



Report of the G7 on Education

Insights on education policies to
valorize everyone's talents,
and foster innovative education and
new competencies for the future



Ministero dell'Istruzione e del Merito

Report of the G7 on Education:

Insights on education policies to
valorize everyone's talents,
and foster innovative education and
new competencies for the future

Disclaimer

This report has been prepared by the G7 Education Working Group and submitted to the G7 Ministerial Meeting on Education on 28-29 June 2024.

Acknowledgements

This report is the result of sustained guidance and support from the Italian G7 Education Working Group team and internal experts at UNESCO. Moreover, we would like to thank all G7 Education Working Group delegates who contributed to the report through the discussions and written contributions.

The G7 Education Working Group team under the Italian Presidency was chaired and coordinated by the Sherpa, Counsellor **Serena Lippi**.

Mariantonietta Salvucci was responsible for the collection and analysis of country information and has curated the editing of this report.

UNESCO's contributions to the G7 Education Working Group were coordinated by **Borhene Chakroun** and supported by **Gwang-Chol Chang** and **Juliette Norrmén-Smith**, who oversaw the editing and production of the report. The team is grateful to **Romy de Courtay** for editing the manuscript and to **Ana Carrasco** (Arbelaitz Creative Studio) for the final layout and design.

Table of contents

Disclaimer	2
Acknowledgements	2
Table of contents	3
Foreword	4
Preamble	6
Priority issue 1: Valorizing everyone's talents	8
Highlights — Contributions from International Organizations and the African Union	9
Challenge — Attracting and retaining qualified teachers and educators	11
Challenge — Declining well-being of learners, teachers and wider school communities	15
Challenge — Need for evidence on effective use of digital technologies in supporting the improvement of education delivery	18
Challenge — Equity and quality; widespread learning loss that exacerbates educational and social inequalities, particularly among the disadvantaged and marginalized	22
Priority issue 2: Innovative education and new competencies for the future	26
Highlights — Contributions from International Organizations and the African Union	27
Challenge — Discrepancies between student learning and skills for the future of work	29
Challenge — Shaping and smoothing the transition from school to work	32
Challenge — Need for efforts to increase motivation and adult upskilling	35
Challenge — Strengthening technical and vocational education and training	37
Challenge — Continue efforts to foster gender balance in STEM	39
Challenge — Demographic changes demand stronger cross-border cooperation of education systems	41

Foreword



As highlighted in *Émile* by Rousseau, education can create the conditions for a person's true independence, facilitating one's development and full realization. This means it should foster not only students' acquisition of knowledge and competencies, but also the fundamental values and principles that are essential to act as active and responsible citizens and to find a job that is consistent with one's talents and aspirations.

The evidence published over the last year by the OECD, UNESCO and UNICEF shows that even today, and also in the G7 countries, economic and social conditions significantly affect academic success and professional careers. For example, OECD-PISA performance trends and national longitudinal surveys highlight considerable skill gaps and high rates of early school leaving among the most vulnerable or disadvantaged students, and education systems often fail to provide adequate support to those in difficulty, or to deliver training pathways that encourage the realization of the varied and multiform talents of young people.

This is an unacceptable situation, all the more serious in a period of increasing international instability and challenges, such as the acceleration of uses of the Artificial Intelligence and the climate-energy nexus, which are causing global concerns about the possible effects of disruptive changes.

There is a great need to support the digital transition and greater sustainability, and projections suggest that by 2030, the demand for competencies related to interacting with computers and analysing data and information, foreign language proficiency and sustainable innovation will grow the most. There is little alignment between the kinds of jobs young people aspire to and the actual opportunities education systems can afford them in the labour market. The result is that G7 enterprises cannot find a workforce with the right competencies.

These data make evident that education policies and progress towards the achievement of SDG 4 targets are key to supporting innovation, competitiveness and for the future of our planet. This means that we must rethink the mission of education towards systems that facilitate the development of everyone's potential and talents, without excluding or leaving anyone behind, for the full development of every human being, in the perspective of a satisfactory integration into society and the labour market.

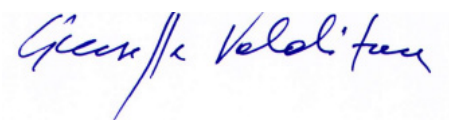
The Italian Presidency has called upon G7 countries, the European Union, the African Union and International Organizations to move the discussion on education forward with a common reflection on the kind of school model we should aim to cultivate.

This G7 Report on Education contains the concrete results of the work developed by the Education Working Group of the G7, including knowledge, principles, best practices and advancements regarding the improvement of educational outcomes.

Some of the main solutions that emerged through the analysis of the G7 countries' practices and international highlights include: policies attracting and retaining qualified teachers; policies fostering learners' teachers' and wider school communities' well-being; an effective use of digital technologies in supporting the improvement of education delivery. At the same time, we should also work towards the solution of the paradox of G7 youth unemployment and the parallel shortages of skilled workforce through: educational policies fostering students' learning and competencies for the future of work and an increasingly fruitful connection between schools and enterprises; the promotion of gender balance in STEM careers.

To realize this vision, it is essential to strengthen our commitment to collaboration, also beyond G7 countries, particularly with the African Union and African countries, enhancing exchanges and partnerships between education institutions and the private sector to promote student and staff mobility and the acquisition of relevant competencies.

Our main goal must remain the innovation of education systems to enable young generations and every person to acquire the competencies they need to valorize their talents, removing obstacles that hamper the full development of one's potential and active citizenship, giving a concrete contribution to the development of individuals and to the social and economic growth of nations.



*Prof. Giuseppe Valditara
Minister of Education
and Merit of the Italian Republic*

Preamble

Increasing international instability, conflicts and multiple crises are strongly impacting on education systems. Data from many sources indicate a widespread decline of student learning outcomes even prior to COVID-19. The disruptions to schooling caused by the pandemic exacerbated educational inequalities, which persist to this day. These learning losses are the highest among vulnerable and disadvantaged students, who benefited less from remote and hybrid learning owing to the digital divides limiting their ability to participate in digital learning opportunities. Recent declines in reading, science and mathematics scores highlight the importance of enhancing equity-oriented educational policies aiming to remove barriers to accessing quality lifelong learning, including higher education. Particular attention should be paid to supporting the learning pathways of the most vulnerable and marginalized.

At the same time, the widening gap between the supply and demand of competencies in the labour market, together with the opportunities and risks posed by the accelerated use of artificial intelligence (AI) and the climate-energy nexus, underscore the need to equip young generations to face the rapid and unpredictable changes occurring globally. This implies a multisectoral mobilization to promote the acquisition of the transversal and professional competencies needed to navigate today's complex societies and new labour markets, characterized by a growing demand to support digital and green innovation.

Addressing these challenges to education is a matter of international concern. Cooperative cross-national efforts are vital, as the challenges faced by the education sector transcend national borders and no single country can overcome them alone. The G7 countries, and the world at large, must work together to advance the quality, inclusiveness and equity of their education systems and the acquisition of new competencies. Enhanced multilateral cooperation is critical in order to share knowledge about successful solutions, identify

common approaches among national initiatives and cultivate collective opportunities to address global educational challenges.

Building on the legacy of the Japanese G7 Meeting of Education Ministers and the Declaration of Toyama and Kanazawa, in which education ministers stressed the universal value of education in the face of numerous global challenges, the Italian Presidency calls upon G7 countries to move the discussion forward by developing a collective vision of education to accelerate and support innovation, sustainable development, prosperity and peace.

During the Working Group meetings, national delegates from the G7 countries, as well as representatives from the United Nations Educational, Scientific and Cultural Organization (UNESCO), United Nations Children's Fund (UNICEF), Organisation for Economic Co-operation and Development (OECD), African Union (AU) and Global Partnership for Education (GPE), shared their reactions to the Italian Presidency's two priority areas – valorizing everyone's talents, and fostering innovative education practices and new competencies.

The Working Group members provided examples of their policy and programmatic interventions related to each topic. Drawing from each country's successes and challenges, they collectively formulated example policy solutions for G7 members to consider. All are intended to promote quality, inclusiveness and equity – particularly in reaching marginalized and vulnerable students – and strengthen lifelong learning opportunities to allow developing the competencies needed in a changing society and labour market.

Note: This is a guiding document that incorporates example policy solutions for consideration by G7 countries. It is not intended to be an exhaustive list of policy options.

Priority issue 1 — Valorizing everyone's talents

Improving the quality, inclusiveness, and equity of education systems, guaranteeing that all learners, including those in vulnerable situations, can fully develop their intellectual potential and talents.



Highlights

Contributions from International Organizations and the African Union

- **Mixed results on the Programme for International Student Assessment (PISA) among G7 countries:**

Performance trends among G7 countries have varied, with declining trends in most or all three domains of mathematics, reading and science between PISA 2018 and PISA 2022 for Canada, France, Germany and the United Kingdom; positive developments in reading and science for Japan; mixed results for Italy, with improvements in science, stable results in reading and declining results in mathematics; and no significant change in science and reading, and declines in mathematics, in the United States ([OECD, 2023](#)). Teaching quality is critical and outweighs the importance of simply increasing teaching-learning volume. By 2030, 44 million additional teachers will be needed worldwide, 15 million of them in Africa ([UNESCO, 2024](#)).

- **Well-being and learning:** Beyond performing well in school, students must learn to manage relationships with their teachers, peers and family; confront stress; find purpose in what they do; and deal with a series of factors that often lie beyond their control. How they perform across all these dimensions will shape their well-being – which, in turn, will affect their school performance and their life outcomes beyond school. In the aftermath of the COVID-19 pandemic, the imperative for schools and the broader education systems to prioritize student well-being has become more pronounced. PISA 2022 data reveal variations in performance across different well-being indicators among G7 countries. For example, while Canada and France scored high on psychological well-being, their scores for social relationships and student engagement with school were below the OECD average. In Japan, students were less exposed to bullying than their peers in all other G7 countries ([OECD indicators based on PISA 2022 and PISA 2018 data](#)). Converging with recent PISA data, and drawing on decades of evidence from

research and the science of learning, UNESCO champions a holistic framework that leverages the link between happiness and learning to create positive learning environments (or ‘Happy Schools’) through criteria related to four dimensions: people, process, place and principles ([UNESCO, 2024](#)).

- **Investments vary in impact:** PISA 2022 data show a positive relationship between investment in education and average performance up to a threshold of USD 75,000 (purchasing power parity) in cumulative spending per student aged 6–15. For G7 countries that spend more per student, there is no relationship between extra investment and student performance. Countries like Korea and Singapore have demonstrated that it is possible to establish a top-tier education system even when starting from a relatively low income level, by prioritizing the quality of teaching over the size of classes and funding mechanisms that align resources with needs ([OECD, 2023](#)). A UNICEF study estimates that an increase of one percentage point in the allocation of public funding to the lowest-resourced countries may pull up to 35 million primary school-aged children out of learning poverty ([UNICEF, 2023](#)). In low-and-middle-income countries, 70% of 10-year-olds are unable to read/understand a simple text and only 2% of the poorest families have connectivity, compared to 43% of the wealthiest families. As much as 44% of girls and 34% of boys from the poorest quintile have never attended any school, or dropped out from primary education. On average, the poorest benefit from only 16% of public education funding, 28% of which benefits the richest. In 13 countries – 12 of which are in Africa – education financing is so inequitable that the poorest learners receive 10% or less of public education spending. GPE mobilizes partners and funds to support lower- and lower-middle-income countries and their efforts to strengthen their education systems, and currently supports

nearly 90 lower- and lower- middle-income countries.

- **Inclusion, equity and diversity:** Among the 81 countries and economies assessed by PISA, three G7 countries saw a large share of all 15-year-olds gain basic proficiency in mathematics, reading and science, and experience high levels of socio-economic fairness: Canada, Japan and the United Kingdom. This does not mean they have fully achieved fairness, since socio-economic status remains a significant predictor of performance, but rather that they are highly equitable compared to other countries and economies ([OECD, 2023](#)). Compared to their peers in G7 countries, for example, Canadian students demonstrated significant openness to diversity, indicating their capacity to see the world through different lenses and appreciate different ways of thinking ([OECD indicators based on PISA 2022 and PISA 2018 data](#)). The PISA data also show the importance of pre-primary/early learning as the foundation for all future learning.
- **African Union:** the [AU](#) is dedicated to protecting the right to education of marginalized groups. This is the seventh (out of ten) outcomes of the Education Cluster roadmap/strategy across the AU countries). The other nine outcomes are as follows: ensuring teachers' development and qualification; improving science, technology, engineering, and mathematics (STEM) education; enhancing and building capacity to teach African history at all levels; accelerating the implementation of technical vocational education and training (TVET) and higher education strategies; providing digital solutions in education; ensuring healthy and conducive learning environments; protecting the rights of marginalized groups (including girls' education); enhancing education management information systems and labour-market data collection,

analysis and usage; driving partnerships for education; and advocating for increased sustainable financing and investment in education.

- **Cross-sectoral and national-global partnerships:** [GPE](#) emphasizes that strategic cross-sectoral partnerships are necessary to ensure equity in education. National and international initiatives that focus on educating for equality and resilience improve education systems' approaches to climate change, violence prevention, education technology, nutrition and gender. The G7 countries could therefore link domestic approaches to international foreign and development policies to contribute to inclusive, equitable and quality education for all, for example through the [Global Coalition for Foundational Learning](#), which seeks to halve global learning poverty by 2030.

Challenge

Attracting and retaining qualified teachers and educators

Canada

- The Government of Canada has committed to building a Canada-wide early learning and child care system with provincial, territorial and Indigenous partners. Negotiated bilateral funding agreements all feature commitments to support a qualified early childhood education and care workforce, including through wage grids for educators and initiatives to increase the percentage of certified early childhood educators. Further, the federal, provincial and territorial ministers most responsible for early learning and child care have agreed to develop a Canada-wide multilateral workforce strategy for the early childhood education and care workforce. The multilateral strategy will centre on the pillars of recruitment, retention and recognition. Canada has also established a dedicated early learning and child care initiative exclusively for Indigenous populations living on reserves.
- Canada's educational systems enact programmes and initiatives that address evolving skill demands. Canada is advancing six pan-Canadian global competencies: communication; collaboration; critical thinking and problem solving; innovation, creativity and entrepreneurship; learning to learn; and global citizenship and sustainability. These competencies build on strong foundations of numeracy and literacy, providing teachers with a framework to prepare students for a complex and unpredictable future. They empower learners to navigate life, work and learning effectively. They also encourage active engagement in communities, promote an understanding of diverse perspectives and prompt action on global issues.
- Providing effective training and supporting

teacher professionalism and instructional innovation are key to grounding the digital transformation of education in equity and high-quality learning for all. Digital technologies have the potential to complement and enhance teaching and learning. They can help remove access barriers to learning, enhance inclusiveness and support more personalized learning, leading to higher equity.

Germany

- Germany has taken measures to increase the attractiveness of teacher training in the short term. These include increasing the starting salary at primary schools, introducing structured qualification programmes to train side entrants or career changers, establishing centres of excellence as part of the Recovery and Resilience Facility of the European Union, and assessing the possibility of facilitating the recognition of teaching qualifications obtained abroad.
- Measures are being analysed and formulated to reform teacher recruitment and teacher training and achieve high-quality teaching over the long term, based on recommendations by the Scientific Commission of the Standing Conference of Ministers of Education and Cultural Affairs of the Länder, and the German Science and Humanities Council.
- An open educational resources strategy on climate education, education for sustainable development and [reducing inequality](#) has been developed, in conjunction with the [UNESCO Teacher Task Force](#).

Japan

- Japan has engaged in a widespread reform to improve educational work practices and working conditions; strengthen pedagogical and management systems; support teacher training (especially for special needs teachers) in the face of increased teacher retirement; provide services for maternity and childcare; and fill the need for special educators.
- The national government pays a portion of teacher salaries to secure adequate numbers of good teachers.
- Teachers are required by law to undergo career-long training. Local boards of education provide systematic teacher trainings, including mandatory initial trainings. The government also supports local education boards. It offers teacher trainings for leading local teachers and trainings of immediate need at the national centre.

United Kingdom

- In England, the Department for Education created an entitlement to at least three years of structured training. It provides support for professional development of all newly practising teachers, underpinned by the [Initial teacher training core content framework](#) and the [Early career framework](#).
- England's new [Initial teacher training and early career framework](#), which will enter into effect in 2025, combines England's current teacher training frameworks. It establishes the entitlement of every trainee and early-career teacher to the core body of knowledge, skills and behaviours that define great teaching. It commits to provide them with mentoring and support from expert colleagues over three or more years at the start of their career.
- A knowledge-intensive teacher led approach is a priority in England so that all children can be taught a broad, ambitious, knowledge-rich curriculum and have access to high-quality extra-curricular provision.
- Department for Education launched a new and updated suite of [National professional qualifications](#) for teachers and school leaders at all levels, from those wishing to develop expertise in high-quality teaching practice to those leading multiple schools across trusts.
- The Department for Education is funding training of up to 7,000 [early years special educational needs coordinators \(SENCOs\)](#), resulting in an accredited Early Years Level 3 SENCO qualification. Over 5,000 participants have already registered for the early years SENCO training.
- In Wales, the government is providing continued support for part-time and employment-based routes to provide opportunities for those not able to undertake full-time training.

United States

- The [Raise the Bar: Lead the World](#) initiative addresses educator shortages by promoting increased compensation and improved working conditions, expanded access to high-quality and affordable pathways into the profession, high-quality induction and job-embedded professional learning, and leadership and career-advancement opportunities for educators. The initiative aims to strengthen educator diversity throughout the processes of teacher recruitment, preparation and retention.
- Access to high-quality and affordable pathways into education professions is being expanded, including through registered apprenticeships, residencies and ‘grow-your-own’ programmes. Registered Teacher Apprenticeships can be an effective, high-quality pathway that reduces barriers to entering the profession by providing an ‘earn-and-learn’ model that allows candidates to gain their teaching credential while earning a salary. The United States did not have any Registered Apprenticeship programmes for K-12 teachers at the start of 2021. Through targeted investments and federal coordination, there are now programmes in 34 states, the District of Columbia and Puerto Rico.

European Union

- The [Digital Education Action Plan \(2021-2027\)](#) is being implemented as Europe’s roadmap for providing ambitious, inclusive and accessible high-quality digital education for all learners. The plan includes dedicated initiatives for teachers and educators, such as guidelines on tackling disinformation, as well as promoting digital literacy through education and training. It also features educators with ethical guidelines on the use of AI and data in teaching and learning.
- The free [SELFIE](#) and [SELFIE for Teachers](#) customizable tools allow schools and teachers to assess their digital capacities.

Italy

- The recruitment system for teachers, as well as their initial training and continuous professional development has been [reformed](#). Training activities and the experimentation of innovative methodologies will also allow a selection process based not only on individuals’ level of knowledge, but also on the teaching methods acquired and their ability to relate to the educational community.
- The reform will ensure continuous professional and career development of school staff through the establishment of a [School of Advanced Training](#) and continuous training for school leaders, teachers and administrative staff. The aim is to provide pedagogical and didactic training which, together with in-depth knowledge of their subject, will allow teachers to provide high-quality teaching that successfully transmits methodological, digital and cultural competencies.

France

- The government has introduced salary increases for all teachers, as well as a new ‘teachers’ pact’ enabling teachers to take on additional tasks and remuneration.
- Additional measures have been implemented to improve teachers’ working conditions, including improved career prospects for primary and secondary school teachers, as well as educational and careers advice staff.
- ‘Schools of Continuing Education’ have been created in each regional education authority to make lifelong learning more accessible to all teachers.
- Peer-to-peer support and training in French and mathematics are being provided to all teachers as part of a new approach to teacher training.
- A new plan is in place to recruit teachers earlier (at the undergraduate level), as well as remunerate students during teacher training and up to the Master’s level.

Example policy solutions

- Develop holistic teacher policies, informed by the Teacher Policy Development Guide prepared by the International Task Force on Teachers for Education 2030.
- Strengthen teachers' initial education; support high-quality, affordable and effective new-teacher induction; and promote continuous professional development, career advancement and leadership opportunities for teachers.
- Promote trust and respect for the profession.
- Foster teacher well-being, intrinsic motivation and work-life balance.
- Consider the competitiveness of salaries and wider reward package.
- Support regular social dialogue with teacher organizations.
- Foster access to the profession for people from all backgrounds to mirror the diversity of the general population, including through female leadership.
- Ensure the work of early childhood educators – most of whom are women – is valued and that educators are provided with the necessary training and development opportunities to support their growth and the growth of a quality system of early childhood education and care.

Challenge

Declining well-being of learners, teachers and wider school communities

Canada

- The well-being of teachers is a pressing concern across Canada. Implementing the necessary conditions to ensure well-being is crucial not only to support teaching and learning, but also to enhance the attractiveness and retention of teachers during a period of acute teacher shortages such as Canada is facing. Factors such as the societal perception of the teaching profession, opportunities for professional growth, financial and intellectual rewards, and the degree of autonomy and ownership teachers have over their work all contribute significantly to attracting talented individuals to the profession and ensuring their continued commitment.
- All provinces and territories are implementing mental health strategies. British Columbia's [Mental Health in Schools](#), for example, focuses on cultural responsiveness, trauma-informed practices and strength-based approaches.
- The work of the [Pan-Canadian Joint Consortium for School Health](#) is grounded in the application of a comprehensive school-health or health-promoting school approach to support the interconnection of learning, health and well-being in Canadian school communities. Mental well-being (including social-emotional learning, resiliency, anxiety, protective factors and disruptive behaviours) is an important focus area of the 2020–25 mandate of the consortium. The provincial and territorial ministers of education and provincial and territorial ministers responsible for health and/or wellness have formally committed to this work.

Germany

- To promote health and well-being at schools, the Länder adopted the Recommendation on Promoting Health and Prevention in School in 2012 and introduced various measures to that effect. In 2022, the Länder agreed to prolong the measures established during the COVID-19 pandemic to deal with the psychological consequences of the pandemic. This includes the internationally established START (Stress - Arousal - Regulation - Treatment) programme.

Japan

- The latest 5-year national plan has included improving the well-being of each person and overall society. It is based on achieving balance and harmony, using education as a main pillar. It involves not only students and teachers, but also teachers, families and communities.

United Kingdom

- England's Department for Education has published a range of resources to help address teacher workload and well-being, including the [school workload reduction toolkit](#) and the [education staff well-being charter](#).
- Department for Education has also published [eight principles to an effective whole school approach](#). These are intended to ensure that schools and colleges are safe calm and supportive environments that promote and support mental well-being schools.

United States

- The education system is increasing access to school-based mental health professionals through models that address student mental health and well-being, such as Full-Service Community Schools. In addition, the Bipartisan Safer Communities Act expands vital mental health services and provides additional support for states and districts to design and enhance initiatives promoting safer, more inclusive and positive school environments for all students, educators and school staff.
- The [National Center on Safe Supportive Learning Environments \(NCSSLE\)](#) is a technical assistance centre dedicated to supporting the education field in ensuring safe and inclusive learning environments. Among other resources, NCSSLE provides information and resources on how schools, Local Education Agencies and states can collect data and exemplars on school climate and act on them.
- The education system is increasing the supply and capacity of school-based mental health providers.

France

- **Anti-bullying measures:** The government has introduced new measures to combat bullying and violent behaviour. These include mandatory deployment of the anti-bullying 'pHARe' programme in all primary and secondary schools; the extension of the pHARe plan to cover upper secondary schools; and the appointment of anti-bullying ambassadors in schools. In addition, empathy is now taught at school, and harsher rules are being applied to bullies.

European Union

- **Pathways to School Success:** The Council of the European Union Recommendation on Pathways to School Success ([Pathways to School Success](#)) was adopted by Member States in November 2022. Pathways includes a policy framework for systemic action. It is one of the key EU-level actions to advance the European Education Area, a genuine common space for high-quality learning across borders for all Europeans. In that context, the European Commission created an informal expert group on supportive learning environments for groups at risk of underachievement and for supporting well-being at school. It also issued guidelines on well-being and mental health for policy-makers and schools.

Italy

- The government has issued strategies to prevent bullying, cyberbullying and all forms of violence. It has also disseminated guidelines for the prevention and fight against bullying and cyberbullying for educational institutions of all grades, and allocated funds to counter cyberbullying.

Example policy solutions

- Adopt broader perspectives on student well-being beyond academic success, focusing on psychological well-being, emotional resilience, agency and engagement.
- Focus on teacher-student relationships to advance learning outcomes and student well-being.
- Consider holistic policy approaches which recognize that calm, safe and supportive environments that promote and support well-being contribute to better learning experiences.
- Tackle the issue of violence in and around schools, building safe and inclusive learning environments through an integrated approach that ensures children and young people are protected and resilient.

Challenge

Need for evidence on effective use of digital technologies in supporting the improvement of education delivery

Canada

- The government is providing funding to create work-integrated learning opportunities, including those that leverage digital technology to further address barriers for underrepresented groups. For example, the [Student Work Placement \(SWP\) Program](#) supports post-secondary students in developing work-ready skills, including digital skills; employers in hiring and developing talent; and post-secondary institutions in keeping pace with changing on-the-job expectations. To ensure access and encourage inclusion, the SWP takes steps to promote work-integrated learning opportunities for underrepresented students, including visible minorities, women in STEM, Indigenous peoples, persons with disabilities and newcomers to Canada. Additionally, Canada's Skills for Success programme responds to the skill needs of approximately 45% of Canadians who lack the literacy, numeracy and digital skills that are increasingly necessary to succeed in a knowledge economy. The programme supports individuals from underrepresented groups, including Indigenous Peoples, persons with disabilities, women, [2SLGBTQI+](#), persons from official language minority communities, racialized Canadians and vulnerable populations.
- [Leveraging AI](#) allows the early identification of learning difficulties and tailored educational programmes to support student learning. By incorporating STEM, digital skills and social-emotional competencies, it helps foster a workforce that is adaptable, innovative and productive. This allows Canada to remain competitive, with a skilled labour force that can effectively leverage emerging technologies and adapt to changing market demands.
- For example, Ontario's Virtual Learning Strategy supports postsecondary institutions, learners and educators. The strategy aims to improve access to virtual education and retraining opportunities that are market-responsive and drive innovation. It leverages existing digital learning organizations and has also resulted in more than 600 new digital resources. These include tools for learners in rural, remote, Indigenous and Francophone communities. It has allowed delivering courses to students who might not otherwise access postsecondary education, such as military personnel, adults and older adults, people who work full-time and those who care for their families full-time.

United Kingdom

- England's Education Endowment Foundation funds research to support schools, colleges, universities and families to use digestible rigorous evidence on education technology products so that they can effectively choose and implement technology, but also remain aware of how to mitigate the risks.
- In England, the computer curriculum supports pupils in becoming active creators of digital technology and discerning users of information technology. Pupils are taught the principles of information and computation, including how digital systems work and how to put this knowledge to use through programming. They are taught how to use digital technology safely, securely and responsibly, and how to make informed decisions while online or using other digital applications and technologies.
- In England, the National Centre for Computing Education (NCCE) delivers a continuous professional development course on machine learning and AI, which is free for teachers in state-funded education. The NCCE has also produced a free online teaching source on AI aimed at year 8 pupils as part of its Teach Computing Curriculum.
- Through [Hwb](#), the [Welsh Government provides bilingual digital services to all maintained schools](#) to support teaching and learning through the Curriculum for Wales.

Germany

- The Länder formulated a clear strategy for digital education in schools, vocational education and training, higher education institutions as well as lifelong learning.
- With regards to education in schools an emphasis is put on the pedagogically sound inclusion of digital teaching and learning materials and incorporating digital competences in the curricula of individual subjects.
- The Federal government and the Länder agreed on the Digital Pakt Schule 2019–2024 to improve the digital infrastructure at schools. A continuation of the pact is under discussion.

United States

- The [National Educational Technology Plan](#) provides information and resources to support closing divides related to designing, accessing and using digital technologies.
- [The Institute of Education Sciences](#) continues to provide information and research syntheses related to the use of AI in educational contexts, particularly the potential of AI to support the learning needs of students with disabilities.

Japan

- The [GIGA School](#) initiative provides one PC for every student as an indispensable infrastructure for optimal personalized learning and collaborative learning.
- Based on the tentative guidelines on the use of generative AI in the context of school education, pilot programmes are under way at selected schools to use generative AI with the consent of parents, taking counter-measures to address the risks and concerns.

France

- A [national digital strategy](#) for education has been drafted for the period 2023–27.
- Since 2019, digital skills have been more present in school curricula, thanks to a range of measures. For example, media and information literacy is now a specific programme for secondary school students (aged 14–16 years old), and digital skills have been introduced in all subjects and curricula. Computer science, including coding and algorithms, is being taught at lower secondary schools (coding is already taught at primary schools). Digital education is also being strengthened in upper secondary schools: a weekly 1.5-hour digital science and technology course was introduced in 2019 for 16-year-old students, and students in their first and final years of general education can choose a weekly 4-6-hour specialized course in digital and computer sciences. Finally, vocational courses now also cover subjects such as cybersecurity, computers and networks, and electronics.
- [Pix](#), a French online public service for the assessment, development and certification of digital skills, has been generalized since 2019 to include all students from Year 7. Certification is compulsory at the end of lower and upper secondary school, of the final cycle of TVET and at the end of NVQ.
- The [Pix+ Édu](#) training scheme has been introduced for teachers.
- Digital citizenship is being emphasized (a [parents' kit is](#) available).

Italy

- [The National Recovery Plan](#) promotes the integration of activities, methodologies and content aimed at developing STEM, digital and innovation competencies in the curricula of all school cycles, and enhancing the multilingual competencies of students and teachers.
- The [National Recovery Plan](#) also invests in promoting a system to develop digital teaching and train school staff on the digital transition, to improve learning and accelerate innovation within the school system. The plan foresees the development of an Italian national centre on digital education for the training of teachers and school staff; the creation of an integrated network of territorial training poles; the activation of a catalogue of about 20,000 training courses in all the disciplines of the school curriculum; the creation of a platform on the contents of digital education and innovative teaching methodologies for teachers, students and families; and the realization of inclusive and sustainable 'Pacts for digital education and competencies for the future'.
- The national strategy includes the introduction of innovative laboratories to integrate AI in the curriculum and the implementation of teachers' training courses dedicated to AI, which are available on the digital platform Scuola Futura. Teachers' training pathways follow three main strands: 'Learn with AI', on the use of emerging technologies to support teaching and learning; 'Learn about AI', on the methodologies for teaching and learning the functioning of AI; and 'Preparing for AI', to prepare students to live in an ethical and critical way in a world increasingly permeated by AI.

Example policy solutions

- Strengthen the digital competencies of students, teachers, leaders and local communities by integrating holistic digital competencies into learning at all levels, as well as providing opportunities to upskill and reskill throughout life.
- Develop holistic digital skill frameworks that address all five competence areas of the European Union's DigComp 2.2 digital competence framework, endorsed by the 2023 Global Education Monitoring Report, namely information and data literacy, communication and collaboration, digital content creation, safety and problem-solving.
- Support teachers in teaching the ethical, responsible and safe use of tools that harness AI. UNESCO's [AI competency framework for school students and teachers](#) will be launched in September 2024, and G7 countries are encouraged to contribute to the draft.

Challenge

Equity and quality; widespread learning loss that exacerbates educational and social inequalities, particularly among the disadvantaged and marginalized

Canada

- Many programmes focus on bridging gaps in educational attainment to address systemic inequities by providing tailored support for those who may face greater barriers, including Indigenous Peoples, Black communities, racialized persons, members of the religious minorities and the 2SLGBTQI+ community, all women and girls, persons with disabilities, and those living in low income or poverty.
- Canada's educational systems enact programmes and initiatives that address systemic inequities. By focusing on areas such as access to quality education, academic support, mentorship and socio-emotional development, these initiatives aim to create more equitable opportunities for all students, regardless of their background or circumstances. Through targeted interventions and holistic approaches, they strive to level the playing field and ensure that all learners have the chance to fulfil their academic potential.
- In the adult learning sector, there are concerns with widening disparities in access, persistence and outcomes, particularly with regard to upskilling and reskilling. Several programmes focus on traditionally disadvantaged groups, such as rural and remote populations, immigrants, the homeless or precariously housed, and individuals with low levels of education.
- British Columbia has a programme that waives tuition for former youth in care. It covers many courses leading to a certificate, diploma, or degree, as well as apprenticeship programmes and continuing education. Grants are also available to cover expenses such as textbooks, internet access and computers.
- Manitoba's skill-development programme provides financial assistance to low-skilled adults for employment-related skill training. The province also provides financial support for assessments, licences, registration, child care and living allowances for internationally educated individuals looking to bridge, license and practise their occupation.
- In Ontario, the Alternative Secondary School Program is delivered through the Ontario Federation of Indigenous Friendship Centres. It helps Indigenous learners obtain their high school diplomas and provides relevant wraparound support.
- In addition, some school boards in Ontario participate in the Focus on Youth programme, which delivers high-quality employment, training and programming opportunities to youth in risk situations. These opportunities are offered in partnership with community organizations and through summer camps.
- Additional common investments to benefit First Nations include funding for language and culture, full-day kindergarten, and before- and after-school programming.
- The Government of Canada has committed up to CAD 30 billion Canadian dollars over five years to build a Canada-wide early learning and child care system with provincial, territorial and Indigenous partners. Negotiated bilateral funding agreements include clauses on the principle of 'inclusivity' to support the inclusion of vulnerable children and children from diverse populations.

- The Government of Canada promotes the benefits of early savings for education and raises awareness of education savings benefits, particularly among low-income Canadians and other harder-to-reach population groups. The Canada Education Savings Grant is money the Government of Canada provides in addition to personal contributions to a child's registered education savings plan.
- The Canada Learning Bond provides eligible children from low-income families with support towards their education after high school. [Early savings for education](#) (including the Canada Learning Bond) raises awareness of education savings benefits, particularly among low-income Canadians and other harder-to-reach population groups. Lower-income families with children can access savings tools that will help to pay the cost of full- or part-time studies after high school.
- The Canada Student Financial Assistance Program (CSFA Program) reduces financial barriers to post-secondary education by offering student financial assistance through Canada Student Grants, interest-free Canada Student Loans, and repayment assistance for low-and-middle-income students. The CSFA Program has specific features for Indigenous students which increase the total funding for which they are eligible.
- The Supports for Student Learning Program (SSLP) aims to reach students who may face greater barriers to education. SSLP funds many flexible and inclusive supports, such as tutoring sessions, mentoring programmes, mental and social well-being services, bursaries and scholarships, and opportunities to study or work outside Canada.

France

- Inclusivity and equitability are the guiding principles and reasoning behind all of France's education policies in support of the wider framework of Sustainable Development Goal 4. The country has implemented several measures to overcome obstacles such as social class, gender, and cultural and geographical origins, with a focus on rural areas and urban areas.
- France is also prioritizing raising student learning outcomes nationally. New measures to reinforce students' [basic skills](#) include class sizes limited to 24 pupils in grades 1 to 3 (primary students aged 6–8 years old); new learning tests in year 5 (pupils aged 10); enhanced tutoring for students; and regional education authority roadmaps for the acquisition of basic skills.

European Union

- The [Pathways to School Success](#) policy framework outlines a systemic approach to ensuring success at school for all learners, regardless of their personal characteristics or family, cultural and socio-economic background. Member States are invited to develop or enhance comprehensive and integrated strategies towards success at school at all levels. These should be evidence-based, and rely on effective data collection and monitoring systems.

Germany

- Recent studies show that educational success in Germany strongly depends on a person's social background. For this reason, the Federal Government wants to work hand in hand with the Länder to bring about a turnaround in skill development and advance equality of opportunity. The plan is to support 4,000 schools with a high proportion of socially disadvantaged students in a needs-based way, thus helping them give their students a better educational start in life. The plan is also to drive systemic change and improve performance in the educational sector. The Federal Government and the Länder are investing approximately EUR 20 billion over ten years to this end. The Startchancen-Programm is the first of its scale and duration in the education sector.
- Germany is developing [Mein Bildungsraum](#), a digital network infrastructure for education that links educational and administrative processes across platforms and enables a seamless digital learning journey from primary school to old age.

United Kingdom

- The UK Government is supporting partner countries in improving foundational learning levels through evidence-based interventions; continued research into what works; advocating for a focus on foundational skills; and calling on governments to sign a [Commitment to Action on Foundational Learning](#), co-developed by the Foreign, Commonwealth and Development Office and several likeminded partners and launched at the Secretary-General's Transforming Education Summit.
- England's Department for Education provides ongoing support to assist and promote social inclusion for further education learners through further education grants, the Hardship Fund, the Care to Learn childcare scheme, home-to-college transport, free school meals, clothing allowances and free period products. The Additional Support Fund is also available for those learners with a disability.
- The [Pupil Development Grant](#) provides funding to schools and educational settings.

United States

- The [Raise the Bar initiative](#) (2023) focuses on proven strategies to ensure the academic success of every child in school, including those that promote quality, inclusivity and equity.
- The robust [Improving Student Achievement Agenda](#) promotes evidence-based strategies, including initiatives to address chronic absenteeism, high-dosage tutoring to help students get back to pre-pandemic levels and move beyond, and increase summer learning and extended or after-school learning time.
- The American Rescue Plan fund academic interventions, such as high-dosage tutoring and disseminating a wealth of information and resources. These include a [learning acceleration guide](#) to help state and local officials identify and implement effective strategies to support students, families and schools.

Italy

- The [tutoring initiative](#) aims to strengthen the basic competencies of students in the first and second cycle and combat early school leaving. The interventions will promote educational success and social inclusion in local communities. They will be tailored to the needs of students and will roll out over four years. Particular attention will be paid to schools that have experienced the greatest difficulties in terms of performance.

Japan

- The country aims to ensure personalized and self-regulated learning opportunities for each child from the perspective of social inclusion. It focuses on providing collaborative learning opportunities for all children, recognizing their diversity and societal value.

Example policy solutions

- Promote equity-oriented policies, including flexible learning pathways and learner-centred environments.
- Enhance education quality by integrating holistic competencies in student learning, teacher practices and assessments.
- Go beyond access and learning outcomes by promoting the quality of education from multiple perspectives.
- Focus on the most marginalized children: OECD PISA data show that countries that prioritize equity and inclusion perform better in international learning assessments.
- Increase access to multiple flexible learning pathways, to allow adolescents to complete secondary education or transition from school to work.
- Ensure personalized learning.
- Ensure all children, regardless of their background, have access to regulated, affordable, high-quality and inclusive childcare.

Priority issue 2 — **Innovative education and new competencies for the future**

Strengthening lifelong learning opportunities for the development of the competencies needed in a changing society and evolving labour market, characterized by a growing demand to support digital and green innovation.

Highlights

Contributions from International Organizations and the African Union

- **Paradox of unemployment and labour shortages:** G7 youth struggle to enter the labour market and sometimes experience a high level of unemployment. Paradoxically, some G7 economies are also experiencing shortages of skilled labour in some sectors.
- **Demographic factors:** Ageing populations in Europe and Asia will have a large impact on the economy and education systems (particularly school populations and teacher retirement), as well as on the scope and applications of automation and generative AI.
- **TVET:** TVET remains an unattractive option in many G7 countries. UNESCO's TVET network (UNEVOC) is encouraging the sector to structure itself around results, building on evidence for decision-making rather than inputs alone to propel the development of transversal skills, citizenship skills and education for sustainable development. [UNESCO's Strategy for TVET 2022–2029](#) addresses skill development holistically, proposing three main priorities: develop skills for individuals to learn, work and live; develop skills for economies to transition towards sustainable development; and develop skills for inclusive and resilient societies. Based on these priorities, the strategy aims to support countries in developing quality, relevant and attractive TVET systems. The OECD is developing a new international vocational education and training (PISA-VET assessment), which will support countries in strengthening their skill systems. This involves developing, piloting and implementing an internationally standardized assessment of outcomes of initial VET programmes. The analysis of the assessment' results will enhance comparative policy insights on ways to improve the relevance, quality, equity and effectiveness of initial VET programmes.
- **Misalignment of ambition and skills:** Young people often face challenges in identifying career goals that align with current and future opportunities in the workplace. In Italy and Japan, there is little correspondence between the kinds of jobs young people aspire to and the actual opportunities their education can afford them in the world of work. Education systems need to do a much better job of giving students – particularly those from disadvantaged backgrounds – the information and education they need to determine and fulfil their professional aspirations.
- **Need for work-based opportunities in education:** Young people should have opportunities to experience the world of work while they are studying, including through apprenticeships.
- **Lack of awareness of or interest in lifelong learning opportunities:** Around 60% of adults in G7 countries do not feel the need to participate in lifelong learning, as they believe they have all the skills they require.
- **Motivation for personalized learning is low:** Many students have become passive consumers in the classroom. Many young people, therefore, are not good at motivating themselves to work or pursue personalized learning pathways.
- **Transversal skills:** There exists a need to strengthen not only digital competencies, but also multidisciplinary and integrated approaches to the acquisition of transversal skills, including critical thinking and creative problem-solving.
- **Skills for digital and green transitions:** Empowering individuals to develop a wide range of skills – including information-processing, socio-emotional and metacognitive skills – and ensuring that individuals can effectively apply them is key to building system-level resilience in the face of the twin green and digital transitions.

- Past projections suggest that between 2019 and 2030, the demand for skills related to interacting with computers, thinking creatively, analysing data and information, and communicating with persons outside an organization will grow the most. Making the most of interconnected labour markets will also require proficiency in language skills.
- Yet many people worldwide do not have baseline levels of proficiency in the set of skills needed to ensure their own well-being, as well as societal and economic well-being, and contribute effectively to a greener future. Reducing the social cost of policy action by promoting adequate upskilling and reskilling efforts, as well as providing assistance for populations negatively affected by climate-change mitigation policies, is critical to ensure continued support of action to halt environmental degradation. For every 1% increase in unemployment, the percentage of adults who report prioritizing the environment over the economy declines by 1.7%.
- Whether individuals use their skills for positive or negative transformations of their environment depends on their attitudes and dispositions. For example, individuals with higher levels of education are more likely to be aware of the dangers associated with environmental degradation. Across OECD countries, 73% of individuals with a tertiary qualification, 66% of individuals with a secondary qualification and 63% of those without secondary qualifications report perceiving climate change as a threat. Similarly, individuals with tertiary-level qualifications are considerably more likely than those without them to indicate they would be willing to compromise their current lifestyle for the benefit of the environment.
- Individuals from socio-economically disadvantaged backgrounds are less likely to gain proficiency in a range of skills during formal education, develop attitudes and dispositions that can support the twin digital and green transition, and reduce their vulnerability to environmental and technological changes.

Challenge

Discrepancies between student learning and skills for the future of work

Canada

- The Canadian economy requires a higher level of both technical and soft skills. Canada has therefore been actively modernizing curricula, incorporating global competencies and the development of work-relevant skills – such as literacy, numeracy, transversal, technical, digital, leadership, management, citizenship and foreign-language skills – throughout K-12 education.
- Canada has adopted a set of new measures to support the upskilling and reskilling of workers to prepare them for the green jobs of the future. These measures include the interim Sustainable Jobs Plan 2023–2025, which outlines a broad array of current and planned initiatives across ten key action areas to ensure Canada’s workers and communities succeed in a net-zero emissions future; the Sustainable Jobs Training Fund, which helps workers develop skills for jobs in three areas that are critical to a net-zero future; and the new Sustainable Jobs Stream, which aims to support unions in leading the development of green-skill training for trade workers.
- Canada is examining the opportunities and issues presented by AI with regard to social cohesion and trust in democratic institutions; inclusion, diversity, equity and accessibility; creativity and cultural identity; and education and learning. Key examples of related measures include the Skills for Success training programme, which helps Canadians improve their foundational and transferable skills (literacy, numeracy and digital) so that they can better prepare for, obtain and keep a job, and adapt and succeed at work.

- The Future Skills Centre has been established as an independent innovation and applied research centre that identifies emerging skill trends, tests new approaches to skill assessment and development, and disseminates evidence to inform future programming.

France

- The education system is developing a range of courses tailored to the challenges of the future and reviewing the mapping of TVET courses.
- A makeover is under way to adapt the TVET offer to the current ecological, digital and demographic changes.

Germany

- The Länder have adopted recommendations concerning the integration of comprehensive competencies into the curriculum, including related to human rights, democracy, cultural education and foreign languages.
- The Federal government, together with the Länder, social partners and trade associations, have included the learning of content on the digitalized world of work, environmental protection and sustainability as a minimum standard in all dual training occupations.
- The Federal government, Länder, social partners and trade associations are continuously modernizing the dual training regulations.

United Kingdom

- In Northern Ireland, the Entitlement Framework requires schools to offer learners a minimum number of courses in upper secondary education. At least one-third of these courses must be general, and one-third applied. Area Learning Communities have been established to facilitate the delivery of the Entitlement Framework.
- To support the teaching of AI, the NCCE delivers a continuous professional development course on machine learning and AI, which is free for teachers in state-funded education in England. The NCCE has also produced a free online teaching source on AI aimed at year 8 pupils as part of its [Teach Computing Curriculum](#).

Japan

- Japan aims to help students achieve proactive, interactive and authentic learning in order to develop the competencies required in the new era, including language ability, information literacy, and problem identification and solving.

United States

- As part of the interagency [Unlocking Career Success](#) initiative, the US Department of Education's [Career-Connected High Schools](#) programme has awarded USD 25 million to launch career-connected high schools across the United States. Of the 19 grantees selected, 11 serve rural communities and 8 serve non-rural communities. These grantees will build capacity in secondary education, post-secondary education and workforce development systems to expand access to career-connected high school programmes for more students. They aim to unlock career success through four evidence-based strategies: career guidance and navigation systems, dual or concurrent enrolment, work-based learning and industry-recognized credentials.

Example policy solutions

- Promote the competencies needed to navigate the green, digital and demographic transitions.
- Integrate competencies across all educational cycles, from pre-primary and primary education, through secondary school, to adult education and higher education.
- Recognize a whole-of-system approach to prepare every learner to acquire the knowledge, skills, values and attitudes to tackle climate change and promote sustainable development, including through the [Greening Education Partnership](#).
- Aim to introduce new technologies, such as AI, to benefit those who need it the most through a human-centric and ethical approach, keeping in mind that traditionally underrepresented groups may be negatively impacted if the data used to run the algorithms behind digital models are biased, creating additional barriers for these groups.
- Support flexible learning pathways that recognize prior learning and promote opportunities for secondary school learners to participate in TVET and higher education courses.

Challenge

Shaping and smoothing the transition from school to work

Canada

- Canada has implemented programmes that support the creation of work-integrated learning opportunities for students of all ages enrolled in any post-secondary programme at a college, university or polytechnic in Canada.
- Financial support and incentives encourage the uptake of specific programmes in regions where there is a labour shortage. For example, the [Quebec Perspective Scholarship](#) programme targets essential fields such as engineering, information technology, education and childcare services.
- Ontario has programmes that [support vulnerable learners](#) to succeed through effective partnerships between the education and employment sectors and the community. These include a youth programme that delivers high-quality employment training and programming opportunities for individuals in risk situations typically aged 15 to 17, in partnership with community organizations and summer camps.
- An alternative secondary school programme delivered through the [Ontario Federation of Indigenous Friendship Centres](#) helps Indigenous learners obtain their high school diplomas, and provides relevant wraparound support.

United Kingdom

- From 2025 onward, England's Lifelong Learning Entitlement will create a single funding system to help people pay for college or university courses, as well as train, retrain and upskill flexibly over their working lives.
- England's Department for Education has invested significantly in the [NCCE](#) to improve the teaching of computing, and raise participation in computer science at the General Certificate of Secondary Education and A levels. To raise awareness of careers in sectors such as cyber and AI, the NCCE facilitates industry-led events intended to encourage more pupils and young people to pursue careers in computing and digital technologies.
- Careers and work-related experiences (CWRE) is a cross-cutting theme within the new Curriculum for Wales for learners aged 3 to 16. CWRE enables learners to develop their knowledge, skills and understanding in preparation for the challenges and opportunities offered by further learning and the ever-evolving world of work.
- In Wales, a revised [Youth Engagement and Progression Framework](#) was published in September 2022. Further [guidance](#) on the early identification of young people at risk of leaving education, employment or training or becoming homeless, was issued in November 2023.

Japan

- A systematic and consistent approach for students from early childhood to high school aims to connect their learning with their future, using a 'Career Passport' in which each student records learning activities related to career development.
- Bases have been set up across the country to support students in choosing careers in science in Japan.

United States

- The [Unlocking Career Success](#) initiative is an interagency effort between the US Departments of Education, Labor and Commerce. It supports public- and private-sector leaders by providing students with accelerated and innovative opportunities to earn post-secondary credits (called 'dual enrolment') and industry credentials, and gain real-world professional experience.
- Work-based learning is an evidence-based approach that helps young people generate income, establish future earning potential and connect with professionals in the labour market.
- The initiative aims to increase career advising to ensure that all young persons leave a secondary school with clear career goals, as well as the knowledge and resources they need to pursue them.

Italy

- The guidance system has been reformed. Orientation modules have been introduced in lower and upper secondary schools (no fewer than 30 hours for fourth- and fifth-year students) and a digital guidance platform has been established on tertiary education offered by universities and ITS Academies. Relying on the synergy between the education system, universities and the world of work, the reform promotes a conscious choice of educational pathways, with the goal of lowering dropout rates and the number of people not in education, employment or training.

France

- The 2023 TVET reform includes measures to ensure that students make an informed and well-motivated choice when opting for [TVET](#). The new measures target students, businesses and teachers. They include the creation of student support services within vocational schools to reinforce the links between schools and the world of work, an internship allowance paid by the government, and the renewal of existing qualifications to keep up with the labour market.

Example policy solutions

- Develop structured guidance and mentoring systems to strengthen transitions from education to career. Introduce dedicated staff to provide guidance and tutoring that facilitate beneficial self-reflection on personal strengths, weaknesses and contexts, as well as the participatory planning of more strategic and tailored educational and professional trajectories.
- Encourage student motivation for and ownership of learning to improve learning outcomes by focusing on strong student- mentor relationships.
- Strengthen school-community and work-based learning links, including with private actors, to build awareness about opportunities within the local community and the broader labour market.

Challenge

Need for efforts to increase motivation and adult upskilling

Canada

- Research projects have been conducted to help understand the applications, implications and limitations of programming for adults looking to return to post-secondary education to reskill or upskill.
- Investments have been made in projects across the country that address systemic barriers to women's equality. For example, the Women's Program addresses women's underrepresentation in non-traditional occupations (e.g. STEM and skilled trades), as well as barriers to women's labour-force participation (e.g. insufficient options for child care, resulting in women doing more unpaid caregiving work and having less time for paid work). The Women in the Skilled Trades initiative supports women by funding projects that recruit, retain and help women apprentices succeed in 39 eligible Red Seal trades, found predominately in the construction and manufacturing sectors. Finally, two-year Women's Employment Readiness pilot programme funded organizations to provide and test pre-employment and skill-development support for four groups of women facing multiple barriers to employment: racialized women and/or Indigenous women, women with disabilities, women from the 2SLGBTQI+ community and women who have been out of work for an extended period.
- The Sustainable Jobs Training Fund has been established to support a series of training projects that will help workers upgrade or gain new skills for jobs in the low-carbon economy. Projects will offer free or low-cost training to workers, including women and other members of equity-deserving groups.

Germany

- The structural change in the world of work, which is primarily driven by digitization and decarbonization, has progressed. The National Strategy for Continuing Education and Training (NWS) bundles measures to enable even more people to participate in the digital transformation at work. The main aim is to dovetail labour-market and education-policy instruments more closely and integrate general continuous education, with a particular focus on future skills.

Japan

- The country is supporting higher education institutions that develop programmes for working adults in growth fields such as digital transformation.

European Union

- There is ongoing work on the standardization of micro-credentials.

United Kingdom

- In England, programmes to support adults' upskilling and skilling include Skills Bootcamps, apprenticeships and free courses for jobs. Skills Bootcamps are free, flexible courses of up to 16 weeks that give people the opportunity to build sector-specific skills and result in an offer of a job interview with an employer upon completion.
- In Northern Ireland, Essential Skills qualifications are available to all. As part of the ongoing Essential Skills review, focus groups identified that older learners in particular who had never received an introduction to information and communication technologies needed more support and could be overwhelmed by higher-level qualifications. In response, a new Entry Level 3 Digital Skills qualification has been developed to support learning at foundational levels.

United States

- The United States is creating [pathways for global competitiveness](#) that ensure that all students have a path to post-secondary education and training and can access careers by earning industry-recognized credentials, including micro-credentials.
- Adults who have not completed secondary schooling and adults who are not proficient in English must typically complete basic skills and English-language instruction before they can access occupational training. Integrated education and training combines occupational training with instruction in basic skills and English in the context of careers, saving learners time and helping them advance in the labour market more quickly and effectively than the typical sequential method.

Example policy solutions

- Promote lifelong learning opportunities and TVET at various levels, including through micro-credentials in adult learning, in partnership with different stakeholders involved in competency development to advance flexible lifelong learning for all.

Challenge

Strengthening technical and vocational education and training

Canada

- Canada is focusing on achieving equity through inclusive training and skill development. It is relying on mechanisms that specifically support women, persons with disabilities and racialized communities in meeting the skill demands of future generations.
- The [Canadian Apprenticeship Strategy](#) supports a trade workforce that is skilled, inclusive, certified and productive by encouraging Canadians – especially those facing barriers, such as women, Indigenous Peoples, youth newcomers and persons with disabilities – to also explore trades as viable, good-quality careers, and helping to equip individuals with the skills and support needed.

France

- France is taking strong measures to reform TVET and make it a meaningful choice for young people and businesses.
- Among the new measures are revised, more modern curricula and longer work placements.

Germany

- The [Innovation competition](#) is part of the VET pathway to drive innovation and skill development in the areas of digitalization, and ecological and technical transformation.
- Germany supports the internationalization of training and qualifications. The goal is to ensure that standards of excellence across professions, innovations and VET are shared and subjected to peer-learning partners.

Italy

- A [government bill](#) reforms technical and vocational education by introducing the new 4+2-year model, comprising four years of upper secondary school plus two years in the tertiary pathways offered by the ITS Academies.
- A [reform](#) is under way to increase the educational offer of higher technical institutes (tertiary pathways). The goal is to double the number of qualified professionals and strengthen the laboratory infrastructure by adapting it to the new needs stemming from the green and digital transitions.

United Kingdom

- The National Occupational Standards (NOS) Strategy 2022 and beyond sets out the joint ambition of the devolved governments to cement the important role of NOS in the skill system, and establishes a series of principles and priorities to guide policy activity.
- In England, occupational standards (developed by employers with the Institute for Apprenticeships and Technical Education) set the basis for content in apprenticeships, T Levels, Higher Technical Qualifications and other government-fundable technical qualifications at levels 2–5. This ensures that learners learn the skills that employers need.
- England's 2022 Skills and Post-16 Education Act implemented measures to better link college training to the needs of local areas, transform the student loan system to allow equal access for academic higher-level education and technical training throughout life, and boost quality.

Japan

- Japan is intent on improving [vocational](#) education to train practical and creative engineers and specialized professionals who will play core roles in local industries.

United States

- President Biden's [Investing in America agenda](#) is bringing together unprecedented federal and private-sector investments to create millions of new, good-paying jobs in key industries such as advanced manufacturing, semiconductors, broadband, electric vehicles and batteries, clean energy and infrastructure. To help ensure US workers can access the good jobs created by historic new investments, the US Departments of Commerce, Education, Energy, Labor and Transportation are working together in a whole-of-government strategy to provide technical assistance to nine regional workforce hubs, each centred on key industries. The objective is to expand pre-apprenticeship and Registered Apprenticeship Programs; develop or expand career and technical education programmes in secondary schools and community colleges; and provide supportive services that are critical to helping underrepresented students and workers succeed.

Example policy solutions

- Strengthen TVET policies to promote the training of individuals with specific competencies, including TVET trainers and leaders, ensuring that student learning is relevant and raising awareness about career opportunities opened by TVET programmes.

Challenge

Continue efforts to foster gender balance in STEM

Canada

- Canada is investing in [time-limited projects](#) across the country that address systemic barriers to women's equality, including around women's underrepresentation in non-traditional occupations such as skilled trades and STEM.

Germany

- Germany supports measures to overcome stereotypes, especially in career and study counselling. These include the Girls' Day and Boys' Day future days, the Cliché Free Initiative (*Initiative Klischeefrei*) and YouCodeGirls, related to careers in information technology.

United Kingdom

- Education Scotland, the Scottish Government's executive agency charged with improving the quality of the education system, has published an Inclusion, Wellbeing and Equalities Professional Learning Framework. The framework includes advice for education practitioners on conscious and unconscious bias, gender stereotyping and bias, and diversity in the curriculum.
- The Welsh Government has committed over GBP 1.6 million for STEM learning initiatives for the next financial year. At the heart of these initiatives are programmes aimed at addressing gender imbalance, such as the Engineering Education Scheme Wales Girls in STEM programme, and the Institute of Physics' Whole School Inclusion and Equity programme.
- In 2022, the Northern Ireland Department for the Economy, in partnership with the Royal Academy of Engineering, also offered the FE Northern Ireland Engineering Education Programme Higher Education Bursaries, where female students from low-income households and those underrepresented in the engineering sector could apply for a GBP 15,000 bursary to support their studies (Dept for Economy NI).

France

- [Various initiatives](#) have been implemented to attract girls to scientific and digital subjects, including STEM. These include the development of new partnerships with feminist associations and an emphasis on female role models.
- As a result, the 'Digital & Computer Sciences' baccalaureate specialty is now attracting an increasing (though still insufficient) number of girls.

Japan

- Japan is setting up bases across the country to help female students choose a career in science and spur their interest through learning, hands-on experience and interactions with role models.

United States

- President Biden issued an [Executive Order on Establishment of the White House Gender Policy Council](#) encompassing some 30 federal agencies. The council's aims include supporting gender equity and combating gender stereotypes in education, and promoting participation in STEM fields. Among other things, the council issued a National Strategy on Gender Equity and Equality in 2021.
- In October 2022, the US Department of Education launched the [You Belong in STEM](#) initiative, based on research showing that groups historically underrepresented in STEM fields, including girls and nonbinary students, greatly benefit from supportive learning environments that enhance their positive STEM identities. The initiative yielded hundreds of commitments from public and private STEM-connected organizations to provide all students with the experiences and resources they need to succeed in STEM.
- The White House also issued the [National Strategy on Gender Equity and Equality](#).

European Union

- Various initiatives have been launched as part of the [Digital Education Action Plan \(2021–2027\)](#). These include Girls Go Circular, a free online learning programme for girls aged 14–19 which features learning modules about societal challenges related to the circular economy, allowing students to dive into topics like robotics, AI and semiconductors. In addition, ESTEAM Fests ('Entrepreneurship, Science, Technology, Engineering, Arts and Mathematics') provide full-day hybrid workshops where girls and women of all ages come together in a nurturing, positive environment to improve their digital and entrepreneurial competencies.

Example policy solutions

- Share experiences on programmes that support women and girls in STEM fields to improve gender equality, competitiveness, innovation and social cohesion.
- Change stereotypical perceptions about STEM and challenge assumptions about who does what job.
- Share the responsibility of advancing gender equity across domestic and foreign affairs.
- Strengthen data collection to capture the trends in gender access and excellence in STEM.

Challenge

Demographic changes demand stronger cross-border cooperation of education systems

Canada

- Canada has adopted six broad global competencies: communication; collaboration; critical thinking and problem solving; innovation, creativity and entrepreneurship; learning to learn; and global citizenship and sustainability. These competencies build on strong foundations of numeracy and literacy. They can help students meet the shifting and ongoing demands of life, work and learning; be active and responsive to their communities at a range of levels, from local to global; leverage new technologies; engage in meaningful relationships with people from countries and cultures around the world; and react responsibly to new challenges and issues.
- Canada prioritizes the development of skills across the country through Indigenous education activities. Intercultural competencies, learning on and from the land, and adaptability to rapidly changing societal landscapes through holistic learning are key concepts supporting the well-being and success of all learners, but particularly First Nations, Métis and Inuit learners.
- Canada supports the Global Skills Opportunity (GSO) pilot programme, delivered by Universities Canada and Colleges and Institutes Canada. Through GSO, Canada aims to increase the participation of young Canadians – especially equity-deserving students – in study and work abroad experiences. This programme is designed to encourage low-income students, students with disabilities and Indigenous students to participate in study and work abroad programming. These experiences help them develop the soft skills and intercultural competencies essential to their careers and Canada's economic future. Students are

travelling to more than 100 countries, diversifying the destinations where many Canadians have typically studied or worked abroad and building people-to-people connections with regions of economic importance to Canada.

Japan

- A dedicated budget aims to strengthen inter-university exchanges and mobility. This includes expanding scholarships for sending and receiving international students, especially with priority countries (including G7 members), based on agreements with overseas universities.
- Japan has a programme that invites high school students from Asian and G7 Member countries who are learning the Japanese language to visit Japan.

United Kingdom

- The alignment between the Credit and Qualifications Framework for Wales (CQFW) and the other UK, Irish and European qualifications frameworks provides for the cross-border transferability/mobility of learners by ensuring qualifications can be compared and recognized. The CQFW is in line with the Statements of Comparability of the UK National Information Centre for the recognition and evaluation of international qualifications and skills.

Italy

- The recently launched [Mattei Plan](#) strengthens cooperation with African countries across six priorities: education and training, agriculture, health, energy, water and infrastructure.

Example policy solutions

- Explore cross-border recognition of prior learning, including through mutual recognition of qualifications based on existing instruments and processes.
- Strengthen exchanges and collaborations, including with TVET, between the educational institutions and enterprises of G7 and other countries.

