



United Nations  
Educational, Scientific and  
Cultural Organization

in partnership with



## Artificial Intelligence and Inclusion

### Concept Note

2-6 March 2020

UNESCO, Paris

# mobile learning week 2020

## The event

Mobile Learning Week (MLW) is the United Nations' flagship event on digital technologies in education and has been organized by UNESCO and its partners for eight consecutive years. The 2020 edition of MLW will be held from 2 to 6 March 2020 in Paris under the theme **Artificial Intelligence and Inclusion**. It is designed to steer the use of artificial intelligence (AI) towards the direction of inclusion and equity in and through education – core values underpinning the Sustainable Development Goals (SDGs) and digital opportunities for all.



The event will provide a global platform to demonstrate promising applications and practices that leverage AI to advance inclusion and equity in education, and to share enabling factors such as innovative funding mechanisms and partnership strategies. It will facilitate evidence-informed policy deliberation among ministers, policy-makers, private partners, researchers and practitioners on how to ensure that the AI revolution will not further widen digital divides, gender gaps and inequalities in access to quality education and lifelong learning opportunities for all.

## 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.<sup>1</sup> This definition represents a commitment to making pre-schools, schools and other lifelong learning settings, such as workplaces and communities, places in which everyone is valued and belongs, and where diversity is seen as enriching.

It is education that powers sustainable development, and this will only succeed if it leverages the digital revolution and in particular AI.

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Inclusion and equity in and through education form the cornerstone of achieving SDG 4 – Education 2030. This goal includes addressing all forms of exclusion and marginalization 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.<sup>2</sup> Physical disabilities and cognitive impairments, conflicts and crises, gender and economic inequalities, among other factors, 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.<sup>3</sup> As pointed out by the 2019 Global Education Monitoring (GEM) report, low physical accessibility – in terms of both distance and facilities – and lack of qualified or trained teachers are major barriers for refugee children with disabilities.<sup>4</sup>

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 per cent more likely to be out of secondary school than their male counterparts in countries not affected by conflict.<sup>5</sup>

Growing inequalities in learning outcomes caused by income divides are a matter of concern for developing and developed nations alike. Gaps in wealth, income, employment<sup>6</sup> 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.<sup>7</sup> The disparities in access to quality learning opportunities further exacerbate the income divide in many societies, presenting a multigenerational vicious cycle of learning poverty 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 among older people, according to a UNESCO policy report concerning the Latin American and Caribbean region.<sup>8</sup> According to the 2019 Human Development Report, advancing technology has the potential to create a divide in society similar to that created by the Industrial Revolution.<sup>9</sup>

There is consensus that action to reduce barriers to inclusion and equity needs to be accelerated, and that 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 digital technologies have significant potential to accelerate progress, 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, technology is critical for progress towards the achievement of all 17 SDGs.

Relevant breakthroughs in AI technologies include the use of educational data to track and support learners in crises and emergencies; machine translation and image recognition 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 MLW 2019<sup>10</sup> – 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 utilized to assist in refugee education by overcoming language barriers and helping to promote inclusive and equitable access to education. AI technologies have also been 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 Agenda for Sustainable Development, however, will not be realized if the use of AI in education is not steered by humanist 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 digital divides, gender gaps or inequalities in access to and creation of knowledge and skills.

Second, AI tools for teaching and learning should empower teachers to practise 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.<sup>11</sup> Regulatory frameworks are needed to guarantee 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 multistakeholder partnerships are required to tackle these factors of exclusion. International cooperation, dialogue and solidarity should also guide the action of the international community.

## Supporting intersectoral and multistakeholder 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, multistakeholder partnerships are more crucial than ever.<sup>12</sup> International regulatory frameworks, cross-sectoral cooperation, sharing of open-source AI algorithms and AI technologies, 'federated machine learning' with decentralized data, and prioritization of 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 to plan and develop 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.

## Objectives



As a follow-up to the implementation of the Beijing Consensus on AI and Education<sup>13</sup> and the Cali Commitment to Equity and Inclusion in Education,<sup>14</sup> MLW 2020 will take the initiative of exploring the best possible ways to steer the use of the most advanced technologies to deal with the long-lasting challenges of inclusion and equity in education. The event aims to provide a platform for global education communities, governments, private companies, civil society organizations and other stakeholders to join forces to:

- (1) solidify international cooperation to promote inclusive access to AI and digital innovations;
- (2) leverage AI to advance inclusion in access to quality learning opportunities;
- (3) foster AI innovations to enhance learning outcomes across learning settings; and
- (4) ensure non-discriminatory and gender-equitable use of AI for lifelong learning.

This event will convene hackathons and competitions of innovative AI applications – especially among young people – and incubate cross-sectoral and cross-regional partnerships.

MLW 2020 will also facilitate a **Policy Forum** for ministers and other stakeholders. The Policy Forum will examine the key policy measures required to implement the key recommendations of the Beijing Consensus on AI and Education, including adopting appropriate national strategies; creating multistakeholder partnerships, platforms and networks; defining regulatory frameworks and institutional arrangements; mobilizing resources; and attracting investment. The Policy Forum will also discuss key areas for international cooperation and solidarity through the sharing of AI technologies and programmes, including knowledge transfer, capacity-building, resource mobilization, peer learning and networking.

## Subthemes

The MLW 2020 subthemes seek to answer the overarching question of how education systems can integrate AI to support the learning and well-being of diverse populations, and to explore how this integration can lead to better social outcomes, inclusive and equitable quality education, and the promotion of lifelong learning opportunities for all.

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

AI and 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 danger of adding an AI gap to the digital gap, especially in terms of ensuring universal access to digital innovations and AI, and capturing 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 not yet in place. Global, cross-sectoral, 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 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 towards the achievement of SDG 4 targets?
- How are international initiatives monitoring the AI divide and revealing uncharted issues in relation to exclusion and disparities in accessing AI and its technological advancement?

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

### **Leverage AI to advance inclusion in access to quality learning opportunities**

Innovative experiences and solutions in different contexts have highlighted the potential of AI and digital technologies for promoting quality education and learning opportunities for students and other learners, including those disadvantaged on the basis of gender, disability, social or economic status, ethnic or cultural background, minority languages or geographic location. These experiences, however, are often experimental examples that have yet to be implemented at scale in most cases. Emerging innovative tools also have the potential to enable effective inclusion of students with learning impairments or disabilities and those in marginalized contexts. This subtheme aims to focus on how to leverage AI and data to promote inclusive policies, strategies and solutions for advancing inclusive 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 specific priority to refugees and other on-the-move peoples?
- How can big data and data collection and processing technologies, including AI-innovated Educational Management Information Systems (EMIS) and learning assessments, be used to precisely diagnose factors of exclusion in education and predict drop-out, in order to inform immediate remedy strategies as well as long-term institutional improvement solutions?
- How can teachers be trained to adopt appropriate pedagogies and address equity challenges?

- How can AI tools and other digital innovations be used to facilitate cost-efficient access to quality learning opportunities for large numbers of learners with physical and cognitive disabilities?
- How can AI and digital innovations be developed to break through difficulties faced by students studying in a language other than their mother tongue and facilitate the learning of foreign languages?
- How can human-machine collaborative AI tools be used or further developed to enhance the quality of subject-specific and interdisciplinary learning, and to support the continuous learning of creativity, critical thinking, global citizenship and other skills needed for sustainable economic and societal development?
- What are the emerging AI innovations that support 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 the needs of job markets to support learners' employability 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 on-the-job training, as well as prepare new generations with more relevant job skills?

### **3 Foster AI innovations to enhance learning outcomes across learning settings**

Innovation is key to building system-wide strategies to tackle the current 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 improving the quality of learning. AI and other digital innovations have demonstrated a positive impact on learning outcomes in lower-order skills, 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 for self-fulfilment and job markets. Equally important, the power of AI for sourcing and curating curricular content across languages and platforms needs to be explored to bridge formal, non-formal and informal learning settings, and to 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 AI tools for 'human-machine collaboration' 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 to help teachers detect learning deficiencies, diagnose varied learning problems and suggest solutions?

### **4 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 practise bias against any gender, age, minority or vulnerable group. A growing body of evidence shows that women and girls, as well as older people, are being left behind in terms of developing AI skills within a lifelong learning perspective.<sup>15</sup> 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. Also, 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 group that is built in to algorithms and AI tools be monitored and overturned?
- What are the best practices for 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?

Mobile Learning Week 2020 is designed to steer the use of AI towards the direction of advancing inclusion and equity in education – core values underpinning the Sustainable Development Goals and digital opportunities for all. The event

will provide a continued platform to share innovative solutions, funding mechanisms and partnership strategies conducive to inclusive access to AI and emerging digital opportunities. In addition, it will demonstrate promising AI applications and practices that leverage AI to advance inclusion and equity in education. It will facilitate evidence-informed policy deliberation among ministers, policy-makers, private partners, researchers and practitioners on how to ensure that the AI revolution will not further widen digital divides, gender gaps and inequalities in access to and generation of knowledge.



# Conference Plan

## Mobile Learning Week 2020 will have the following structure

### Workshops and Innovations – Monday 2 March

The WORKSHOPS will facilitate demonstrations of inclusive AI-based solutions, digital innovations, programmes or research that are aligned with the MLW 2020 subthemes. These will be conducted by a wide range of international organisations, NGOs, governmental agencies, academic institutions, foundations and private sector.

The INNOVATIONS will be presented by the winners of the MLW 2020 Call for Innovations. Each will consist of a demonstration and presentation of developed AI applications and digital innovations for the advancement of inclusion and equity in education.

### Symposium – Tuesday 3 March & Wednesday 4 March

The SYMPOSIUM will feature plenary panel discussions with experts in the field of inclusion in education, AI and education, and keynote addresses from thought leaders working at the intersection of inclusion, learning and AI and digital technologies. The programme will also include at least 20 breakout presentations, each lasting approximately 15 minutes. The presentations will align with the four Mobile Learning Week subthemes. During the sessions, UNESCO will gather participants from around the world to share experiences and plan joint actions with a view to harnessing digital innovations to achieve Sustainable Development Goal 4. It will feature keynote speeches, high-level plenary addresses, and demonstrations of AI applications.

### Policy Forum – Thursday 5 March

The POLICY FORUM will offer a unique space to discuss the key policy components for advancing digital technologies and inclusion in education to ensure the achievement of SDG 4. The Policy Forum will focus, on one hand, on which public policies are best at addressing the challenges in AI and inclusion in education, and the specific contribution of disruptive innovation to them. On the other hand, it will discuss which roadmaps, frameworks or guidelines can be developed in the field of AI and inclusion.

### Strategy Labs – Friday 6 March

The STRATEGY LABS will be hosted by UNESCO and MLW's partner organizations to help guide the conceptualisation and refinement of projects on AI in education. Strategy Labs will be dedicated to inclusion and equality through successfully using and creating digital technologies and AI solutions.

### Side Events

UNESCO and the Mobile Learning Week partners will host a series of side events to complement the main Mobile Learning Week programme. These will include partner launches of flagship projects and presentations of special project outcomes, as well as an array of platforms to promote youth perspective on AI and inclusion.

### Exhibitions

Organizations supporting Mobile Learning Week will showcase inclusive AI-powered applications, devices, initiatives, content, and research. UNESCO and Mobile Learning Week partners will also facilitate interactive exhibitions, and offer information about their respective mobile learning and digital innovations in education programmes. The full exhibition will run from Monday to Wednesday, with some exhibitions lasting until Thursday morning.



## References

1. UNESCO. 2019. Cali Commitment to Equity and Inclusion in Education. Cali, Colombia, International Forum on Inclusion and Equity in Education. <https://unesdoc.unesco.org/ark:/48223/pf0000370910>
2. UNESCO Institute for Statistics (UIS). 2019. Out-of-School Children and Youth. Montreal, PQ, UIS. <http://uis.unesco.org/en/topic/out-school-children-and-youth>
3. UNESCO. 2018. Global Education Monitoring Report 2019: Migration, Displacement and Education: Building Bridges, Not Walls. Paris, UNESCO. <https://unesdoc.unesco.org/ark:/48223/pf0000265866>
4. UNESCO. 2018. Global Education Monitoring Report 2019: Migration, Displacement and Education: Building Bridges, Not Walls. Paris, UNESCO. <https://unesdoc.unesco.org/ark:/48223/pf0000265866>
5. UNESCO. 2018. Global Education Monitoring Report 2019: Migration, Displacement and Education: Building Bridges, Not Walls. Paris, UNESCO. <https://unesdoc.unesco.org/ark:/48223/pf0000265866>
6. World Economic Forum. 2018. The Future of Jobs Report 2018. Geneva, Switzerland, World Economic Forum. <https://www.weforum.org/reports/the-future-of-jobs-report-2018>
7. UNESCO Institute for Statistics (UIS). 2019. Meeting Commitments: Are Countries on Track to Achieve SDG 4? Montreal, PQ, UIS. <https://unesdoc.unesco.org/ark:/48223/pf0000369009>
8. Galperín, H. 2017. Digital Society: Gaps and Challenges for Digital Inclusion in Latin America and the Caribbean. Montevideo, UNESCO. [https://unesdoc.unesco.org/ark:/48223/pf0000262860\\_eng](https://unesdoc.unesco.org/ark:/48223/pf0000262860_eng)
9. UNDP. 2019. Human Development Report 2019: Beyond Income, beyond Averages, beyond Today: Inequalities in Human Development in the 21st Century. New York, UNDP. <http://hdr.undp.org/sites/default/files/hdr2019.pdf>
10. UNESCO. 2019. Artificial Intelligence in Education: Compendium of Promising Initiatives: Mobile Learning Week 2019. Paris, UNESCO. <https://unesdoc.unesco.org/ark:/48223/pf0000370307>
11. Villasenor, J. 2019. Artificial intelligence and bias: four key challenges. TechTank (blog), 3 January 2019. Washington, DC, Brookings Institution. <https://www.brookings.edu/blog/techtank/2019/01/03/artificial-intelligence-and-bias-four-key-challenges/>
12. Hu, X., Neupane, B., Echaiz, L. F., Sibal, P. and Rivera Lam, M. 2019. Steering AI and Advanced ICTs for Knowledge Societies: A Rights, Openness, Access, and Multi-stakeholder Perspective. Paris, UNESCO. <https://unesdoc.unesco.org/ark:/48223/pf0000372132>
13. UNESCO. 2019. Beijing Consensus on Artificial Intelligence and Education. Paris, UNESCO. <https://unesdoc.unesco.org/ark:/48223/pf0000368303>
14. UNESCO. 2019. Cali Commitment to Equity and Inclusion in Education. Cali, Colombia, International Forum on Inclusion and Equity in Education. <https://unesdoc.unesco.org/ark:/48223/pf0000370910>
15. UNESCO. 2019. I'd Blush if I Could: Closing Gender Divides in Digital Skills through Education. Paris, UNESCO. <https://en.unesco.org/ld-blush-if-i-could>



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