Transformative pathways are needed to address multifaceted obstacles to inclusion and equity

UNESCO defines inclusion as a transformative process that ensures full participation and access to quality learning opportunities for all children, young people, and adults, while respecting and valuing diversity, and eliminating all forms of discrimination in and through education. This value represents a commitment to making preschools, schools, and other lifelong learning settings such as work-place and community, places in which everyone is valued and belongs, and where diversity is seen as enriching.

Inclusion and equity in and through education is the cornerstone of achieving SDG 4 – Education 2030. This goal includes addressing all forms of exclusion and marginalisation in education, along with disparities and inequalities in access and learning outcomes.

With only one decade remaining to achieve the goals in the 2030 Agenda for Sustainable Development, the world is facing a learning crisis as reflected in large disparities and inequalities in education and learning outcomes within and across countries. Close to 260 million children who should be in primary or secondary school are not, and reasons are manifold. Physical disabilities and cognitive impairments, conflicts and crises, gender inequality, low-income background and demography, among others, constitute major long-lasting obstacles.

Despite the fact that education is a universal human right, being denied access to school is common for the world’s over 100 million school-age children with disabilities, and it is estimated that 1 in 3 out-of-school children has a disability. As pointed out by the 2019 GEM report, low physical accessibility – in terms of both distance and facilities – and lack of qualified/trained teacher are major barriers for refugee children with disabilities.

Nearly 250 million children are living in countries affected by conflicts, and more than 75 million children and young people aged 3 to 18 are in urgent need of educational support in 35 crisis-affected countries. Girls are almost two and a half times more likely to be out of school if they live in conflict-affected countries, and young women are nearly 90% more likely to be out of secondary school than their counterparts in countries not affected by conflict.

Growing inequalities in learning outcomes caused by income divide is a matter of concern for developing and developed nations alike. Gaps in wealth, income, employment and access to quality education are expanding and affecting students’ learning outcomes. In low-income countries, only 44 students in the poorest quintile complete primary school for every 100 in the richest. Of the 44 students, only 23 complete lower secondary school and 11
complete upper secondary school. The disparities in access to quality learning opportunities further exacerbate the income divide in many societies presenting a multi-generational, vicious cycle of learning and financial poverty.

The notion of learning poverty extends to older populations as well, who use digital technologies, such as the internet, much less than younger populations, resulting in higher levels of digital exclusion amongst the elderly, according to a UNESCO policy report concerning the Latin American and Caribbean region. According to the 2019 Human Development Report, advancing technology has the potential to create a divide in society similar to that of the Industrial Revolution.

There is consensus that the action to reduce the barriers to inclusion and equity needs to be accelerated, and transformative and informed lifelong learning pathways, powered by digital innovations, are needed more than ever.

**Steering the use of AI towards the direction of inclusion and equity**

The 2030 Agenda for Sustainable Development recognizes that the digital technologies have a significant potential to accelerate progress, to bridge the digital divide and support the development of inclusive knowledge societies based on human rights, the achievement of gender equality and empowerment. From this perspective, technologies are critical for progress towards the achievement of all 17 SDGs.

Among breakthroughs of AI technologies, the use of educational data to track and support learners in crises and emergencies, machine translation and imaginary (or ‘seeing’) technologies to support access to global learning resources, personalized AI-aided mentoring based on individual learning pattern recognition, and diagnostic technologies for learning difficulties. More than 40 AI in education applications and projects selected for presentation during the Mobile Learning Week 2019 as well as more than 100 proposals for the UNESCO King Hamad Bin Isa Al-Khalifa Prize for the Use of ICT in Education under the theme ‘the Use of AI to innovate education, teaching and learning’ demonstrated that AI can be utilised to assist in refugee education by overcoming language barriers and helping to promote inclusive and equitable access to education. AI technologies have been also used to bridge gender divides and gaps in access for people with disabilities.

The potential of the AI revolution for SDG 4 and the rest of the 2030 Sustainable Development Agenda, however, will not be realised if the use of AI in education is not steered by humanistic values. First, inclusion, equity and gender equality must be adopted as core values in order to ensure that the development and use of AI in education does not deepen the digital divide, gender gaps and inequalities in access to and creation of knowledge and skills acquisitions.

Second, AI tools in teaching and learning should empower teachers to conduct more inclusive teaching, as well as enable the effective inclusion of students with learning impairments or disabilities, and those studying in a language other than their mother tongue.

Third, emerging and hidden ethical issues should be revealed and regulated to avoid ‘deep’ bias against any minority or vulnerable groups. Regulatory frameworks are needed to guarantee the ethical, non-discriminatory, and gender-equitable development and use of AI algorithms and tools, as well as transparent use of learners’ data.

Public policies and strategies, as well as multi-stakeholder partnerships are required to tackle these factors of exclusion. International cooperation, dialogue and solidarity should also guide the action of the international community.

**Supporting inter-sectoral and multi-stakeholder partnerships and system-wide strategies for AI in education**

Given the multidisciplinary and cross-border nature of AI and the complexity of making AI work for equity and inclusion, a multi-stakeholder partnership is more crucial than ever. International regulatory frameworks, cross-sectoral cooperation, sharing of open-source AI algorithms and AI technologies, “federated machine learning” with decentralized data, and giving priorities to low-resource communities and vulnerable groups are necessary if the AI revolution is to be steered towards leaving no-one behind. Wide-ranging and in-depth discussions informed by experiences from many countries and social contexts worldwide, as well as by experts in AI, inclusion and education are needed to ensure inclusive education. There is also an urgent need for planning and developing coherent system-wide strategies for leveraging AI to advance inclusion and equity in education. These strategies must be aligned and integrated with education policies within a lifelong learning perspective.
This Call for Proposals wishes to focus on the relevance that AI has in furthering inclusion in education. Proposals should include answers to the following questions:

- **What** is the proposal?
- **Who** is developing and who is benefitting from the proposal?
- **Why** is the proposal important and what will it accomplish?
- **How** is the proposal being implemented to further inclusion and access in education?
- **What are the results?**

UNESCO is convening the forthcoming edition of the Mobile Learning Week (MLW) 2020 from 2 to 6 March 2020. Under the theme of AI and Inclusion, MLW 2020 will examine how the international education community, governments, private companies, civil society organisations, and other stakeholders can join forces to (1) leverage AI to advance inclusion in access to quality learning opportunities; (2) foster AI innovations to enhance learning outcomes across learning settings; and (3) ensure non-discriminatory and gender-equitable use of AI for lifelong learning; and (4) solidify international cooperation to promote inclusive access to AI and digital innovations.

To this end, UNESCO calls for proposals under the following categories:

1. **Leverage AI to advance inclusion in access to quality learning opportunities**

   There have been innovative experiences and solutions in different contexts highlighting the potential of AI and digital technologies for promoting quality education and learning opportunities for students and other learners, including for those disadvantaged on grounds of gender, disability, social or economic status, ethnic or cultural background, minority languages or geographical location. The experiences however are often experimental examples that are yet to be put at scale in most cases. Emerging innovative tools also have the potential to enable the effective inclusion of students with learning impairments or disabilities and those in marginalised contexts. This subtheme aims to focus on how to leverage AI and data for promoting inclusive policies, strategies and solutions to advance inclusion in access to quality learning opportunities.

   - How can AI technologies be used to reach and track out-of-school children within and across-countries, and provide relevant content and quality learning opportunities with a specific priority to refugees and other on-the-move peoples?

   - How can big data, data collection and processing technology including AI-innovated Educational Management Information Systems (EMIS) and learning assessment be used to precisely diagnose factors of exclusion in education and predict drop-out cases to inform the immediate remedy strategies, as well as long-term institutional improvement solutions?

   - How to train teachers to adopt appropriate pedagogies and address equity challenges?

   - How can AI tools and other digital innovations be used to facilitate large numbers of learners with physical and cognitive disabilities to access quality learning opportunities in a cost-efficient way?

   - How can AI and digital innovations be developed to break through the difficulties faced by students studying in a language other than their mother tongue and the learning of foreign languages?

2. **Foster AI innovations to enhance learning outcomes across learning settings**

   Innovation is key to building system-wide strategies to tackle this learning crisis. When planning the use of AI in learning, specific focus should be given to the unique potential of data-based learning analytics in helping diagnose learning problems, predicting learning deficiencies, and improve quality of learning. AI and other digital innovations have demonstrated positive impact on learning outcomes in the lower-order of the skills ladder, such as subject-specific and some interdisciplinary skills. Yet, algorithm and AI tools need to be further developed to target the enhancement of learning outcomes in higher-order ‘soft skills’, global citizenship and other emerging skill sets needed by self-fulfilment and job markets. Equally important, the power of AI in sourcing and curating curricular content across languages and platforms need to be explored to bridge formal, non-formal and informal learning settings, and support on-the-job reskilling and upskilling in particular. While
teachers cannot be replaced by machines, and human interaction between teachers and learners should remain at the core of education, the potentials of ‘human-machine collaborative’ AI tools should be further mined to support teachers’ high-skill pedagogical responsibilities in different learning settings.

- How can AI tools be developed and used to empower teachers to adopt more inclusive pedagogies, and help teachers detecting learning deficiencies, diagnose varied learning problems, and suggest solutions?
- How can ‘human-machine collaborative’ AI tools be used or further developed to enhance the quality of subject specific and interdisciplinary learning, and support the continuous learning of creativity, critical thinking, global citizenship and other skills needed by the sustainable economic and society development?
- What are emerging AI innovations supporting learning in different settings including community and work-based learning, online learning and other forms of non-formal and informal learning opportunities?
- How can AI be used to assess needs of job market to support employability of learners and reduce discrimination in the world of work?
- How can AI innovations be fostered to anticipate the constantly changing needs for reskilling and upskilling of workers, and support the on-the-job trainings as well as prepare new generations with more relevant job skills?

3. **Ensure non-discriminatory and gender-equitable use of AI for lifelong learning**

AI applications can impose different kinds of bias that are inherent in the data that the technology is trained with and uses as inputs, as well as in the way that the processes and algorithms are constructed and used. The development and use of AI in education must not display or practice bias against any gender, age, minority, or vulnerable group. A growing body of evidence shows that women and girls, and elderly people are being left behind in AI skills developments within a lifelong learning perspective. When this is combined with an intersectionality of inequalities, the gender gap in digital skills further contributes to the low share of women among AI professionals and exacerbates existing gender inequalities. As AI technologies have demonstrated their capacity to aid ageing populations not only in daily life, but also in continuing education, it is important to create policies that emphasize access for older populations to digital skills and knowledge.

- How can bias against any gender, minority, or vulnerable groups built in to algorithms and AI tools be monitored and overturned?
- What are the best practices in implementing programmes to promote gender equality in AI learning and among AI workforces and employers?
- How can youth be engaged as co-creators of AI solutions to advance SDGs?
- How will AI technologies be developed and leveraged to support non-discriminatory and inclusive lifelong learning opportunities for adults - particularly low skilled adults - and facilitate recognition, validation and accreditation of learning outcomes?
- How can AI support recognition of skills and qualifications within and across-borders?

4. **Solidify international cooperation to promote inclusive access to AI and digital innovations**

AI and the digital innovations should be a digital public good for all. With the exception of leaders in the development and corporate use of AI technologies, most economies are in a situation of “adding an AI gap to its digital gap”, especially in terms of making universal access to digital innovations and AI, and capturing the digital potentials for development. Digital innovations should be made accessible for all learners, and the AI revolution must not expand the already major gaps within countries, nor between the developed and
developing world. It is important to be mindful of the risks of polarization between those who have access to
digital technologies and those who do not. Inclusive access to AI requires an ecosystem built first on reliable
infrastructures, which for many countries are still not yet in place. Global, cross-sector, north-south and south-
south cooperation and partnerships are crucial.

- How can innovative funding mechanisms and partnerships promote international sharing of data,
  open-source algorithms, public-good AI technologies, and capacity-building programmes to help
developing countries to catch up and avoid a widened AI divide? What is the role of education in this
context?

- How can accessibility to basic infrastructure like electricity, Internet connectivity, digital devices, and
AI-powered solutions be integrated into innovative learning settings to provide accelerating and
disruptive pathways toward the achievement of SDG 4 targets?

- How are international initiatives monitoring the AI divide and revealing the uncharted issues in
relation to exclusion and disparities in accessing AI and their technological advancement?

- How can international research networks and platforms advance knowledge sharing and
dissemination in the field of AI?

Submit your project proposal:

- for a WORKSHOP presentation
- for a SYMPOSIUM presentation

For more information:

Visit our Webpage (https://en.unesco.org/mlw) or contact us at: mlw@unesco.org

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