

Upskilling Young People – Asia-Pacific’s unrealised potential

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The International Youth Day was celebrated in August this year to bring young people’s issues to the attention of the international community and celebrate their potential as agents of positive change by shining a spotlight on their voices, actions and initiatives, as well as the difficulties they experience. SDG 4 emphasizes that quality education encompasses a range of key topics, competencies and forms of delivery to acquire the needed literacy, numeracy, science, and ICT skills, as well as other non-cognitive skills, such as self-esteem, motivation, and problem-solving as required for productively participating as a citizen. The data collected by the UNESCO Institute for Statistics speaks about the current state of development among young people going through and coming out of education.

The current generations of youth, as well as adolescents as the immediate next youth generation, will define the sustainability of our development efforts through the skills which have been transferred onto them. Developing and transitioning countries are typically ‘younger’ in their demographic composition than the developed regions of Europe and Northern America (Figure 1). The developing regions house large numbers and shares of adolescents (aged 10 to 14) and youth (aged 15 to 24). Asia-Pacific is home to the largest young population in the world. By 2020, the adolescents and youth composed 23% of the population in the region (8% and 15%), which equalates to more than 1 billion young people (341 million adolescents and 673 million youth), larger than the rest of the world combined (0.76 billion).

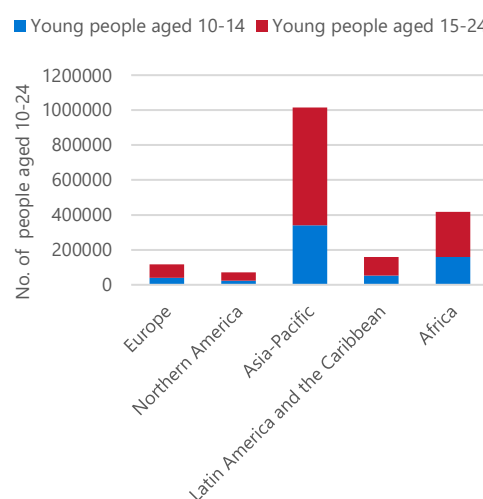
In the current generation of young people rests the world’s expectation to be effective participants and leaders of our societies. But have they been adequately prepared?

The skills to propel a society

The purpose of education does not end by going to and graduating from school; education serves the purpose of preparing young people to integrate purposefully and competently into societies. To do so, essential quality education is required that nurtures young people’s skills for a successful post-education transition, to produce and innovate on the labour market, and become a benefactor to a country’s society at large.

As countries progress and, thus, change, labour markets change accordingly. The International Labour Organization outlined the future of the global labour markets to be determined by demographic shifts, technological change, and an environmentally sustainable economy.¹ Science, Technology, Engineering, and Mathematics (STEM) skills are needed for the so-called ‘jobs of the future’, driving innovation, inclusive growth and sustainable development of economies.² Scientific and technological skills themselves require a solid foundation in literacy and numeracy from which to develop higher-order cognitive skills beyond creativity, such as analysis, logic, and reasoning.³

Figure 1: Numbers of adolescents and youth, 2020



Data source: United Nations, DESA database.

¹ ILO, 2018: Skills and the Future of Work. Strategies for inclusive growth in Asia and the Pacific. ILO, Geneva. Access: https://www.ilo.org/wcmsp5/groups/public/@asia/@ro-bangkok/@sro-bangkok/documents/publication/wcms_650239.pdf

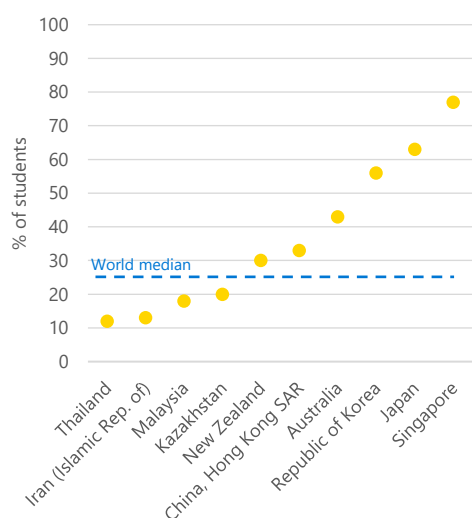
² UNEVOC, 2020: Boosting gender equality in science and technology. Access: https://unevoc.unesco.org/pub/boosting_gender_equality_in_science_and_technology.pdf; UNEVOC, 2020: Virtual conference on understanding the causes of gender disparities in STEM-related TVET. Access: https://unevoc.unesco.org/pub/vc_synthesis_30.pdf

³ Global Education Monitoring Report Team. 2012. Youth and skills: putting education to work. Access: <https://en.unesco.org/gem-report/report/2012/youth-and-skills-putting-education-work>

Science skills for sustainable economies

Jobs among all industries, manufacturers, and service providers of any country require considering environmental scenarios for the protection of biodiversity, the conservation of natural resources, and the reduction and elimination of waste. This ranges from identifying environmentally friendly materials, to reducing resource consumption, and creating environmentally sound technologies. The changing global climate adds urgency for environmental considerations to keep the planet alive and to be enjoyed by our children's children.

Figure 2: Indicator 4.7.5 - Percentage of students in lower secondary education showing proficiency in environmental and geoscience



Data source: <http://sdg4-data.uis.unesco.org/>

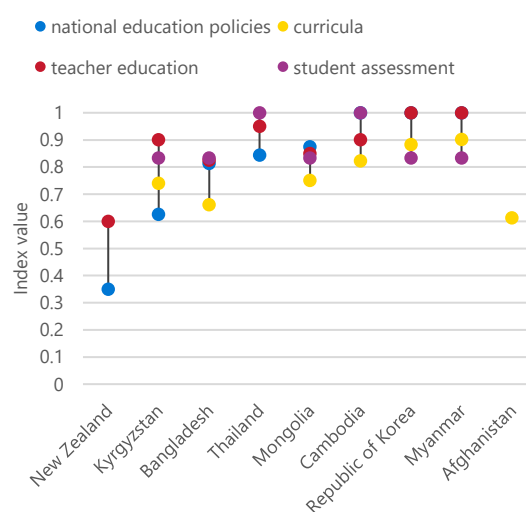
To ensure all country's economic stakeholders integrate environmental considerations into everyday activities, the graduates of education and subsequent labour market participants, including in political sectors, require minimum skills in natural sciences to understand physical, chemical and biological concepts and consequences.

The **SDG 4 indicator 4.7.5**⁴ measures the percentage of students with minimum proficiency in environmental and geoscience in lower secondary education.⁵ Although only ten countries and economies from Asia-Pacific participated in the data collection (Figure 2), the results show these current generations of young people are insufficiently prepared to deal with environmental considerations. In the cognitive dimension⁶, there is a notably larger proportion of students with science proficiency in the high-income economies of Singapore (77%), Japan (63%) and Republic of Korea (56%). In ascending order, in Thailand (12%), the Islamic Republic of Iran (13%), Malaysia (18%) and Kazakhstan (20%), only between 1 and 2 out of 10 students in lower secondary education have the capacity to understand concepts of the natural sciences.

For global comparison, about half of the countries with available data showed to have proportions of below 27% - or 1 in 4 students - with adequate science proficiencies at this level of education. High-income economies tendentially have larger proportions of young people with the relevant understanding; yet the trend remained at or below a 50% threshold for students with the minimum cognitive proficiencies outside Asia-Pacific.⁷

Overall, there is low basic science knowledge prevalent among the current young generations. The immediate question should be how these young people can be expected to integrate environmental sustainability into economic as well as everyday activities. Although going onto STEM fields in TVET and university education can further deepen scientific understanding, those secondary

Figure 3: Indicator 4.7.1. - The extent to which (i) global citizenship education and (ii) education for sustainable development are mainstreamed in education



Data source: <http://sdg4-data.uis.unesco.org/>

⁴ Data from [TIMSS 2019](#) was used to estimate the proportion of students who reach the targets set by SDG indicator 4.7.5 for each country and region with available data. (UIS, 2021: SDG 4 Metadata. Target 4.7. Indicator 4.7.5.)

⁵ 4.7.5: measures the capacity of students to communicate their understanding of ecosystems and the interaction of organisms with their environment and apply some knowledge of human health related to nutrition and disease, the composition and properties of matter and chemical change, Earth's physicality, processes, and geological history, as well as on the interaction with the Moon.

⁶ Cognitive: to acquire knowledge, understanding critical thinking necessary to encompassing the range of cognitive processes involved in learning environmental science concepts, and then applying these concepts and reasoning with them; Socio-emotional: to have intrinsic motivation to learn environmental science; Behavioural: to have self-confidence or self-concept in their ability to learn environmental science. (UIS, 2021. SDG 4 Metadata.)

Access: <https://tcg.uis.unesco.org/methodological-toolkit/metadata/>

⁷ Compare UIS.stat, SDG indicator 4.7.5. Access: <http://data.uis.unesco.org/>

graduates deciding to enter STEM are a fraction of all countries' citizens with insufficient scientific understanding.

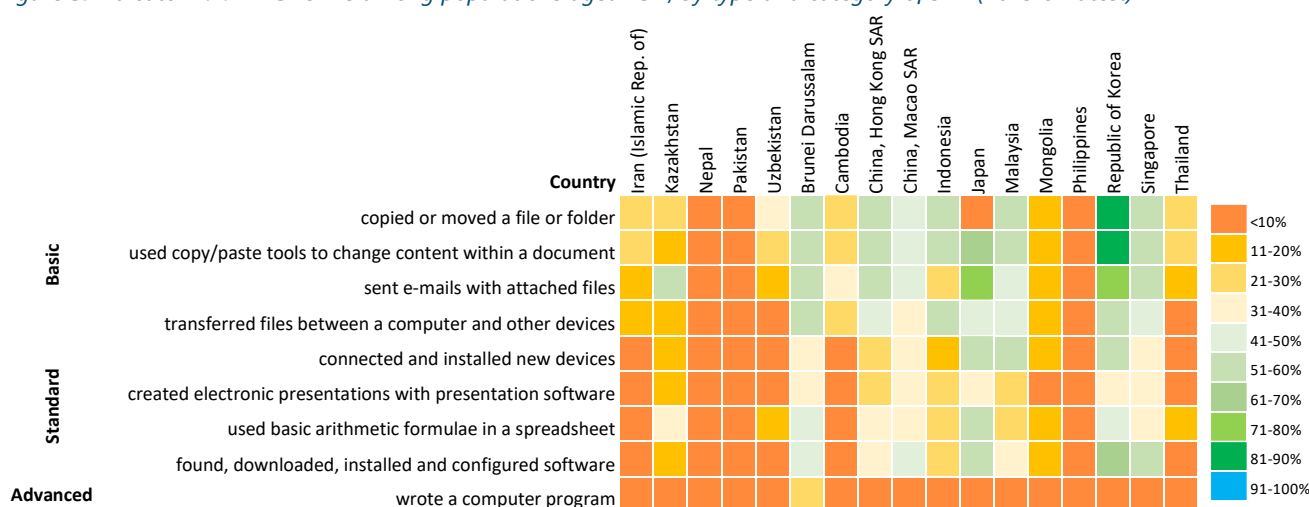
Mainstreaming an understanding for environmental concepts and the interconnectedness with humanity is integrated in **SDG indicator 4.7.1** (Figure 3). In particular through *Education for Sustainable Development*, young people (as well as adults) are to be enabled to take informed decisions and responsible actions for environmental integrity, economic viability and a just society. For a limited number of countries from Asia-Pacific, 4.7.1 shows that efforts to integrate the relevant knowledge base have been made, but are not consistent across policy, curriculum, training and assessment delivery. The data also indicates that mainstreaming relevant concepts for learning alone does not increase the understanding of environment related sciences, as Republic of Korea as well as Thailand have similarly high extents of mainstreaming, but they achieve unequal learning outcomes in the science concepts (compare indicator 4.7.5).

ICT skills for the jobs of tomorrow

The job market in Asia-Pacific is being reshaped – how people work, where they work, and what jobs exist – by technologies and especially *new* technologies in light of the 'fourth industrial revolution' or 'industry 4.0'.⁸ Industry 4.0 describes the advancement of computerization and automation, connecting the physical world to the digital world through human-to-machine communication.⁹ As a result, technology permeates the workplace, classrooms, homes and social interactions.¹⁰

The **SDG 4 indicator 4.4.1** measures the percentage of the population aged 15+ in nine types of computer-based activities, across three difficulty levels. By country, the proportion of the populations with the relevant ICT skills is overall low and varies greatly by the type of skill and country (Figure 4).¹¹ The easier and more routine type of skills, such as editing contents by means of copying and pasting in a document or managing emails are generally higher than the arguably more difficult skills of connecting devices and setting up software, let alone writing a computer programme.

Figure 3: Indicator 4.4.1 - ICT skills among populations aged 15+, by type and category of skill (2019 or latest)



Data source: <http://sdg4-data.uis.unesco.org/>

Across the basic skills, half of the countries from Asia with available data have populations with the relevant skills far below the 34% median. For example, in Pakistan between 3% and 5% of the population aged 15+, in Nepal between 6% and 11%, and in the Philippines between 6% and 7% have minimum basic ICT skills.

⁸ ILO, 2019: Preparing for the future of work: National policy responses in ASEAN +6 https://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---sro-bangkok/documents/publication/wcms_717736.pdf

⁹ ILO, 2018: Skills and the Future of Work. Strategies for inclusive growth in Asia and the Pacific. ILO, Geneva.

¹⁰ OECD, 2019. *Skills Matter: Additional Results from the Survey of Adult Skills*. Available at: <https://www.oecd-ilibrary.org/sites/1f029d8f-en/index.html?itemId=/content/publication/1f029d8f-en>

¹¹ The International Telecommunications Union categorised ICT skills as: (i) Basic skills: to copy or move a file or folder, to use copy and paste tools to duplicate or move information within a document, to send e-mails with attached files and to transfer files between a computer and other devices; (ii) Standard skills: to use basic arithmetic formula in a spreadsheet, to connect and install new devices, to create electronic presentations with presentation software, to find, download, install and to configure a software; (iii) Advanced skill: to write a computer programme using a specialised programming language. (ITU, 2022: Facts and Figure 2021. Access: <https://www.itu.int/itu-d/reports/statistics/facts-figures-2021/>)

Standard skills have an overall smaller skilled population with a median dividing the region at 19%. For example, in Pakistan between 1% and 3%, in Cambodia between 3% and 9%, or in Uzbekistan between 4% and 11% have minimum standard ICT skills. High-income economies have typically larger populations with the relevant skills, such as for example Brunei Darussalam, Japan, Republic of Korea, and Singapore between 36% to 85% across countries and skills.

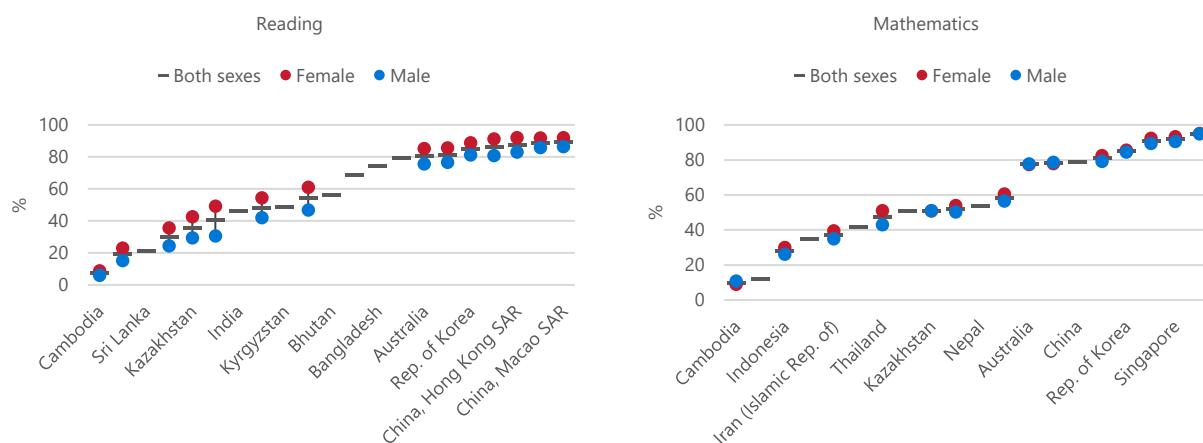
The increasing computerization and digitalization of everyday interactions influences the demand on information and communication technology (ICT) skills. In consequence, young people require ICT skills to enter the job market of tomorrow. The reality is that the populations in Asia-Pacific face difficulties in executing ICT-related activities, which begs the questions how these generations can be expected to integrate in and benefit from an ICT-driven economy.

Foundational skills to acquire higher skills

Literacy and numeracy skills¹² form a foundation for developing higher-order cognitive skills, such as analytical reasoning, and are essential for accessing and understanding specific domains of knowledge, as in ICTs and sciences.¹³ Foundational skills in mathematics and reading directly feed into above ICT and science skills, such as sending an email, using basic arithmetic formulae on a spreadsheet, or developing an analytical and logical understanding in the environmental and geosciences.

The **SDG 4 indicator 4.1.1** measures the proportion of young people at the end of lower secondary education (among other levels) who achieve at least a minimum proficiency in mathematics and reading. High-income economies, as well as the middle-income economy Viet Nam, show tendentially higher proportions of young people with minimum reading and mathematics skills of about 8 to 9 in 10 students (Figure 5). On the contrary, in Cambodia, India, Indonesia, Philippines, and Sri Lanka between 1 to 3 in 10 young people acquire the minimum skills, also varying by skill. For the majority of countries, about half of all young people have the minimum reading and mathematics skills when coming out of lower secondary education.

Figure 5: Indicator 4.1.1 - Percentage of foundational skills at the end of lower secondary (2019 or latest)



Data source: <http://sdg4-data.uis.unesco.org/>

The question that should come to mind is how these young people with insufficient foundational skills can be expected to build upon their skills to develop sophisticated ICT and science skills. Without getting the foundational skills to a minimum proficiency level, economies will continue to struggle as the upcoming young work force is under-skilled for accessing higher demanding jobs beyond manual tasks.¹⁴

¹² Mathematics: skills in computation, application problems, matching tables and graphs and making use of algebraic representation. Reading: skills in connecting main ideas from different text types and the author's intentions, reflect and draw conclusions based on text (UIS. 2021. *SDG 4 Metadata, Target 4.1.1*. Access: <https://tcg.uis.unesco.org/methodological-toolkit/metadata/>)

¹³ Global Education Monitoring Report Team. 2012. *Youth and skills: putting education to work*.

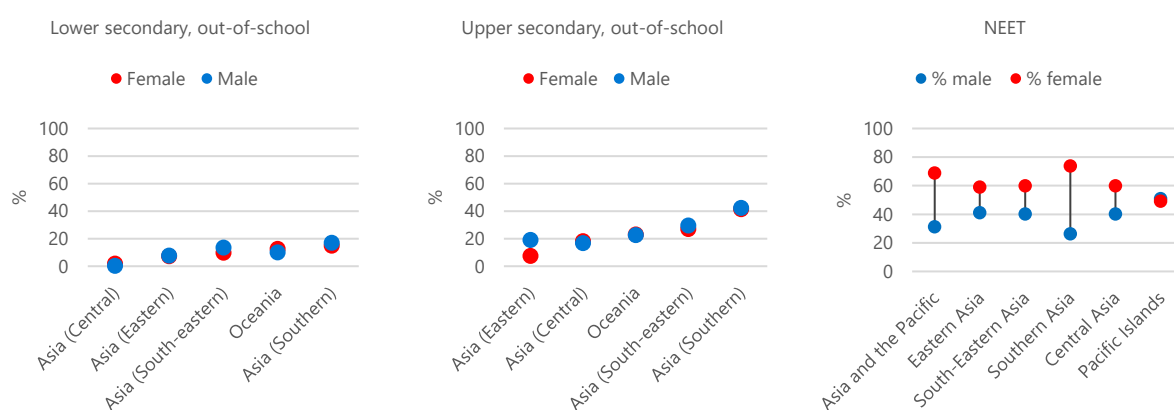
¹⁴ UNESCO. 2022. *Economic growth and test scores on maths*. <http://www.ibe.unesco.org/en/geqaf/annexes/technical-notes/economic-growth-and-test-scores-maths>

Out of education, out of learning

Asia and the Pacific have made progress in getting children into primary education over the past two decades. However, secondary education is the bottleneck for young people and eventually economies in the region. On average, about 1 in 8 adolescents are not in lower secondary schools in Southern Asia, South-eastern Asia, and Oceania. Among the youth population across the region, 1 in 5 youth of the relevant age is not in upper secondary schools, which goes up to above 40% in Southern Asia alone. Overall, boys are more often not in school than girls.

Expanding to youth not in education, employment or training (NEET) indicates that young people do not benefit from leaving education for work, as on average half of the entire youth population does neither participate in learning nor on the labour market. Young females are on average 2.2 times more often affected by NEET. The significant proportions of young people not taking part in any form of learning add to the under-skilled populations coming out of the current education systems in the region.

Figure 6: Indicator 4.1.3 - Out of School Rate for adolescents and youth; and indicator 8.6.1 - youth not in education, employment or training (NEET), 2020



Source: Out-of-school populations, UIS database. Not in education, employment or training (NEET), ILO database.

Sustainable development depends on upskilling young people

Skills development highlights the interconnectedness of SDG 4 with other SDGs, as in the context of this analysis SDG 8 on decent work and economic growth, SDG 9 on industry, innovation and infrastructure, or SDG 12 on responsible consumption and production. The quality (not quantity) of education is substantially linked to economic growth.¹⁵

In the current generations of young people rests the expectation to become effective participants in and leaders of Asia-Pacific with all its economic, political, environmental and social dimensions. Vast young potential is at home in the region requiring investment beyond national identity and creativity in curricula.

The large share of young people missing out on developing their skills are the unrealised potential for developing and transitioning economies. It is these generations who will determine where future development is headed, because development agendas cannot progress without upskilling the younger generations who are expected to deal with future environmental and economic conditions.

In secondary education at the latest, the region's youthful population needs to be equipped with minimum but sophisticated STEM skills, to be refined in TVET and higher education, and to eventually transition to the labour market where they are expected to enact their skills for an increasingly computerized and sustainable society.

It is an intergenerational responsibility to instill the needed knowledge onto the young generations. Without an increase in the minimum competencies among all young people, it will be today's adolescents and youth discussing today's sustainability issues in 20 years still.

¹⁵ UNESCO. 2022. *Economic growth and test scores on maths*. <http://www.ibe.unesco.org/en/geqaf/annexes/technical-notes/economic-growth-and-test-scores-maths>