off-track to acquire each skill. It is important to note, however, that while the proportion of youth off-track in skills attainment is highest in low-income countries, their numbers may be greater in lower-middle-income countries, where the largest population of youth live.

Among those with data, many countries are still at Marginal or Emerging Levels:

- **Over a third in secondary-level skills attainment.** Half of low-income countries and about a third of lower-middle-income countries with data are at the Marginal Level, with at least 85 per cent of their youth off-track in secondary-level skills attainment.
- **Over a fifth in transferable skills attainment.** That only 38 countries – none of which are low-income – are represented by the data on transferable skills underscores the need for more comprehensive and comparable data on this skills type.
- **Two-fifths in digital skills attainment.** Nearly every low-income country and about a third of lower-middle-income countries with data are at the Marginal Level, with at least 85 per cent of their youth off-track in digital skills attainment.
- **Nearly half in job-specific skills attainment.** Over two-thirds of low- and lower-middle-income countries with data are at Marginal or Emerging Levels, with at least 65 per cent of their youth off-track in job-specific skills attainment.
- **Two-fifths in entrepreneurial skills attainment.** Nearly three-quarters of low-income countries and over half of lower-middle-income countries with data are at Marginal or Emerging Levels, with at least 65 per cent of their youth off-track in entrepreneurial skills attainment.

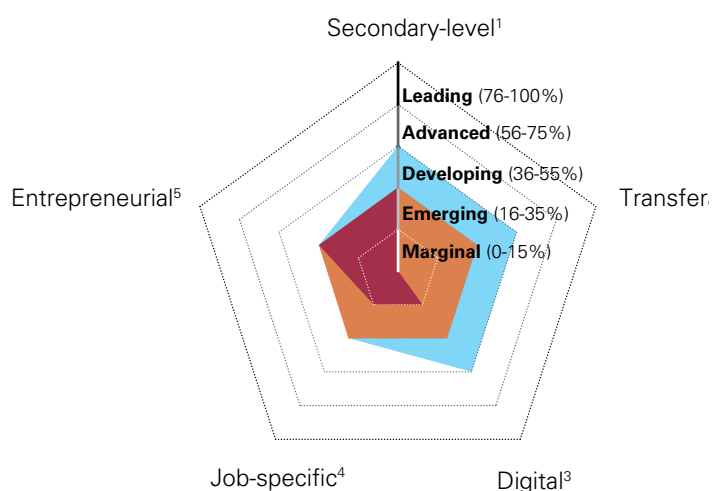


Figure 1. Proportion of youth with the full range of skills

Source: ¹UIS database for the reporting of Sustainable Development Goal Indicator 4.1.1(c) on minimum reading and math proficiency at the end of lower secondary; ²International Civic and Citizenship Education Study 2016 and Programme for International Student Assessment 2018; ³UIS, UNICEF Global Databases on information and communications technology (ICT) skills and various national reports on ICT skills; ⁴UNESCO Institute for Statistics database and International Labour Organization Department of Statistics (ILOSTAT) database; ⁵Standard & Poor's Ratings Services Global Financial Literacy Survey 2014. See Methodology for full details on data sources and methods of calculation.

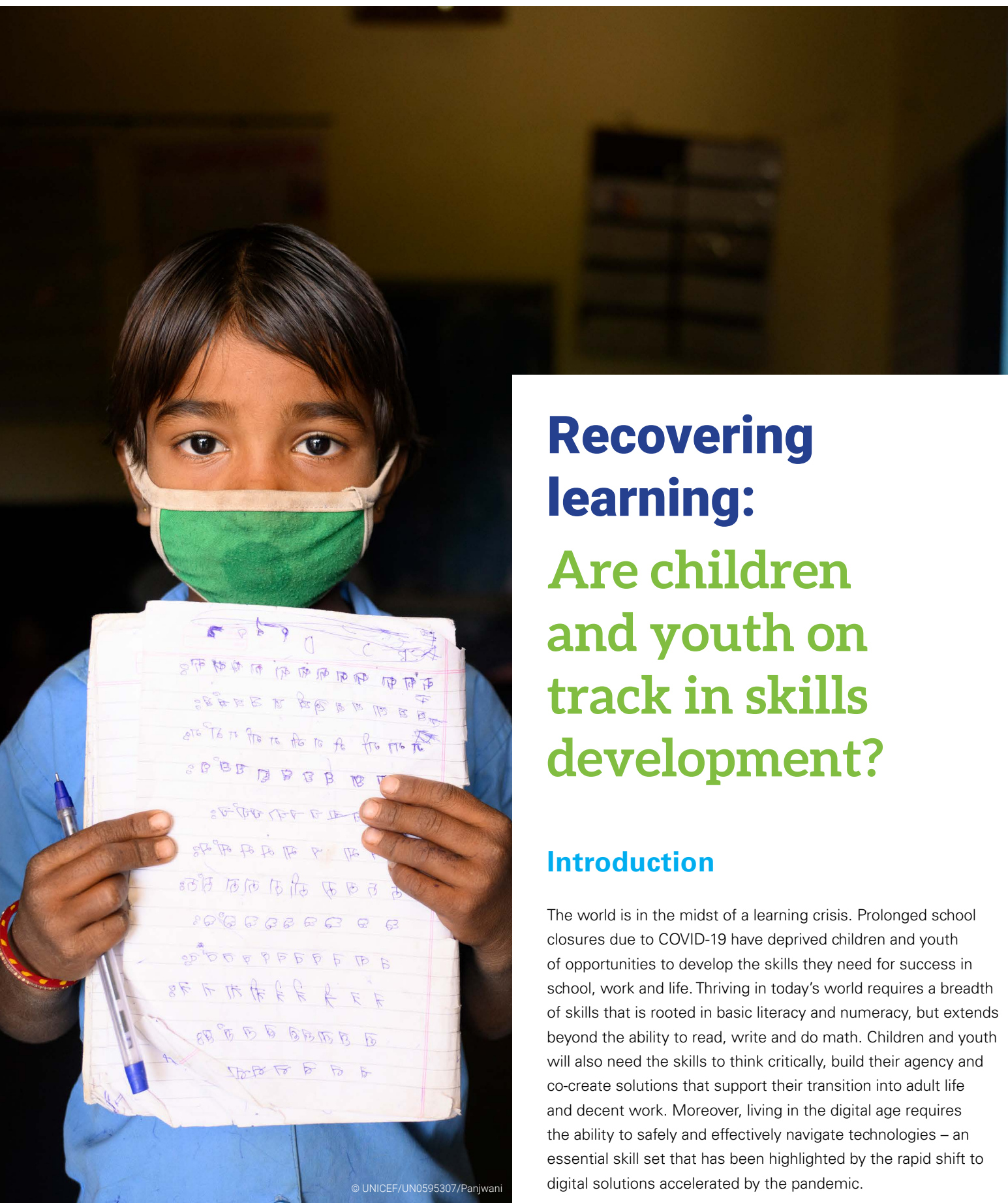
Note: Data for transferable skills are available for only 38 countries and should not be interpreted as a global estimate. Data on transferable skills are not available for low-income countries.

Prolonged school closures brought about by the COVID-19 pandemic have likely caused disruptions to skills development – especially for those already lagging behind and lower-middle-income countries where the largest number of youth is concentrated. Countries with the longest school closures often had the lowest levels of skills attainment even before the pandemic, which may have resulted in further widening of gaps in skills development. The longer schools remain closed, the more likely children could fall further behind in developing foundational skills and other essential skills.

We cannot recover what we do not measure. It is important to note that these estimates on skills attainment are limited by issues in data availability, comparability and irregularity in collection. Data on early childhood development from the Early Childhood Development Index are available for only 77 countries. Foundational skills attainment is primarily measured using learning poverty data, which include reading but not math skills. Secondary-level skills are estimated using data from large-scale assessments, mainly the Programme for International Student Assessment (PISA) and the Trends in International Mathematics and Science Study (TIMSS), which only cover students in school. To estimate transferable skills attainment, data from the International Civic and Citizenship Education Study (ICCS) 2016 and the Global Competence test of the PISA 2018 are used – representing only 38 countries, only students in schools and a limited subset of transferable skills. For secondary-level, transferable, and digital skills, there

is a lack of internationally comparable data for the youth age group. Lastly, in the absence of comprehensive assessments on job-specific and entrepreneurial skills, proxy measures are used for these skills types. Improving data availability is critical to supporting the development of the full range of skills, including recovering losses in skills attainment during school closures.

In response to these challenges, UNICEF, GenU and its partners are actively working towards more comprehensive and inclusive measures of skills development. Efforts include the [COVID-19: Monitoring the Impacts on Learning Outcomes \(MILO\)](#) project to measure learning outcomes in six countries in Africa; the introduction of the [MICS](#) Foundational Learning Skills module, which covers both in- and out-of-school children aged 7-14 years, and the Mass Media and ICT module, which collects data on ICT skills among youth; the [Learning Data Compact](#), which aims to increase the availability of learning assessment data in lower-income countries; the [World Skills Clock](#), which provides estimations, projections and visualizations of skills development among youth; and the [Life Skills and Citizenship Education](#) instrument in the Middle East and North Africa region and the [Southeast Asia Primary Learning Metrics](#), both of which introduce standardized approaches to measuring transferable skills. Committed to improving data and assessment, UNICEF strives to realize the vision of the Reimagine Education initiative – that every child and young person develops the full range of skills needed for success in school, work and life.



Recovering learning: Are children and youth on track in skills development?

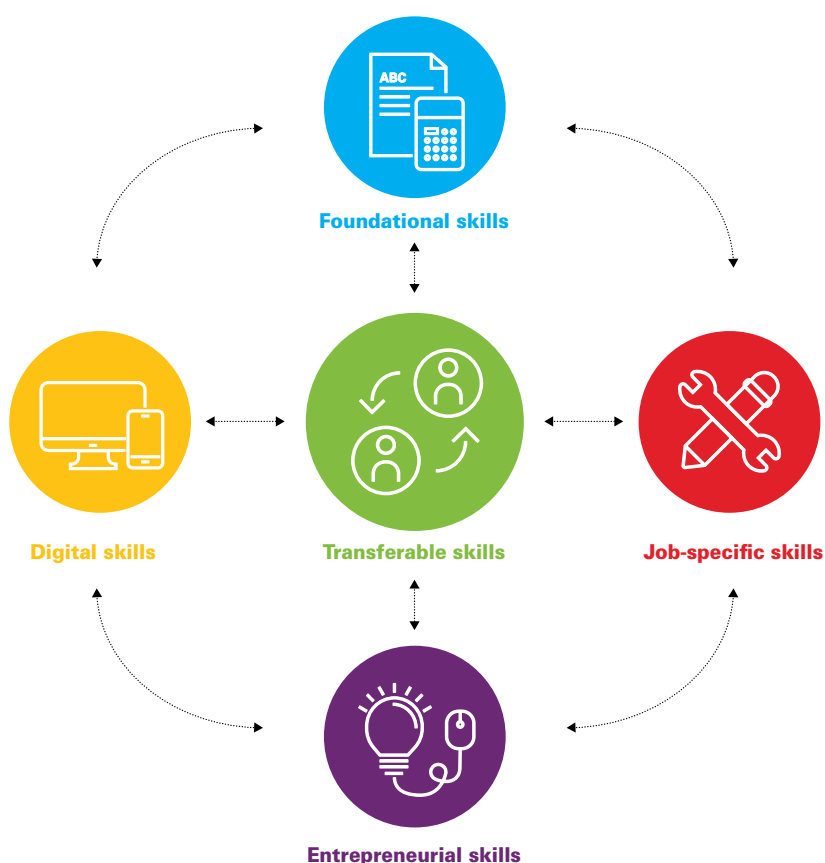
Introduction

The world is in the midst of a learning crisis. Prolonged school closures due to COVID-19 have deprived children and youth of opportunities to develop the skills they need for success in school, work and life. Thriving in today's world requires a breadth of skills that is rooted in basic literacy and numeracy, but extends beyond the ability to read, write and do math. Children and youth will also need the skills to think critically, build their agency and co-create solutions that support their transition into adult life and decent work. Moreover, living in the digital age requires the ability to safely and effectively navigate technologies – an essential skill set that has been highlighted by the rapid shift to digital solutions accelerated by the pandemic.

In response to the call for comprehensive skills development, UNICEF's [Reimagine Education](#) initiative, in partnership with [Generation Unlimited](#) and [Giga](#), envisions connecting every child and young person – some 3.5 billion by 2030 – to world-class digital learning solutions that help build the full range of skills for success in school, work and life. Focus is given to three key transitions, such that at age 5, every child is developmentally on track; at age 10, every child can read with understanding and do basic math; and at age 18, every young person has the full range of foundational, transferable, digital, job-specific and entrepreneurial skills (see Figure 2). These five types of skills are closely interrelated and integral to ensuring young people thrive in school, work and life.

In support of building the full range of skills, this report aims to provide a baseline of skills attainment among children and youth, as well as present variations across country income groups, regions and genders (see Annex 1).¹ Skills acquisition is examined in relation to early childhood development, which sets the stage for future learning and skills attainment; primary school age, wherein the development of various skills, but most especially foundational skills, is critical; and youth, who need a full range of skills including those required for active citizenship and decent work. To do so, this report draws on the latest available data within the past decade from various large-scale assessments and household surveys corresponding to children aged 36-59 months, children at approximately 10 years old, and youth aged 15-24 years. Table 1 lists the domains measured, indicators used and their links to the Sustainable Development Goals (SDGs).

Figure 2. UNICEF's skills typology



Foundational skills, namely literacy and numeracy.

Transferable skills, also known as life skills, 21st century skills, soft skills, or socio-emotional skills, such as problem solving, negotiation, managing emotions, empathy, and communication are the central glue that connects all skills and allow young people to become agile, adaptive, learners and citizens equipped to navigate personal, academic, social, and economic challenges.

Digital skills and knowledge support the development of digitally literate children and adolescents who can use and understand technology, search for and manage information, communicate, collaborate, create and share content, build knowledge, and solve problems.

Job-specific skills, also known as technical and vocational skills, are associated with one or more occupations, such as carpentry, accounting or engineering and support the transition of older adolescents into the workforce.

Entrepreneurial skills, such as time management, goal setting, financial literacy are closely interrelated with other types of skills, and support business and social entrepreneurship.

¹ This report focuses on countries and territories in UNICEF's country coding; thus, countries and territories for which data are available, but that are not in UNICEF's country coding, are excluded in the report analyses.

It is important to note that results presented for certain indicators are based only on a limited number of countries; in such instances, readers are cautioned that these figures should not be interpreted as global estimates and refer only to

countries for which data are available. Moreover, these figures do not yet account for the impacts of the COVID-19 pandemic, which has likely significantly worsened the picture.

Table 1. Domains, indicators and links to Sustainable Development Goals (SDGs)

Domain	Indicator	Related Sustainable Development Goals (SDGs)
Early childhood development , which sets the stage for further learning and skills attainment	Proportion of children aged 36-59 months who are developmentally on track in at least three of the following four domains: literacy-numeracy, physical, social-emotional, learning	SDG Indicator 4.2.1
Foundational skills , or basic reading and math skills	Proportion of children who have foundational reading skills at approximately 10 years old	SDG Indicator 4.1.1
Secondary-level skills , or reading and math skills at the secondary level	Proportion of youth aged 15-24 years on track to acquire secondary-level skills	SDG Indicator 4.1.1
Transferable skills , also known as socio-emotional skills or life skills	Proportion of youth aged 15-24 years on track to acquire transferable skills	SDG Indicator 4.7.4
Digital skills , which allow the use and understanding of technology	Proportion of youth aged 15-24 years on track to acquire digital skills	SDG Indicator 4.4.1
Job-specific skills , which support older adolescents' transition into the workforce	Proportion of youth aged 15-24 years on track to acquire job-specific skills (as proxied by the proportion of youth who are in education, employment or training and who have secondary-level skills)	SDG Target 8.5; SDG Target 8.6
Entrepreneurial skills , which support business and entrepreneurship	Proportion of youth aged 15-24 years on track to acquire entrepreneurial skills (as proxied by financial literacy rates)	SDG Target 8.3

Note: See Methodology for full details on data sources and methods of calculation.

Findings in this report highlight a clear need to increase support for the development of the full range of skills for all children and youth, especially the most vulnerable. In the midst of ongoing school closures due to the COVID-19 pandemic, this means ensuring schools safely reopen and provide holistic

support to help build the breadth of skills for all learners. In addition to strengthened interventions for skills promotion, more comprehensive measures are needed to assess and monitor children and youth's acquisition of the full range of skills for success in school, work and life.



Box 1. Early Childhood Development Index

UNICEF has developed the Early Childhood Development Index (ECDI) to measure the proportion of children aged 36-59 months who are developmentally on track in literacy-numeracy, physical, social-emotional and learning domains. In the literacy-numeracy domain, a child is on track if at least two of the following are true: can identify/name at least 10 letters of the alphabet; can read at least four simple words; can recognise and name all numbers from 1 to 10. In the physical domain, a child is on track if at least one of the following is true: can pick up a small object with two fingers; is not sometimes too sick to play. In the social-emotional domain, a child is on track if at least two of the following are true: gets along well with other children; does not kick, bite or hit other children; is not easily distracted. Lastly, in the learning domain, a child is on track if at least one of the following is true: can follow simple instructions on how to do something correctly; when given something to do, is able to do it independently. The total ECDI is constructed as the proportion developmentally on track in at least three of these four domains.

Collected as part of the Multiple Indicator Cluster Surveys (MICS), Demographic and Health Surveys (DHS) and other national household surveys, the ECDI has been the main tool for collecting data on SDG Indicator 4.2.1 on early childhood development since 2015. In 2020, UNICEF introduced the ECDI2030 as a measure for generating data on this indicator. The ECDI2030 is composed of 20 questions asked to caregivers to assess developmental milestones in the core domains of health, learning and psychosocial well-being among children aged 24-59 months. Until data from the ECDI2030 are available, data from the ECDI continues to be used for the global monitoring of SDG Indicator 4.2.1.

Early childhood development at ages 36-59 months

The roots of the learning crisis begin in children's earliest years, and preparing them for success starts long before they enter school. Laying strong foundations for further learning and skills attainment requires a holistic approach to children's development, in line with SDG Indicator 4.2.1 on the proportion of children aged 24-59 months who are developmentally on track in health, learning and psychosocial development. This indicator, together with SDG Indicator 4.2.2 on participation rate in organized learning (one year before the official primary age), can provide insight into whether children are arriving in classrooms ready to learn.² Given the critical role of early childhood development to further learning and skills development, this report examines 77 countries with data on the Early Childhood Development Index (ECDI), which measures the proportion of children aged 36-59 months who are on track in at least three of the following four domains: literacy-numeracy, physical, social-emotional and learning (see Box 2). As only a limited number of countries have available data, the figures provided in this section should not be interpreted as global estimates.

Among 77 countries with data, less than three-quarters (72 per cent) of children aged 36-59 months are developmentally on track.

Overall, there are no significant differences in the proportion of girls (73 per cent) and boys (70 per cent) who are on track in their development. However, within certain countries, larger gender differences are observed: in North Macedonia and Sierra Leone, boys are about 15 per cent less likely than girls to be developmentally on track; in Burundi, boys are about 26 per cent less likely to be on track than girls.

Cross-country income differences are observed in early childhood development, in favor of wealthier countries. Figure 3 plots gross national income (GNI) per capita against the proportion of children aged 36-59 months who are developmentally on track based on ECDI results. Children in wealthier countries are more likely to be developmentally on track than those in lower-income countries, highlighting

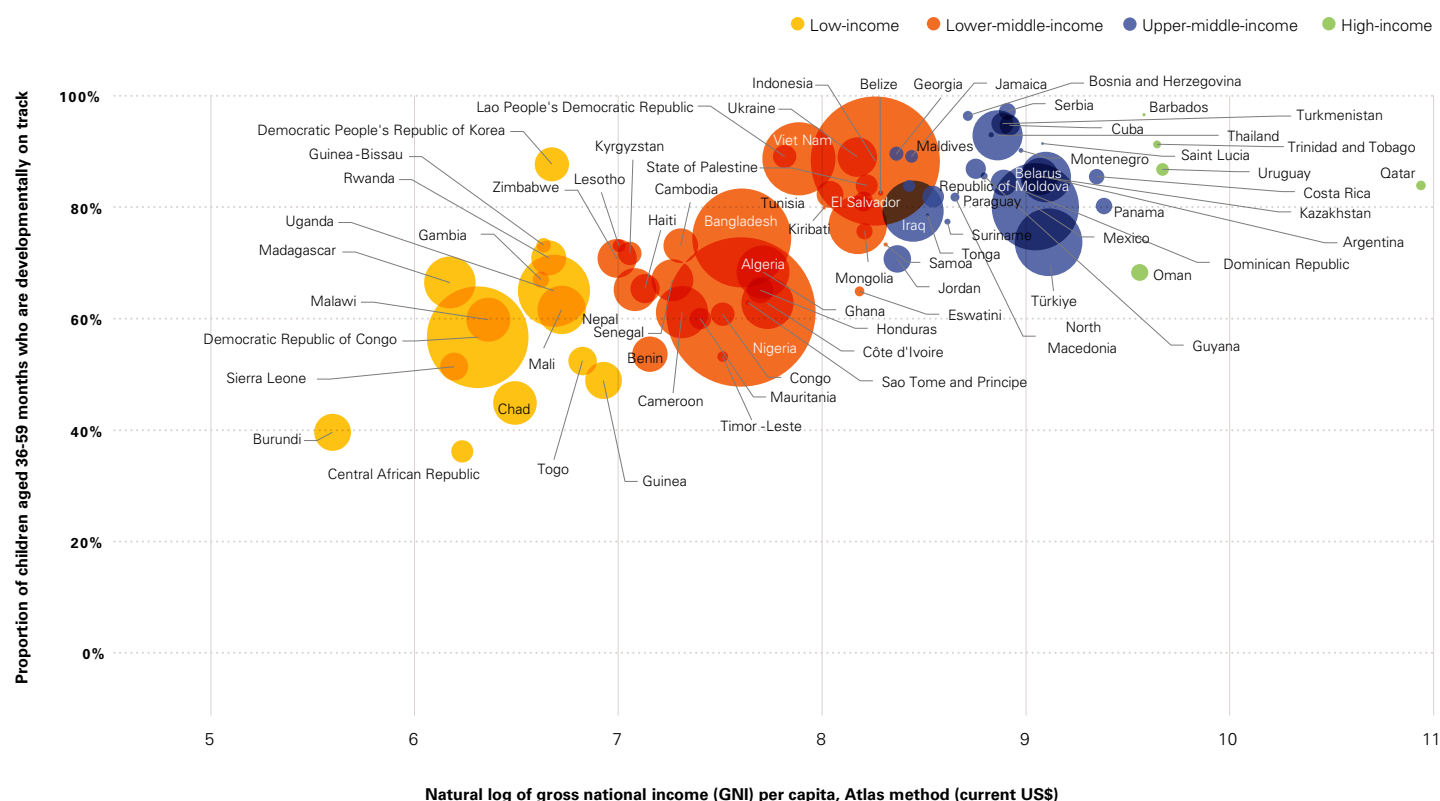
² Montoya, Silvia, 'Meet the SDG 4 data: Preparing children for education', UNESCO Institute for Statistics, 25 July 2018, <<http://uis.unesco.org/en/blog/meet-sdg-4-data-preparing-children-education>>.

that wealth disparities are highly correlated with children's development in early years which, in turn, affects countries' prospects for longer-term growth.

It is important to note, however, that inequalities in early childhood development are present not just between but also within countries. This is evident, for instance, in children's participation in pre-primary education, an integral component of early childhood development: UNICEF's [global report on early childhood education](#) finds that on average across 64 countries, children from the wealthiest families are seven times more likely

than those from the poorest families to attend early childhood education programmes.³ Recognizing the importance of early childhood, UNICEF and the Global Partnership for Education have co-led the development of the [ECE Accelerator Analysis and Planning Toolkit](#), a global resource to support the inclusion and strengthening of early childhood education (ECE) into education sector planning processes, including guidance on conducting ECE data mapping, analysis, and reporting. Supporting early childhood development, especially among the most vulnerable, is crucial to shaping children's learning, skills attainment and overall trajectories in life.

Figure 3. Proportion of children developmentally on track at 36-59 months and gross national income (GNI) per capita



Source: ECDI data from UNICEF Global Databases and GNI per capita data from the World Bank's World Development Indicators database.

Note: The size of the circle represents the 2020 estimate of each country's population aged 36-59 months retrieved from the UN Population Division.

3 UNICEF, *A World Ready to Learn: Prioritizing quality early childhood education*, UNICEF, New York, April 2019, <<https://www.unicef.org/media/57926/file/A-world-ready-to-learn-advocacy-brief-2019.pdf>>.



Foundational skills at approximately age 10

Learning is a cumulative process, and its foundations are largely built in the early years of life. Children who fall behind in these early stages are likely to encounter difficulties catching up with peers during schooling years. By primary school age, every child will need to have developed foundational skills, which are fundamental to further learning, civic engagement and productive employment.

To provide insight into foundational skills at approximately 10 years of age, this report draws on data on learning poverty, a metric jointly developed by the World Bank and the UNESCO Institute for Statistics (UIS). Learning poverty, a combined measure of schooling and learning, is defined as the percentage of 10-year-old children who cannot read and understand a simple text.⁴ Building on this concept, this report defines the proportion of children with

foundational reading skills as the proportion of children who are not learning poor (i.e., 100 per cent minus learning poverty rate). Although learning poverty focuses on reading, the report chooses to use this indicator as a measure of foundational skills given the role of reading as the gateway to acquiring proficiency in other learning areas, as well as the metric's inclusion of the dimension of schooling. For countries without learning poverty data, data on foundational reading skills from the MICS Foundational Learning Skills module, which cover in- and out-of-school children aged 7-14 years, were used.

Globally, about half of children have foundational reading skills at approximately age 10. Data for 121 countries reveal that 51 per cent of children are able to read and understand a simple text at about age 10.⁵ Across country income groups, about one in 10 children in low-income countries, compared to about nine in 10 in high-income countries, have foundational reading skills (see Figure 4).

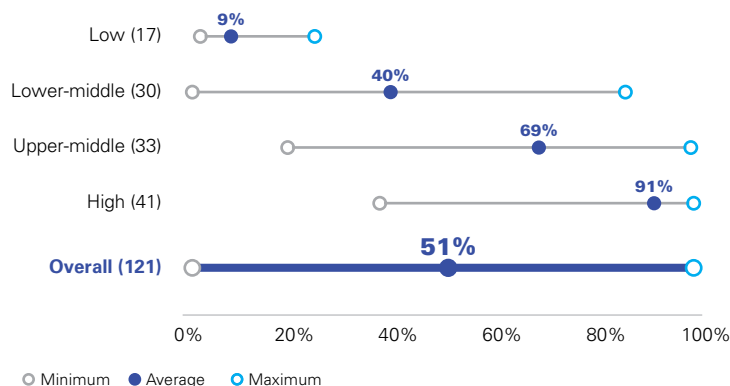


Figure 4. Proportion of children who can read a simple text at approximately age 10, by country income group

Source: Authors' calculations using learning poverty data for 106 countries from the World Bank and UIS Learning Poverty Database and MICS Foundational Learning Skills data for 15 countries from UNICEF Global Databases, weighted by 2020 estimates of population aged 10-14 years retrieved from UN Population Division.

Note: Data are available for 121 countries, covering 85 per cent of the world's population aged 10-14 years. The number of countries in each country income group (World Bank FY 2022 income level classification) is presented in parentheses.

4 For more details on learning poverty, including methods of calculation and assessment data sources, see: *The World Bank, Ending Learning Poverty: What Will It Take?*, World Bank, Washington, D.C., 2019, <<http://hdl.handle.net/10986/32553>>.

5 In line with the method of calculation used by the World Bank, population aged 10-14 years is used as weights for global and regional aggregations. While age 10 is the reference year for learning poverty, the measurement of learning poverty is based on assessments administered between Grades 4-6, corresponding to ages 10-14 years.



Across regions, the proportion of children with foundational reading skills varies widely (see Figure 5). Based on countries with data, nearly all children in Western Europe, North America, and Europe and Central Asia are able to read and understand a simple text at about age 10, while less than one in five children in Eastern and Southern Africa and in West and Central Africa can do the same.

Boys are about 7 per cent less likely to acquire foundational reading skills than girls. The gender gap varies considerably across countries: in Cambodia and South Africa, boys are about 40 per cent less likely to attain foundational reading skills, but in Chad and the Democratic Republic of the Congo, girls are about 20 per cent less likely to acquire these skills. With foundational skills as the building blocks for further skills development, bridging these learning gaps is essential to ensuring every child is set up for success at school and beyond. UNICEF and its partners actively work towards this goal through efforts such as the [FLN Hub](#), a resource website that provides guidance on strengthening education systems' capacity to improve children's foundational literacy and numeracy. The FLN Hub includes a menu of evidence-based interventions that will allow education actors to identify relevant approaches for their specific contexts.

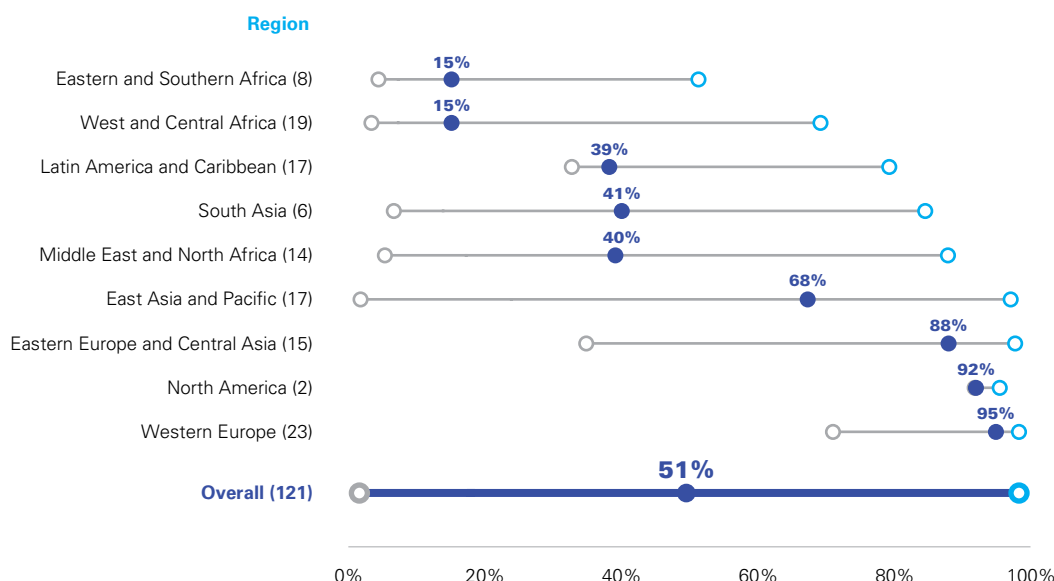


Figure 5. Proportion of children who can read a simple text at approximately age 10, by region

Source: Authors' calculations using learning poverty data from the World Bank and UIS Learning Poverty Database and MICS Foundational Learning Skills data from UNICEF Global Databases, weighted by 2020 estimates of population aged 10-14 years retrieved from UN Population Division.

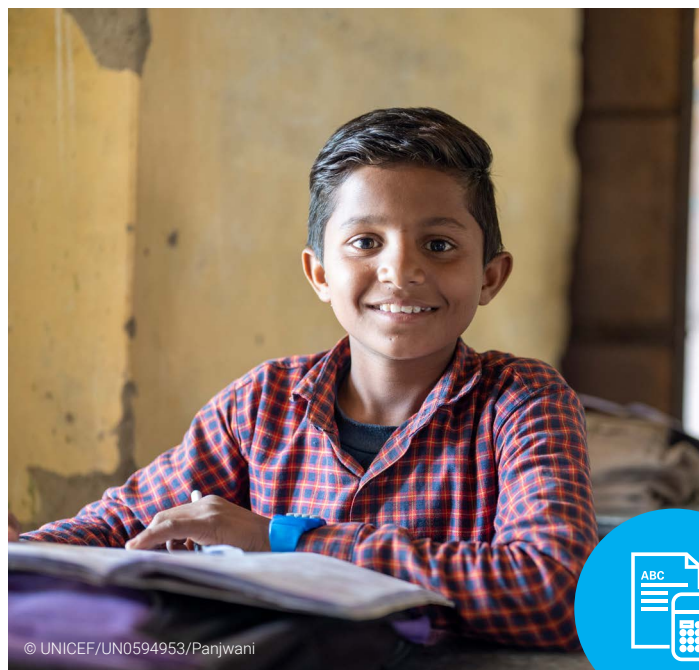
Note: Data are available for 121 countries, covering 85 per cent of the world's population aged 10-14 years. The figure for Eastern and Southern Africa should not be interpreted as an aggregated regional estimate as it does not cover a sufficient number of countries (presented in parentheses).

Youth on track to attain the full range of skills

In addition to foundational skills developed in primary schooling years, youth will need a full range of skills to engage in active citizenship, navigate the digital age and access decent work and employment. This section draws on data from various large-scale assessments and household surveys to provide insight into whether youth are on track to develop secondary-level (i.e., basic reading and math skills)⁶, transferable, digital, job-specific and entrepreneurial skills. Findings in this section are aligned with UNICEF's engagement in tracking progress in skills attainment among youth, including its partnership with the Education Commission, Generation Unlimited and the World Data Lab on the [World Skills Clock](#), an interactive webtool that estimates, projects and visualizes worldwide data on skills development among youth (*see Annex 3*).⁷ Although the data sources and assumptions for out-of-school youth in this report align with that used in the World Skills Clock, this report reflects the latest available data for each country, while the World Skills Clock makes further adjustments, including: regression-based imputation for countries with missing data, linear trend forecasting using all data points from 2010 to 2019 to provide global and country estimates from 2020 to 2040, and the potential dampening effect on skills attainment due to COVID-19.

Secondary-level skills

To succeed in school, work and life, young people must continue to build on the foundational reading and math skills acquired in childhood. At secondary school age, this will mean gaining proficiency in reading and math skills expected at the secondary level of education. To estimate secondary-level skills, this report primarily draws on data from large-scale assessments used to report on SDG Indicator 4.1.1(c) on the proportion of students reaching minimum proficiency in reading and math at the end of lower secondary school, namely: the Programme for International Student Assessment (PISA), which assesses 15-year-old students, and the Trends in International Mathematics and Science Study (TIMSS), which assesses students in Grade 8.⁸



As the data only represent students in school, the data are adjusted to include those out of school, under the assumption that the out-of-school lower secondary school-age population is about 50 per cent less likely than their in-school peers to attain these skills.⁹ Similar secondary-level skills rates are then assumed for the youth age group of 15-24 years. While efforts have been made in this report to estimate reading and math skills among youth – including accounting for those out of school – this signals a need for more inclusive, comparable large-scale assessments on skills development for all youth, both in and out of school.

About two in five (41 per cent) youth are on track to attain secondary-level skills. Less than a quarter of youth in low- and lower-middle-income countries with data, compared to 68 per cent of those in high-income countries, have developed these skills (*see Figure 6*). Based on countries with data, less than one in four youth are estimated to have secondary-level skills in West and Central Africa, Eastern and Southern Africa, and South Asia. No significant gender gaps are observed in the attainment of secondary-level skills.

6 This report uses 'secondary-level skills' when referring to reading and math skills among youth aged 15-24 years in order to distinguish the term from 'foundational skills', which pertains to children at approximately 10 years old.

7 The current version of the World Skills Clock includes estimations, projections and visualizations for secondary-level and digital skills among youth, which are aligned with the methods of calculations used in this report for the same skills areas.

8 Data from these assessments are available on the UIS database for the reporting of SDG Indicator 4.1.1(c). For the following nine countries, national learning assessments are reported on UIS, and the same data are used in this report: Bangladesh, Bhutan, Ethiopia, India, Kyrgyzstan, Nepal, Sri Lanka and Uganda. When data for both reading and math are available for a country, the lower of the two values is used. Similar secondary-level skills rates are assumed for the age group 15-24 years.

9 Using data from the MICS Foundational Learning Skills module, calculations by the UNICEF Data and Analytics team indicate that 68 per cent of in-school children aged 10-14 years have foundational reading skills, compared to 30 per cent of those not in school. Based on this finding, the assumption that the out-of-school population is about 50 per cent less likely to attain skills than their in-school peers is applied when using data from school-based assessments in this report. It is noted, however, that further evidence is needed to better inform approaches to account for out-of-school youth.

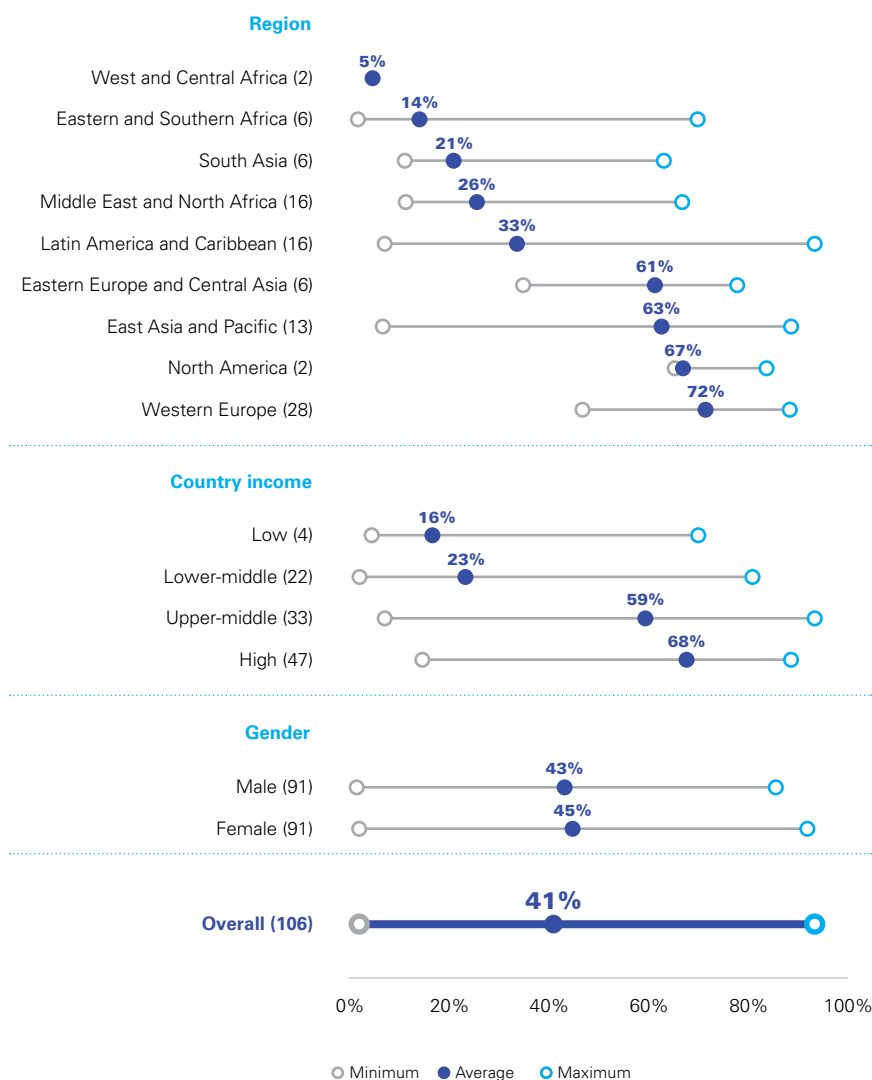


Figure 6. Proportion of youth aged 15-24 years on track to acquire secondary-level skills

Source: Authors' calculations using data from UIS for the reporting of SDG Indicator 4.1.1(c), assuming the out-of-school lower secondary school-age population is 50 per cent less likely than the in-school population to attain the skill and assuming the same rates for the age group 15-24 years, weighted by 2020 estimates of population aged 15-24 years retrieved from UN Population Division.

Note: Data are available for 106 countries, covering 81 per cent of the world's population aged 15-24 years. The figures for the low-income group, Eastern and Southern Africa, and West and Central Africa should not be interpreted as aggregated country income group or regional estimates as they do not cover a sufficient number of countries (presented in parentheses). Due to a lack of gender-disaggregated data, the averages for male and female do not match the overall average.

Transferable skills

Recognizing the lack of comprehensive and comparable data on transferable skills, this report uses data from large-scale assessments targeting a limited subset of transferable skills, namely: the International Civic and Citizenship Education Study (ICCS) 2016, which covers students at Grade 8, and the Global Competence test in the PISA 2018, which covers 15-year-old students.¹⁰ Progress against SDG Indicator 4.7.4, or the percentage of students in lower secondary education showing adequate understanding of issues relating to global

citizenship and sustainability, is tracked using data sourced from the ICCS 2016. Global citizenship refers to the capacity to face and resolve global challenges and become proactive contributors to a more peaceful, tolerant and inclusive and secure world.¹¹ This construct is closely related to the PISA 2018 domain of global competence, or the capacity to examine local, global and cultural issues; understand and appreciate the perspectives and worldviews of others; engage in open, appropriate and effective interactions across cultures; and act for collective well-being and sustainable development.¹² This report uses results from the ICCS 2016 and the PISA 2018

10 The analysis uses ICCS 2016 data from UIS for the monitoring of SDG Indicator 4.7.4 on the percentage of students in lower secondary education showing an adequate understanding of issues related to global citizenship and sustainability, which are available for 23 countries. For countries with missing data, the analysis uses data from the PISA 2018 Global Competence cognitive test and sets the benchmark at Level 2, based on a comparison of threshold descriptions. While this helps to increase country coverage on transferable skills to 38 countries, it is emphasized that more rigorous methods are needed to establish comparability between the two assessments.

11 UNESCO and UIS, 'SDG Indicator 4.7.4 Metadata', UNESCO and UIS, February 2021, <<http://tcg.uis.unesco.org/wp-content/uploads/sites/4/2020/09/Metadata-4.7.4.pdf>>.

12 Organisation for Economic Co-operation and Development (OECD), *PISA 2018 Results (Volume VII): Are Students Ready to Thrive in an Interconnected World?*, OECD Publishing, Paris, 2020, <<https://doi.org/10.1787/d5f68679-en>>.

Global Competence test for a total of 38 countries, most of which are high-income. As only students in school are covered by the assessments, the data are adjusted to account for those out of school, under the assumption that the out-of-school lower secondary school-age population is about 50 per cent less likely than their in-school peers to attain these skills. Similar transferable skills rates are then assumed for the youth age group of 15-24 years.

Based on 38 countries with available data, about two in five (39 per cent) youth are on track to attain transferable skills concerning global citizenship and competence.

Gender gaps are observed, with males being about 22 per cent less likely than females to have these skills (see Figure 7). It is important to note that as only 38 countries – representing about 15 per cent of the world’s population aged 15-24 years – are covered by the data, these figures should not be interpreted as global estimates or as representative of regions and country income groups.



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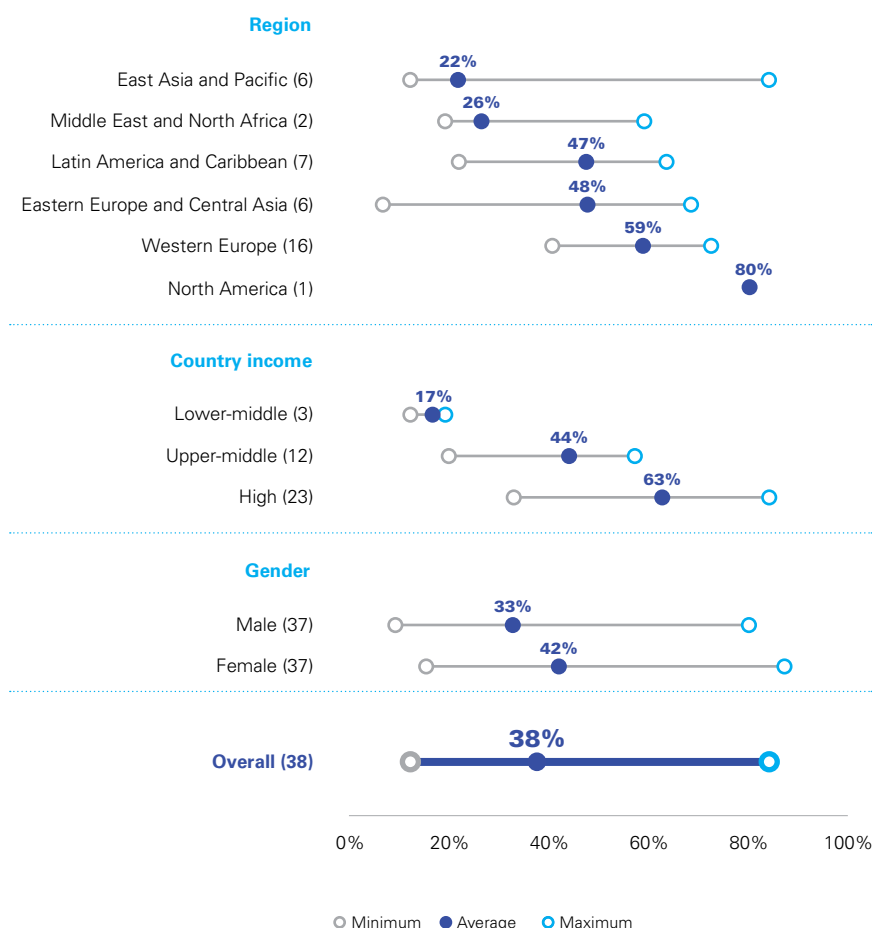


Figure 7. Proportion of youth aged 15-24 years on track to acquire transferable skills

Source: Authors’ calculations using data from ICCS 2016 for the reporting of SDG Indicator 4.7.4 and the Global Competence test in PISA 2018, assuming the out-of-school lower secondary school-age population is 50 per cent less likely than the in-school population to attain the skill and assuming the same rates for the age group 15-24 years, weighted by 2020 estimates of population aged 15-24 years retrieved from UN Population Division.

Note: Data are available for 38 countries, covering 15 per cent of the world’s population aged 15-24 years. The figures should not be interpreted as aggregated global, regional or country income group estimates as they do not cover a sufficient number of countries (presented in parentheses).

Compared to foundational skills, fewer countries have data on transferable skills, which are less straightforward to measure. A key challenge in measuring transferable skills is the variation in terminologies and conceptualizations used in the field. To this end, [UNICEF's Global Framework on Transferable Skills](#) adopts the term 'transferable skills' to highlight its *transferability* across different disciplines and domains. Issues are also encountered in developing valid, reliable and comparable measures that span the range of transferable skills. While large-scale learning assessments provide insight into select transferable skills such as global citizenship and competence, other core skills, especially socio-emotional skills, may be missing or only partially addressed. Moreover, low-income countries often remain underrepresented in such assessments. To address these challenges, UNICEF has begun piloting assessments that aim for more comprehensive and standardized approaches to transferable skills measurement (*see Box 2*). Along with large-scale assessments, UNICEF also supports the development of formative assessments on transferable skills to help inform teaching and learning practices, as well as impact assessments which focus on the effectiveness of interventions that aim to promote these skills. For young people, developing transferable skills has become increasingly important given the rising demand for strong socio-emotional skills in the workforce.¹³

Digital skills

Along with the development of transferable skills, the acquisition of digital skills has seen growing importance in the labour market as well as in other aspects of life. Young people will need to develop the skills needed to navigate technologies and successfully participate in the digital economy, especially in light of the rapid shift to digital solutions propelled by the COVID-19 pandemic. To estimate digital skills among youth, this report draws on data for 104 countries on the proportion of youth who have the skills to perform simple computer-based activities such as copying or moving a file or folder or sending an e-mail with attached files.¹⁴

Box 2. Life Skills and Citizenship Education

Within the Life Skills and Citizenship Education (LSCE) initiative in the Middle East and North Africa (MENA) region, UNICEF and the World Bank have joined efforts to develop the LSCE Measurement Instrument to assess proficiency in core life skills. Life skills are transferable skills that support the development of knowledge, attitudes and behaviors to deal with everyday life. The LSCE measures life skill scores at Grade 7 (or ages 12-14). These life skills have been identified as those most needed for the life outcomes of learning, employability, personal empowerment and active citizenship. Designed as a national large-scale assessment, findings from the LSCE can help countries develop policies and programmes to enhance life skills. The instrument is currently available in English and Arabic and was tested in Egypt, Tunisia and the State of Palestine in 2019. The instrument provides a standardized approach to measuring life skills and can be applied in every country in the MENA region. UNICEF is actively working to adapt the instrument and deploy it to other regions.



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¹³ International Labour Organization (ILO), Global Framework on Core Skills for Life and Work in the 21st Century, ILO, Geneva, 2021, <https://www.ilo.org/wcmsp5/groups/public/-ed_emp/-emp_ent/documents/publication/wcms_813222.pdf>.

¹⁴ Four computer-related activities are used by International Telecommunication Union (ITU) for the reporting of basic digital skills, in line with SDG Indicator 4.4.1 on ICT skills: copying or moving a file or folder, using copy and paste tools to duplicate or move information within a document, sending e-mails with attached files, and transferring files between a computer and other devices. As an example, see: International Telecommunication Union (ITU), Measuring the Information Society Report 2018, Volume 1, ITU, Geneva, 2018, <<https://www.itu.int/en/ITU-D/Statistics/Documents/publications/misr2018/MISR-2018-Vol-1-E.pdf>>.

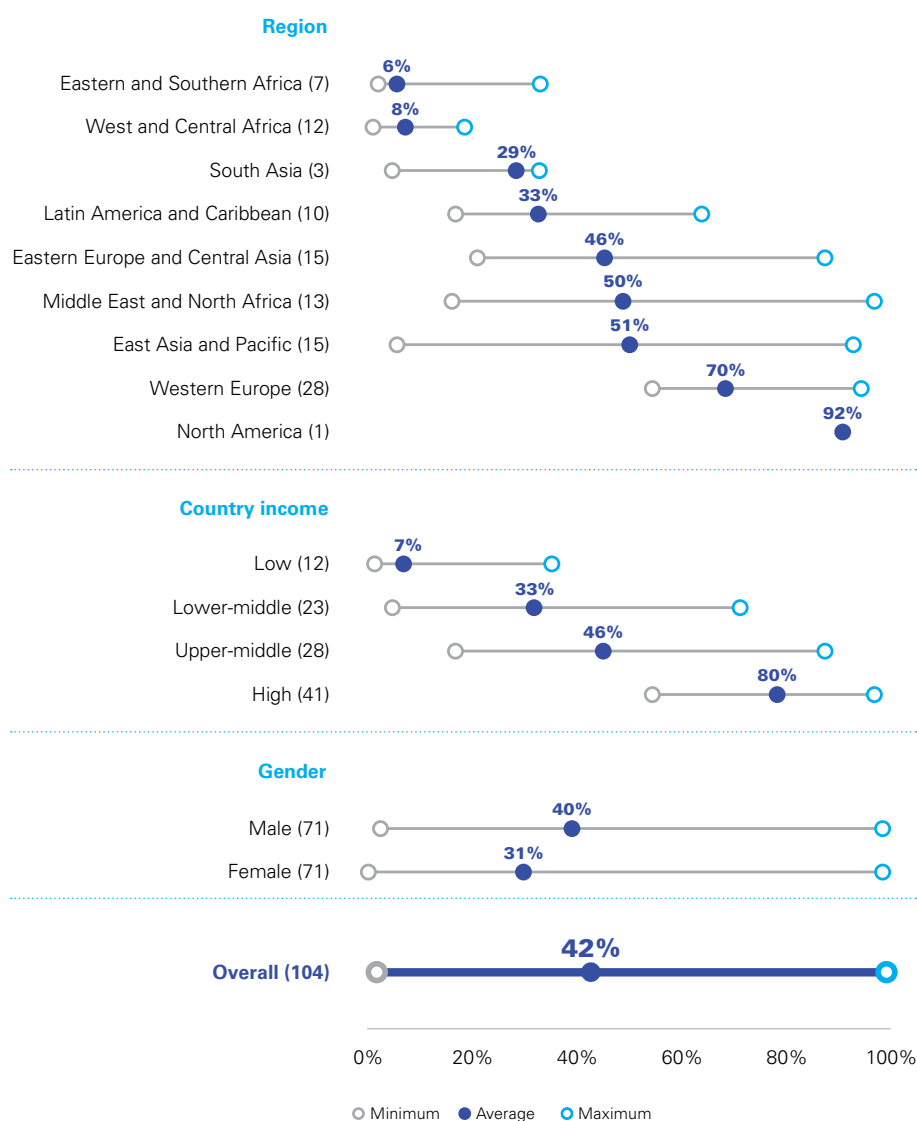


Figure 8. Proportion of youth aged 15-24 years on track to acquire digital skills

Source: Authors' calculations using data from UIS for the reporting of SDG Indicator 4.4.1 and from UNICEF Global Databases on ICT skills; data for China from Blue Book of New Media 2021: Annual Report on Development of New Media in China No. 12 (2021), Social Sciences Academic Press (China); data for India from Household Social Consumption on Education in India: NSS 75th Round, July 2017-June 2018, Government of India Ministry of Statistics & Programme Implementation; data for the United States from the Programme for the International Assessment of Adult Competencies (PIAAC) 2012; weighted by 2020 estimates of population aged 15-24 years retrieved from UN Population Division.

Note: Data are available for 104 countries, covering 76 per cent of the world's population aged 15-24 years. The figures for the low-income group, Eastern and Southern Africa, and West and Central Africa should not be interpreted as aggregated country income group or regional estimates as they do not cover a sufficient number of countries (presented in parentheses). Due to a lack of gender-disaggregated data, the averages for male and female do not match the overall average.

Less than half (42 per cent) of youth are on track to acquire digital skills. Males are about 30 per cent more likely than females to have basic digital skills. About eight in 10 youth in high-income countries with data possess basic digital skills, compared to about one in 10 youth in low-income countries with data. Less than a third of youth in Eastern and Southern Africa, West and Central Africa, and South Asia have the digital skills to carry out basic computer-related activities (see Figure 8).

Low proficiency in digital skills may be due in part to challenges in access to devices and connectivity: only 37

per cent of youth globally, and only 8 per cent of youth in low-income countries, are connected to the Internet from home.¹⁵ Limited access to these resources hinder children and youth from benefiting from technologies designed to support learning and skills development. For youth, the digital divide has implications on employment prospects, as rapid technological changes continue to reshape skills demand in the workforce.¹⁶ To harness the potential of digital technologies, children and youth will need the skills – as well as access to devices and necessary infrastructure – to navigate such tools and prepare for the future of work.

15 UNICEF and International Telecommunication Union (ITU), *How Many Children and Young People Have Internet Access at Home? Estimating Digital Connectivity During the COVID-19 Pandemic*, UNICEF, New York, 2020, <<https://data.unicef.org/resources/children-and-young-people-internet-access-at-home-during-covid19/>>.

16 UNICEF, PwC and Generation Unlimited, *Stepping forward: Connecting today's youth to the digital future*, UNICEF/PwC/Generation Unlimited, New York, 2020, <https://www.pwc.com/gx/en/issues/upskilling/GenU-PwC-Report_FINAL.pdf>.

Job-specific skills

Job-specific skills support older adolescents' transition into the workforce. Aside from acquiring universal skills such as foundational (i.e., reading and math) and transferable (e.g., problem-solving and communication) skills, youth may need to develop specialized skills for certain occupations (e.g., skills for carpentry, accounting or engineering). However, there are a number of challenges with measuring job-specific skills. As required skills vary widely from job to job, no single assessment may apply across all occupations. Some assessments provide data on the frequency of use of certain skills at work, but not the level of proficiency in these skills. While participation rates in technical-vocational education and training (TVET) may give some insight into skills acquisition, these figures may exclude fields outside of the TVET sector and may not reflect the quality or relevance of skills development in such programmes. Given the difficulties in assessing job-specific skills, the share of youth aged 15-24 years who are in education, employment and training and who have achieved secondary-level skills is used as a proxy measure. This approach assumes that only those who have secondary-level reading and math skills have the capacity to acquire job-specific skills through further education and training pursuits.

Based on 92 countries with data, less than a third of youth are on track to acquire job-specific skills. Although about three-quarters of youth are currently in education, employment and training, only 26 per cent of youth are predicted to be acquiring job-specific skills. While males are only about 7 per cent more likely than females to be on track to attain job-specific skills, wide variations are observed across regions and country income groups (see Figure 9). Youth in high-income countries are about four times as likely than their peers in lower-income countries to be on track to acquire job-specific skills.

Poor job-specific skills are a hurdle to finding and succeeding at work. The need to improve job-specific skills is highlighted by data on talent shortages: according to a 2021 survey by



the ManpowerGroup, 69 per cent of employers – a 15-year high – have reported difficulty in finding workers with the right balance of technical and soft (or transferable) skills.¹⁷ Issues in skills mismatch are likewise reflected by youth perspectives on their preparedness to enter the labour market. In February 2020, UNICEF surveyed 40,000 young people in over 150 countries, finding that about a third of youth report their education is not preparing them with skills needed to get jobs.¹⁸ Contributing to this global skills gap are challenges in skills identification, acquisition and certification: youth are unable to identify skills needed for future jobs and are unable to access relevant skills training, while employers lack a standard way to certify skills new employees claim to have.¹⁹ Employers play a crucial role in resolving skills gaps through efforts such as identifying and communicating skills needs, providing opportunities for upskilling and measuring the success of such efforts, and implementing skills development programmes such as internship, mentorship and apprenticeship programmes for youth.²⁰ Ensuring all young people are building job-specific skills and successfully transitioning into the workforce requires a concerted effort by all stakeholders, including education systems, governments, the private sector, and youth themselves.

17 ManpowerGroup, '2021 Talent Shortage', <<https://workforce-resources.manpowergroup.com/workforce-trends/2021-talent-shortage>>, accessed 19 January 2022.

18 UNICEF, 'A third of youth surveyed globally by UNICEF say their education is not preparing them with the skills to get jobs', Press release, UNICEF, New York, 10 March 2020, <<https://www.unicef.org/press-releases/third-youth-surveyed-globally-unicef-say-their-education-not-preparing-them-skills>>, accessed 19 January 2022.

19 UNICEF, PwC and Generation Unlimited, *Reaching YES: Addressing the youth employment and skilling challenge*, UNICEF/PwC/Generation Unlimited, New York, 2021, <<https://www.generationunlimited.org/media/5201/file/UNICEF-PwC-GenU-reaching-yes-thought-leadership.pdf>>.

20 UNICEF and World Business Council for Sustainable Development (WBCSD), *Empowering the workforce of tomorrow: The role of business in tackling the skills mismatch among youth*, UNICEF/WBCSD, New York/Geneva, 2021, <<https://www.unicef.org/media/103176/file/Empowering%20the%20workforce%20of%20tomorrow.pdf>>.

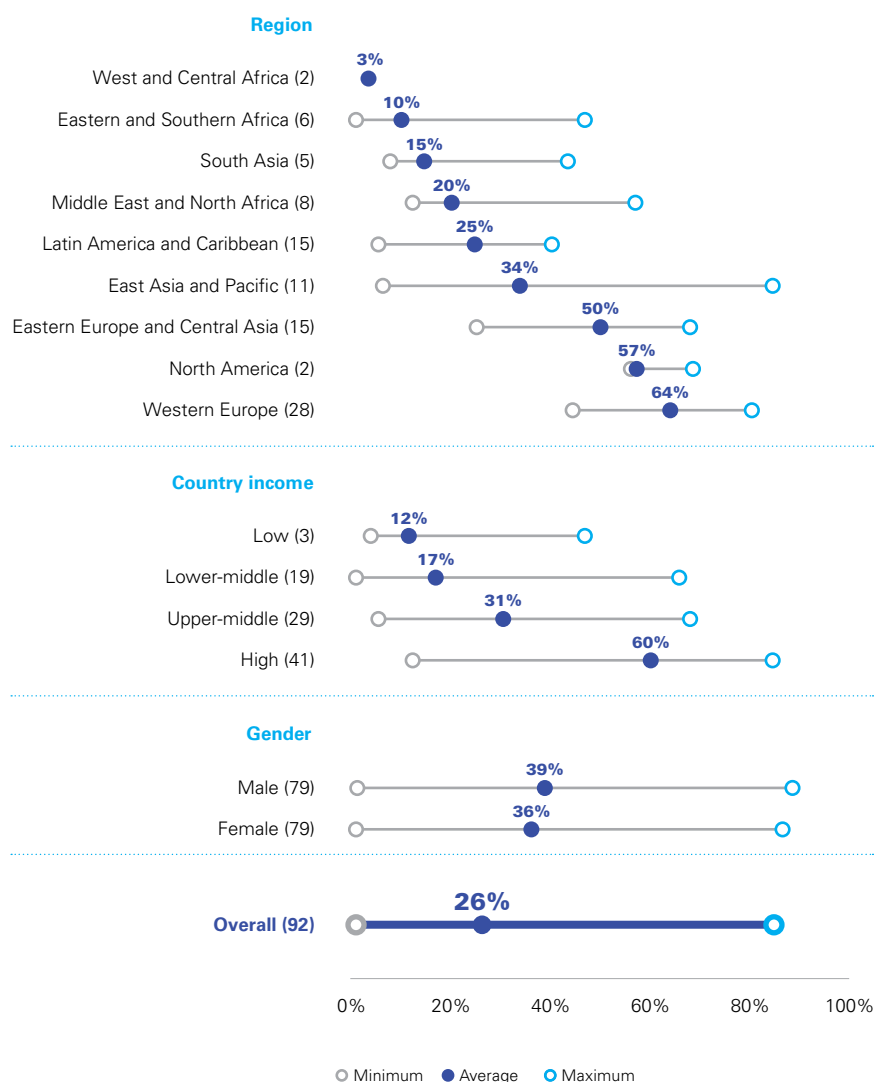


Figure 9. Proportion of youth aged 15-24 years on track to acquire job-specific skills

Source: Authors' calculations using data from the International Labour Organization Department of Statistics (ILOSTAT) database on the share of youth in education, employment and training and from UIS for the reporting of SDG Indicator 4.1.1(c), weighted by 2020 estimates of population aged 15-24 years retrieved from UN Population Division.

Note: Data are available for 92 countries, covering 65 per cent of the world's population aged 15-24 years. The figures for the low- and upper-middle-income groups, East Asia and Pacific, Eastern and Southern Africa, and West and Central Africa should not be interpreted as aggregated country income group or regional estimates as they do not cover a sufficient number of countries (presented in parentheses). Due to a lack of gender-disaggregated data, the averages for male and female do not match the overall average.

Entrepreneurial skills

As skills are closely interrelated and often overlapping, many challenges are encountered in identifying distinct measures for each category of skills. Entrepreneurial skills, for instance, encompass critical thinking, communication and problem-solving, which are also transferable skills, highlighting the importance of strengthening data on transferable skills to improve the measurement of other skills areas. One approach to measuring entrepreneurial skills is to examine findings from assessments closely related to the skills needed to start and manage a business, such as surveys on financial literacy rates. As such, this report uses data for 139 countries on financial literacy rates from the Standard & Poor's Ratings Services Global Financial Literacy Survey for the age group 15-35 years, assuming the same rates



for that of youth aged 15-24 years. While financial literacy rates are used as a proxy for entrepreneurial skills, it is important to note that these figures only reflect one facet of entrepreneurial skills and are not all-encompassing of the capabilities needed for entrepreneurship.

About a third (34 per cent) of youth are on track to acquire entrepreneurial skills, as proxied by financial literacy rates.

Across country income groups, youth in low-income countries

are 46 per cent less likely than their peers in high-income countries to be financially literate and thus on track to attain entrepreneurial skills. Gender gaps are observed, with males being 19 per cent more likely than females to have these skills (see Figure 10). Gender gaps in entrepreneurial skills, as reflected by financial literacy rates, translate to a large untapped potential among women: in most countries, female entrepreneurs represent less than a third of directors and owners of new businesses.²¹

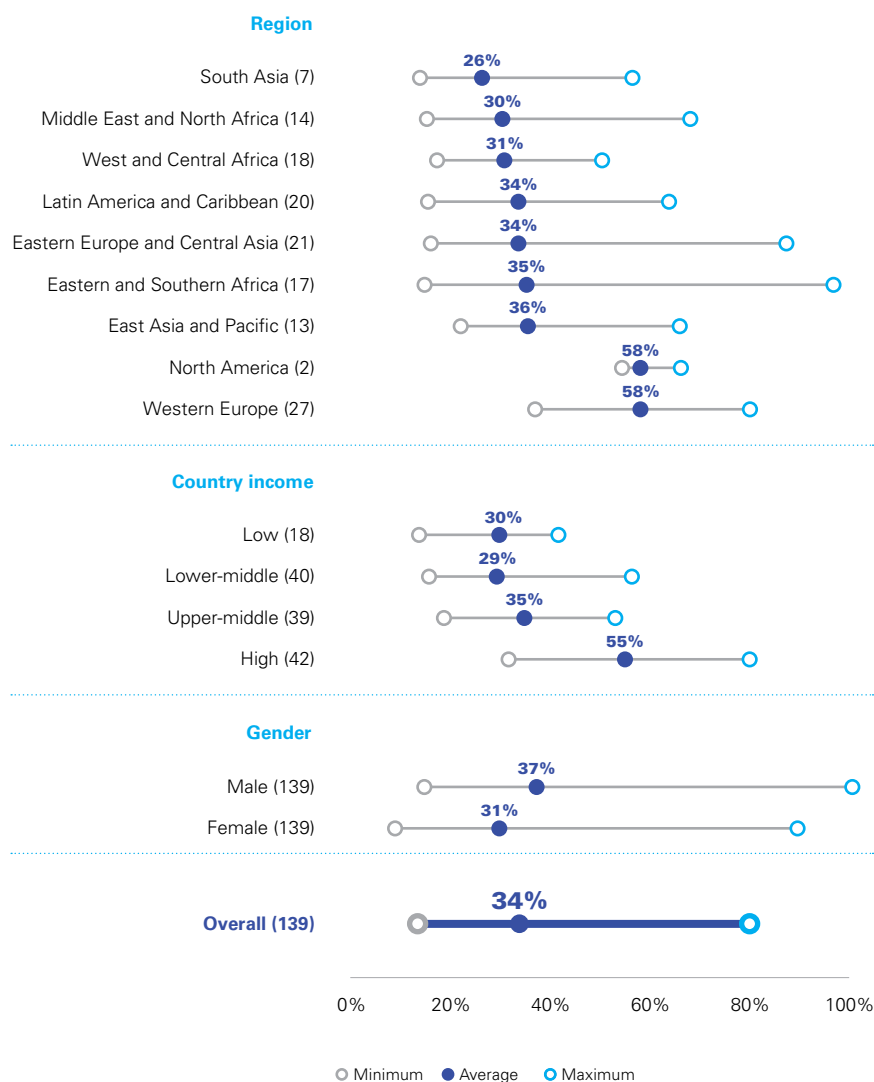


Figure 10. Proportion of youth aged 15-24 years on track to acquire entrepreneurial skills

Source: Authors' calculations using data from Standard & Poor's Ratings Services Global Financial Literacy Survey 2014 results for age group 15-35 years, assuming the same rate for youth aged 15-24 years, weighted by 2020 estimates for population aged 15-24 years retrieved from UN Population Division.

Note: Data are available for 139 countries, covering 97 per cent of the world's population aged 15-24 years. The total number of countries with data does not match the number of countries in each country income group (World Bank FY 2022 income group classification), as Venezuela has been temporarily unclassified in July 2021 pending release of revised national accounts statistics.

21 The World Bank, Entrepreneurship Database 2018, Women Entrepreneurs Finance Initiative, <<https://www.doingbusiness.org/en/data/exploretopics/entrepreneurship/gender>>, accessed 2 November 2021.



Status of youth's attainment of the full range of skills

To track progress in the development of the full range of skills among youth, this report brings together evidence on the five skills areas (i.e., secondary-level, transferable, digital, job-specific and entrepreneurial skills) and assigns them into one of five progressive levels of skills attainment. Each level corresponds to the proportion of youth on track to attain each skill: Marginal (0-15 per cent), Emerging (16-35 per cent), Developing (36-55 per cent), Advanced (56-75 per cent) and Leading (76-100 per cent). Based on countries with available data, the attainment of secondary-level, transferable and digital skills is at the Developing Level, while the acquisition of job-specific and entrepreneurial skills lags behind at the Emerging Level. It is reiterated that these estimates should be interpreted with caution due to a lack of data across the various skills areas, particularly for low-income countries and certain regions.

Evidence suggests low levels of skills attainment among youth, but particularly so among those in low-income countries. It is important to note, however, that while the proportion of youth off-track may appear highest in low-income countries, their numbers may be greater in lower-middle-income countries where the largest population of youth is concentrated and where the demand for more advanced skills may be much higher. Based on countries with available data:

- **Over a third (35 per cent)** of all countries with data are at only **Marginal or Emerging Levels** in the proportion of youth on track to acquire **secondary-level skills**. Three-quarters of high-income countries are Advanced or Leading countries in secondary-level skills attainment. By comparison, half of low-income countries and about a

third of lower-middle-income countries with data are still at the Marginal Level, with at least 85 per cent of their youth off-track in secondary-level skills attainment.

- **Over a fifth (21 per cent)** of all countries with data are still at **Marginal or Emerging Levels** in the proportion of youth on track to acquire **transferable skills**. While close to three-quarters of high-income countries are Advanced or Leading countries in the acquisition of these skills, all lower-middle-income countries with data are still at Marginal or Emerging Levels. That only 38 countries – none of which are low-income – have data on transferable skills underscores the need for more widely available, comprehensive and comparable data on this skills area.
- **Two-fifths (40 per cent)** of all countries with data are at only **Marginal or Emerging Levels** in the proportion of youth on track to acquire **digital skills**. Nearly every high-income country is an Advanced or Leading country in the acquisition of digital skills. By contrast, nearly every low-income country and about a third of lower-middle-income countries with data are at the Marginal Level, with at least 85 per cent of their youth off-track in digital skills attainment.
- **Nearly half (48 per cent)** of all countries with data are still at **Marginal or Emerging Levels** in the proportion of youth on track to acquire **job-specific skills**. Three-quarters of high-income countries are Advanced or Leading countries in job-specific skills attainment. By comparison, over two-thirds of low-income and lower-middle-income countries with data are at Marginal or Emerging Levels, with at least 65 per cent of their youth off-track in job-specific skills attainment.

- **Two-fifths (40 per cent)** of all countries with data are at only **Marginal or Emerging Levels** in the proportion of youth on track to acquire **entrepreneurial skills**. Over half of high-income countries are Advanced or Leading countries in the acquisition of entrepreneurial skills. By contrast, nearly three-quarters of low-income countries and more than half of lower-middle-income countries with data are at Marginal or Emerging Levels, with at least 65 per cent of their youth off-track in entrepreneurial skills attainment.

There is a clear need to improve skills attainment among children and youth, but prolonged school closures brought about by the COVID-19 crisis may have disrupted skills development – especially among those who lagged behind even before the pandemic. There is a growing body of evidence on the negative impact of school closures on learning. In São Paulo, Brazil, students learned only 28 per cent of what they would have ordinarily acquired in school and the risk of dropout increased more than threefold.²² In rural Karnataka, India, the share of Grade 3 children in government schools able to perform simple subtraction dropped from 24 per cent in 2018 to only 16 per cent in 2020.²³ School closures exacerbated inequalities in education, leaving behind the most vulnerable, including children in low- and middle-income countries unprepared to offer remote learning; children from disadvantaged households with limited resources to support learning at home; and young children and children with disabilities who were largely left out of remote learning plans.²⁴ Moreover, a March 2022 survey conducted by UNICEF, UNESCO and the World Bank with over 120 countries

found that more than two years into the pandemic, less than half of countries are implementing learning recovery strategies at scale to help children catch up with missed learning.²⁵

With the central role schools play in holistic development, extended school closures may affect not just academic learning, but also the development of the wide array of skills children and youth will need to succeed. A significant negative correlation is found between countries' levels of skills attainment, which represent the pre-COVID baseline, and their duration of school closures. This suggests that countries with the most extensive school closures also tend to be those that were lagging in skills development even prior to the pandemic, raising concern that gaps in skills attainment across countries may have widened further following prolonged school closures. In response to this crisis, UNICEF, UNESCO and the World Bank have joined forces to launch [Mission: Recovering Education](#) in 2021, focusing on ensuring all children are back in school and receive comprehensive services, all students receive effective support to recover learning losses, and all teachers are prepared to meet students' learning needs. Further guidance is provided under the [RAPID framework](#), which outlines five key actions for learning recovery and acceleration: **R**each every child and keep them in school; **A**ssess learning levels regularly; **P**rioritize teaching the fundamentals; **I**ncrease the efficiency of instruction, including through catch-up learning; and **D**evelop psychosocial health and well-being. As young people themselves play a crucial role in the education recovery process, they should be further engaged and their opinions should be taken into consideration in the design of education recovery plans.

22 Lichand, Guilherme, et al., 'The Impacts of Remote Learning in Secondary Education: Evidence from Brazil during the pandemic', SSRN Scholarly Paper ID 3841775, Social Science Research Network, New York, October 2021, <<https://dx.doi.org/10.2139/ssrn.3841775>>.

23 ASER Centre, 'Annual Status of Education Report 2020: Karnataka Rural', ASER Centre, 2021, <http://img.asercentre.org/docs/asern3-pager_06.09.211.pdf>.

24 World Bank, UNESCO and UNICEF, *The State of the Global Education Crisis: A Path to Recovery*, World Bank/UNESCO/UNICEF, Washington, D.C./Paris/New York, 2021, <<https://www.unicef.org/media/111621/file/%20The%20State%20of%20the%20Global%20Education%20Crisis.pdf%20.pdf>>.

25 UNESCO, UNICEF and World Bank, *Where Are We on Education Recovery?*, UNESCO/UNICEF/World Bank, Washington, D.C./Paris/New York, 2022. <<https://www.unicef.org/reports/where-are-we-education-recovery>>.

Improving data availability on the full range of skills

This report provides evidence on the urgent need to enhance skills development, ensuring no child or young person is left behind. However, various issues in data availability and comparability are encountered in estimating skills attainment. Although developing the full range of skills is especially critical among youth, there is a lack of internationally comparable assessments covering this age group for each skills category, including secondary-level and transferable skills. Moreover, in the absence of comprehensive assessments, proxy measures are used to determine the acquisition of job-specific and entrepreneurial skills. It is also important to note that skills development can occur outside the school system such as through work-based learning, which presents further implications for skills measurement.

Data availability remains a challenge in lower-income countries as well as for certain skills typologies such as transferable skills. In several countries, assessment data are not collected regularly; some measures, such as the Global Competence test in PISA 2018 which provides data on transferable skills, are conducted as one-off events that do not allow monitoring of progress in skills attainment. With the call to prioritize education recovery through safe school reopening, there is a heightened need for improved approaches to assessing the full range of skills and tracking progress in their development. Strengthening data availability on skills attainment is critical to supporting and rebuilding these skills as schools reopen – we cannot recover losses in the skills we do not measure.

As a step towards monitoring progress in the full range of skills, UNICEF has begun mapping existing assessments that measure the five skills categories. Within the past decade, only 38 of 224 countries and territories (17 per cent) have reported data on all five skills, while 48 countries and territories (21 per cent) do not have data on any of the skills (*see Figure 11*).²⁶ Among low- and lower-middle-income countries, only 5 per cent have data available on all five skills. Across skills categories, 74 per cent of countries and territories have data on foundational skills, but only about half have data on digital skills (56 per cent) and a fifth have data related to job-specific skills (20 per cent). Fewer countries and territories have data on any of the five skills for young children who are around 5 years old (37 per cent), while

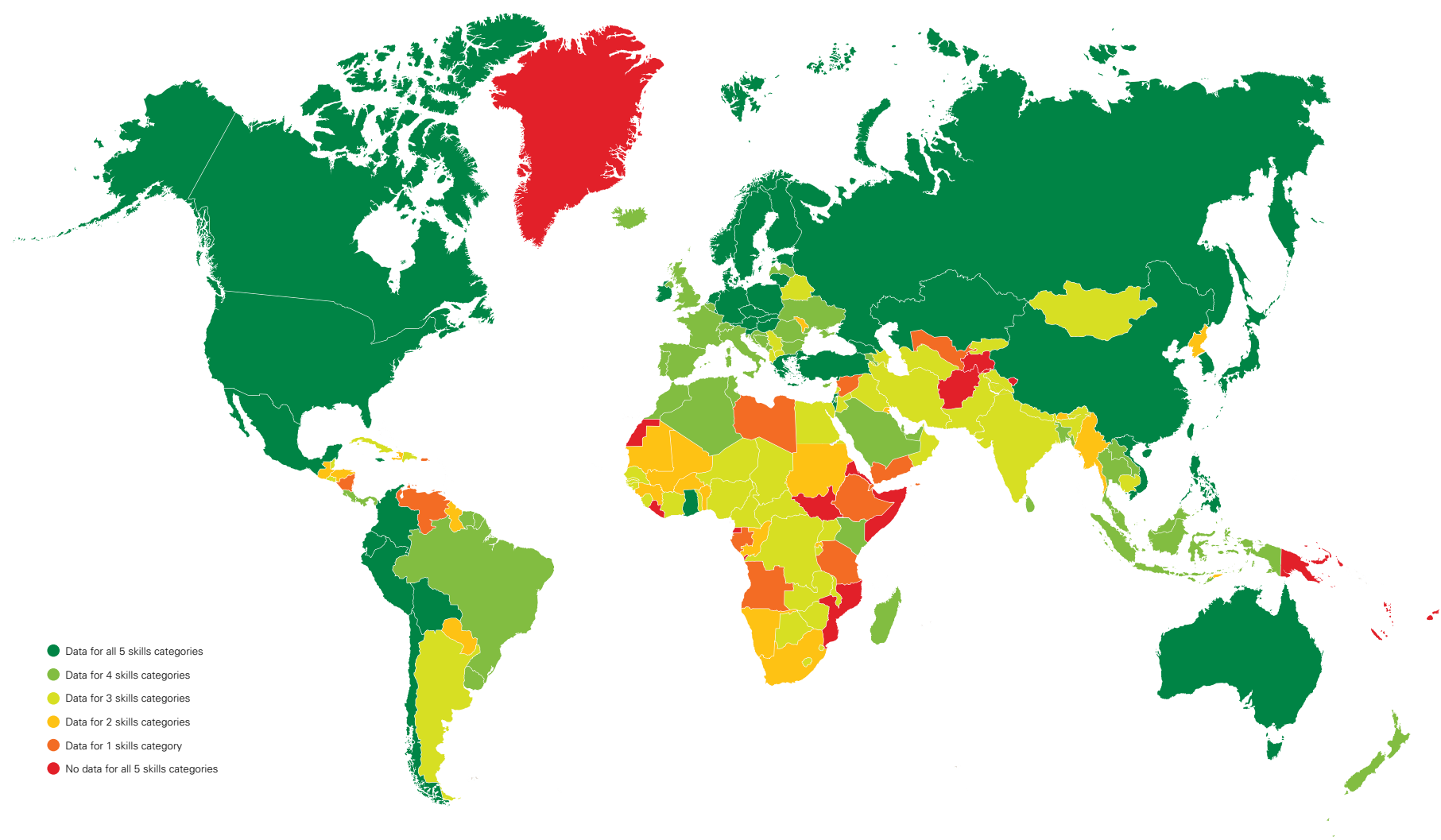
data are relatively more widely available for older children who are around 10 years old (60 per cent) and for youth and adults (65 per cent). These findings highlight the need for more comprehensive and inclusive measures on the full range of skills.

A key challenge in skills measurement is the need for increased availability of large-scale assessments that capture outcomes beyond foundational literacy and numeracy, as well as wider coverage of lower-income countries and out-of-school children and youth – endeavors which UNICEF and its partners continue to support. Such efforts include the [Learning Data Compact](#), which aims to improve the availability, frequency, relevance and timeliness of learning assessment data, particularly in low- and middle-income countries. In response to learning losses during the pandemic, UIS and its partners have undertaken the [COVID-19: Monitoring the Impacts on Learning Outcomes \(MILO\)](#) project to measure learning outcomes in six countries in Africa. Data gaps are also being addressed through innovations to UNICEF's [MICS](#), such as the Foundational Learning Skills module, which covers both in- and out-of-school children aged 7-14 years, and the Mass Media and ICT module, which collects data on ICT skills among youth.

To improve the tracking of progress on skills development among youth, the [World Skills Clock](#) launched by UNICEF, the Education Commission, Generation Unlimited and the World Data Lab provides estimations, projections and visualizations of secondary-level and digital skills attainment, with a plan to provide additional insights, including data disaggregation along key dimensions and integration of other skills areas. To monitor the many dimensions of adolescent well-being, UNICEF's [Adolescent Data Portal](#) provides global, regional and country-level data on key indicators, including those related to education, learning and transition to work. Additionally, UNICEF and its partners have been actively working to develop standardized approaches to measuring transferable skills, such as the [Life Skills and Citizenship Education Measurement](#) instrument in the Middle East and North Africa region and the global citizenship module of the [Southeast Asia Primary Learning Metrics](#). With its commitment to improving data and assessment, UNICEF strives towards the vision of the Reimagine Education initiative – that every child and young person builds the full range of skills needed to thrive in school, work and life.

26 The mapping exercise includes assessments that measure any of the five skills categories for any age group. For more details on UNICEF's mapping of skills assessments, see: Yao, Haogen, et al., 'Mind the gap(s): Are we seeing the full picture of children's skill development?', UNICEF Evidence for Action, 27 October 2021, <<https://blogs.unicef.org/evidence-for-action/mind-the-gaps-are-we-seeing-the-full-picture-of-childrens-skill-development/>>.

Figure 11. Data availability on the five skills categories



Note: This map is stylized and not to scale. It does not reflect a position by UNICEF on the legal status of any country or territory or the delimitation of any frontiers.



Annex 1:

Methodology

This report uses various data sources and methods of calculations for baseline figures on the following: early childhood development at ages 36-59 months; foundational skills at approximately age 10; and secondary-level, transferable, digital, job-specific and entrepreneurial skills among youth aged 15-24 years. The data used for each country are the latest available since 2011. Analyses in this report focus on countries and territories in UNICEF's country coding; thus, countries and territories for which data are available, but that are not in UNICEF's country coding, are excluded in the report analyses.²⁷

²⁷ All references to Kosovo in this report should be understood to be in the context of United Nations Security Council resolution 1244 (1999). Calculations involving variations by World Bank income group classifications exclude Venezuela, as the country has been temporarily unclassified in July 2021 pending release of revised national accounts statistics. See: <<https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups>>.

1. Early childhood development at ages 36-59 months

This report uses data from the Early Childhood Development Index (ECDI), which is collected as part of the Multiple Indicator Cluster Surveys (MICS), Demographic and Health Surveys (DHS) and other national household surveys, retrieved from UNICEF Global Databases. The ECDI measures the proportion of children aged 36-59 months who are developmentally on track in at least three of the following four domains: literacy-numeracy, physical, social-emotional and learning. This report includes ECDI data for 77 countries, covering 31 per cent of the world's population aged 36-59 months; thus, figures presented in the report using ECDI data should not be interpreted as global estimates. The proportion of children developmentally on track was estimated by calculating the average of all countries with available ECDI data, weighted by 2020 estimates of population aged 36-59 months retrieved from UN Population Division.

2. Foundational skills at approximately age 10

This report uses data on learning poverty rates, jointly developed by the World Bank and UNESCO Institute for Statistics, retrieved from the Learning Poverty Database in the World Bank Development Data Hub. Learning poverty, a combined measure of schooling and learning, is defined as the percentage of 10-year-old children who cannot read and understand a simple text. For each country, the proportion of 10-year-old children with foundational reading skills is calculated using the formula: 100 minus learning poverty. For countries without learning poverty data, data on foundational reading skills from the MICS Foundational Learning Skills module, which cover in- and out-of-school children aged 7-14 years, were used, with the same rates assumed for the age group 10-14 years (i.e., the population covered by learning poverty). To estimate a global aggregate, the average for all countries with available data was computed, weighted by 2020 estimates of population aged 10-14 years retrieved from UN Population Division, in line with the World Bank's method of calculation. While age 10 is the reference year for learning poverty, population aged 10-14 years is used for computing regional and global aggregations, as the measurement of learning poverty is based on assessments administered between Grades 4-6, corresponding to ages 10-14 years. This report includes learning poverty data for 106 countries

and MICS Foundational Learning Skills data for 15 countries, covering a total of 85 per cent of the world's population aged 10-14 years. However, it is noted that the figure reported for Eastern and Southern Africa does not cover a sufficient number of countries and thus should not be interpreted as an aggregated regional estimate.

3. Youth on track to attain the full range of skills

Secondary-level skills. The major data source was the UIS database, which reports data from various large-scale assessments (i.e., the Programme for International Student Assessment (PISA), the Trends in International Mathematics and Science Study (TIMSS), national learning assessments) for the monitoring of Sustainable Development Goal (SDG) Indicator 4.1.1(c) on the proportion of students who have achieved at least a minimum proficiency in reading and math at the end of lower secondary education. For each country, the proportion of students with secondary-level skills (SS%) refers to the proportion of students reaching minimum proficiency in reading or math at the end of lower secondary; when both reading and math data are available for a country, the lower of the two values is used. The data are then adjusted to account for the out-of-school lower secondary school-age population (OOS%) under the assumption that the out-of-school population is about 50 per cent less likely than the in-school population to attain the skill. This assumption is based on calculations from UNICEF's Data and Analytics team using data from the MICS Foundational Learning Skills module, which show that 68 per cent of in-school children aged 10-14 years, compared to 30 per cent of those not in school, have foundational reading skills. Under this assumption, and using lower secondary school-age OOS rates obtained from the UIS database and UNICEF Global Databases, the following formula is then applied: $((100\% - \text{OOS\%}) * \text{SS\%}) + (\text{OOS\%} * \text{SS\%} * 0.5)$. Similar secondary-level skills rates are then assumed for the youth age group of 15-24 years. The proportion of youth on track to attain secondary-level skills was estimated by calculating the average of all countries with available data, weighted by 2020 estimates of population aged 15-24 years retrieved from UN Population Division. This report includes data on secondary-level skills for 106 countries, covering 81 per cent of the world's population aged 15-24 years. However, it is noted that the figures reported for the low-income group, Eastern and Southern Africa, and West and Central Africa do not cover a sufficient number of countries and thus should not be interpreted as aggregated country income group or regional estimates.

Transferable skills. The major data source was the UIS database, which reports data on the proportion of students in lower secondary school showing adequate understanding of issues relating to global citizenship and sustainability on the International Civic and Citizenship Education Study (ICCS) 2016; if unavailable, data from the PISA 2018, which includes a cognitive test on Global Competence and where Level 2 is taken as the minimum proficiency level, were used. The data are then adjusted to account for the out-of-school lower secondary school-age population using the same assumption and formula as outlined in the section on secondary-level skills, replacing data on secondary-level skills with that of transferable skills from the ICCS 2016 as reported in UIS (or, if unavailable, PISA 2018). Similar transferable skills rates are then assumed for the youth age group of 15-24 years. The proportion of youth on track to attain transferable skills was estimated by calculating the average for all countries with available data, weighted by 2020 estimates of population aged 15-24 years retrieved from UN Population Division. This report includes data on transferable skills for 38 countries, covering 15 per cent of the world's population aged 15-24 years; thus, figures presented in the report using these data should not be interpreted as aggregated global, regional or country income group estimates.

Digital skills. The major data source was the UIS database, which reports data from the International Telecommunication Union (ITU) and Eurostat for the monitoring of SDG Indicator 4.4.1 on the proportion of youth and adults with ICT skills, by type of skill. If unavailable on UIS, country data were taken from UNICEF Global Databases on ICT skills which reports results from MICS, disaggregated by sex. To estimate overall figures for MICS data, the simple average of male and female figures was computed, in line with the UIS method of reporting progress on SDG Indicator 4.4.1 using the same data source. For each country, the proportion of youth with basic digital skills is given by the average among the proportion of individuals with the following skills: copying or moving a file or folder, using copy and paste tools to duplicate or move information within a document, sending e-mails with attached files, and transferring files between a computer and other devices. Missing data for China²⁸ and India²⁹ were extracted from national reports on the proportion of adults with basic ICT skills. Missing data for the United States were extracted from the Programme for International Assessment of Adult Competencies (PIAAC) results on the proportion of youth with digital literacy. Based on PIAAC³⁰ results that youth are about 24

per cent more likely to have basic ICT skills than the total youth and adult population, data on youth and adults were narrowed to youth by multiplying each value by 1.24. The proportion of youth on track to attain digital skills was estimated by calculating the average for all countries with available data, weighted by 2020 estimates of population aged 15-24 years retrieved from UN Population Division. This report includes data on digital skills for 104 countries, covering 76 per cent of the world's population aged 15-24 years. However, it is noted that the figures reported for the low-income group, Eastern and Southern Africa, and West and Central Africa do not cover a sufficient number of countries and thus should not be interpreted as aggregated country income group or regional estimates.

Job-specific skills. The data sources were the UIS database for the reporting of SDG Indicator 4.1.1(c) and the International Labour Organization Department of Statistics (ILOSTAT) database on the proportion of youth aged 15-24 years who are not in education, employment or training (NEET%). For each country, NEET% was subtracted from 100 to compute the proportion of youth who are in education, employment or training (100%-NEET%). Then, for each country, the proportion of youth on track to attain secondary-level skills (SS%) was computed using the same method of calculation as outlined in the section on secondary-level skills. Assuming that youth with basic reading or math skills have the capacity to gain job-specific skills through education, employment or training, the proportion of youth with job-specific skills was computed using the formula: (100%-NEET%)*SS%. The proportion of youth on track to attain job-specific skills was estimated by calculating the average of all countries with available data, weighted by 2020 estimates of population aged 15-24 years retrieved from UN Population Division. This report includes data on job-specific skills for 92 countries, covering 65 per cent of the world's population aged 15-24 years. However, it is noted that the figures reported for the low- and upper-middle-income groups, East Asia and Pacific, Eastern and Southern Africa, and West and Central Africa do not cover a sufficient number of countries and thus should not be interpreted as aggregated country income group or regional estimates.

Entrepreneurial skills. The major data source was the Standard & Poor's Ratings Services Global Financial Literacy Survey 2014 for age group 15-35 years, with the same rates assumed for the age group 15-24 years. Individuals are defined as financially literate when they correctly answer at least three out of four

28 *Blue Book of New Media 2021: Annual Report on Development of New Media in China No. 12 (2021)*, Social Sciences Academic Press (China), 2021.

29 Government of India Ministry of Statistics & Programme Implementation, *Household Social Consumption on Education in India: NSS 75th Round*, July 2017-June 2018, <http://mospi.nic.in/sites/default/files/publication_reports/Report_585_75th_round_Education_final_1507_0.pdf>.

30 Organisation for Economic Co-operation and Development, *Skills Matter: Additional Results from the Survey of Adult Skills*, OECD Skills Studies, OECD Publishing, Paris, 2019, <<https://doi.org/10.1787/1f029d8f-en>>.

fundamental financial concepts: basic numeracy, interest compounding, inflation and risk diversification. The proportion of youth on track to attain entrepreneurial skills was estimated by calculating the average of all countries with available data, weighted by 2020 estimates of population aged 15-24 years retrieved from UN Population Division. This report includes data on entrepreneurial skills for 139 countries, covering 97 per cent of the world's population aged 15-24 years.

4. Country figures on the full range of skills among youth

Country figures are computed for secondary-level, transferable, digital, job-specific and entrepreneurial skills as outlined in Section 3 (see Annex 2). For countries with missing data,

regression-based imputation was conducted using the natural log of gross national income per capita (ln(GNI per capita)) calculated using the World Bank Atlas method, dummy variables for regions and related variables per skill (see Table 2).

To report on global and country status on the attainment of the full range of skills (i.e., secondary-level, transferable, digital, job-specific and entrepreneurial) among youth, five progressive levels of skills attainment are assigned, based on the proportion of youth on track to attain each skill:

- **Marginal:** 0-15 per cent
- **Emerging:** 16-35 per cent
- **Developing:** 36-55 per cent
- **Advanced:** 56-75 per cent
- **Leading:** 76-100 per cent

Table 2. Variables and R-squared values for regression-based imputations







































































































































Skill	Method of calculation	Variables for regression-based imputation	R-squared
Foundational	See Section 2 of Methodology	ln(GNI per capita); participation rate in organized learning (one year before the official primary age); regional dummies	0.85
Secondary-level	See Section 3 of Methodology	ln(GNI per capita); % of children with foundational skills at approximately age 10; regional dummies	0.66
Transferable		ln(GNI per capita); % of youth aged 15-24 years with secondary-level skills; employment-to-population ratio (15-24 years); regional dummies	0.71
Digital		ln(GNI per capita); % of population using the Internet; % of population with access to electricity; regional dummies	0.82
Job-specific		ln(GNI per capita); employment-to-population ratio (15-24 years); regional dummies	0.74
Entrepreneurial		ln(GNI per capita); employment-to-population ratio (15-24 years); regional dummies	0.65






















Source: Data on participation rate in organized learning (one year before the official primary age) and proportion of students who have achieved at least a minimum proficiency in reading and math at the end of lower secondary from UIS; learning poverty data from the World Bank and UIS Learning Poverty Database; MICS Foundational Learning Skills data from UNICEF Global Databases; proportion of youth in education, employment and training and employment-to-population ratio from ILOSTAT; GNI per capita, internet usage and access to electricity from the World Bank's World Development Indicators database.


































































































































































































Note: Due to an absence of data on transferable skills from countries in Eastern and Southern Africa, South Asia, and West and Central Africa, data on transferable skills could not be imputed for countries in these three regions.



































































































































Annex 2: Status of youth's attainment of the full range of skills, by country








































































































































































































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Country	SECONDARY-LEVEL 	TRANSFERABLE 	DIGITAL 	JOB-SPECIFIC 	ENTREPRENEURIAL 
Afghanistan					
Albania					
Algeria					
Andorra					
Angola					
Antigua and Barbuda					
Argentina					
Armenia					
Australia					
Austria					
Azerbaijan					
Bahamas					
Bahrain					
Bangladesh					
Barbados					
Belarus					
Belgium					
Belize					
Benin					
Bhutan					
Bolivia (Plurinational State of)					
Bosnia and Herzegovina					
Botswana					
Brazil					
British Virgin Islands					
Brunei Darussalam					
Bulgaria					

Country	SECONDARY-LEVEL 	TRANSFERABLE 	DIGITAL 	JOB-SPECIFIC 	ENTREPRENEURIAL 
Burkina Faso					
Burundi					
Cabo Verde					
Cambodia					
Cameroon					
Canada					
Central African Republic					
Chad					
Chile					
China					
Colombia					
Comoros					
Congo					
Costa Rica					
Croatia					
Cuba					
Cyprus					
Czechia					
Côte d'Ivoire					
Democratic People's Republic of Korea					
Democratic Republic of the Congo					
Denmark					
Djibouti					
Dominica					
Dominican Republic					
Ecuador					
Egypt					
El Salvador					
Equatorial Guinea					
Eritrea					
Estonia					
Eswatini					
Ethiopia					
Fiji					
Finland					
France					
Gabon					
Gambia					
Georgia					
Germany					
Ghana					
Greece					
Grenada					

Country	SECONDARY-LEVEL 	TRANSFERABLE 	DIGITAL 	JOB-SPECIFIC 	ENTREPRENEURIAL 
Guatemala					
Guinea					
Guinea-Bissau					
Guyana					
Haiti					
Honduras					
Hungary					
Iceland					
India					
Indonesia					
Iran (Islamic Republic of)					
Iraq					
Ireland					
Israel					
Italy					
Jamaica					
Japan					
Jordan					
Kazakhstan					
Kenya					
Kiribati					
Kosovo					
Kuwait					
Kyrgyzstan					
Lao People's Democratic Republic					
Latvia					
Lebanon					
Lesotho					
Liberia					
Libya					
Liechtenstein					
Lithuania					
Luxembourg					
Madagascar					
Malawi					
Malaysia					
Maldives					
Mali					
Malta					
Marshall Islands					
Mauritania					
Mauritius					
Mexico					

Country	SECONDARY-LEVEL 	TRANSFERABLE 	DIGITAL 	JOB-SPECIFIC 	ENTREPRENEURIAL 
Micronesia (Federated States of)					
Monaco					
Mongolia					
Montenegro					
Morocco					
Mozambique					
Myanmar					
Namibia					
Nauru					
Nepal					
Netherlands					
New Zealand					
Nicaragua					
Niger					
Nigeria					
North Macedonia					
Norway					
Oman					
Pakistan					
Palau					
Panama					
Papua New Guinea					
Paraguay					
Peru					
Philippines					
Poland					
Portugal					
Qatar					
Republic of Korea					
Republic of Moldova					
Romania					
Russian Federation					
Rwanda					
Saint Kitts and Nevis					
Saint Lucia					
Saint Vincent and the Grenadines					
Samoa					
San Marino					
Sao Tome and Principe					
Saudi Arabia					
Senegal					
Serbia					
Seychelles					

Country	SECONDARY-LEVEL 	TRANSFERABLE 	DIGITAL 	JOB-SPECIFIC 	ENTREPRENEURIAL 
Sierra Leone					
Singapore					
Slovakia					
Slovenia					
Solomon Islands					
Somalia					
South Africa					
South Sudan					
Spain					
Sri Lanka					
State of Palestine					
Sudan					
Suriname					
Sweden					
Switzerland					
Syrian Arab Republic					
Tajikistan					
Thailand					
Timor-Leste					
Togo					
Tonga					
Trinidad and Tobago					
Tunisia					
Türkiye					
Turkmenistan					
Turks and Caicos Islands					
Tuvalu					
Uganda					
Ukraine					
United Arab Emirates					
United Kingdom					
United Republic of Tanzania					
United States					
Uruguay					
Uzbekistan					
Vanuatu					
Venezuela (Bolivarian Republic of)					
Viet Nam					
Yemen					
Zambia					
Zimbabwe					

Note: Darker shades indicate a higher level of skills attainment. Due to an absence of data on transferable skills from countries in Eastern and Southern Africa, South Asia, and West and Central Africa, data on transferable skills could not be imputed for countries in these three regions.



Annex 3: World Skills Clock

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Launched by the Education Commission, Generation Unlimited, UNICEF and the World Data Lab, the [World Skills Clock](#) aims to mobilize new momentum for urgent action towards achieving progress on SDG Indicator 4 by providing real-time data on the status of skills development globally and at country level. It complements the tracking of other SDGs, including the [World Poverty Clock](#) (SDG Indicator 1) and the [World Hunger Clock](#) (SDG Indicator 2).

In its current phase, the World Skills Clock provides estimations and projections of the number of youth without secondary-level skills and digital skills, disaggregated by country (see Figure 12). As an interactive webtool, the World Skills Clock is accessible to everyone online and serves as a global reference for the status of skills attainment, as well as an important advocacy tool to highlight the critical need to prioritize education in the global recovery.

The World Skills Clock uses existing global datasets and innovative modelling techniques to communicate current and projected trends in skills acquisition.³¹ It applies demographic and statistical modelling techniques to project and fill data gaps in enrolment, learning and internet access until 2040 for every country, based on current trends. The data sources and methods of calculation for secondary-level and digital skills attainment align with those used in this report, with additional adjustments: regression-based imputation for countries with missing data, linear trend forecasting using all data points from 2010 to 2019 to

Figure 12. Screenshot of the current early version of the World Skills Clock (May 2022)



provide global and country estimates from 2020 to 2040, and the potential dampening effect on skills attainment due to COVID-19.

In its next version, the World Skills Clock will be launched with new features to provide additional insights on skills attainment. Its upcoming features include: costing and financing data to provide insight on what it costs to close the skills gap; further data disaggregation by gender, income and location (i.e., urban/rural); granular country-level information through country report cards; forecast of alternative pathways to describe scenarios with rapid, medium or stalled development; and new visualizations on the website.

31 To access the World Skills Clock Methodology Note, see: <<https://skillsclock.io/methodology.pdf>>.

RECOVERING LEARNING:

Are children and youth on
track in skills development?