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International Forum on AI and Education

Ensuring AI as a Common Good to Transform Education

7-8 December 2021

#AIED2021

Concept Note

Background

Towards digital humanism: Directing AI innovation towards the common good

As summarized by the International Commission on the Futures of Education,¹ we are in the midst of a global human development crisis: “widening social and economic inequality, climate change, biodiversity loss, resource use that exceeds planetary boundaries, democratic backsliding and disruptive technological automation are the hallmarks of our current historical juncture.” Technological innovations bring key opportunities for humans to address these global challenges by transforming our lives and changing the current course of the development of human societies.

The development of Artificial Intelligence (AI) is part and parcel of the digital transformation of all facets of our societies – from our daily lives to the world of work and to public services, including education. Specifically, the AI-powered digitalization of learning is not only about digital transmission of ‘traditional’ forms of knowledge. It is also increasingly about the digitalization of knowledge production and representation, driven by machine learning and increasingly powerful algorithms. In general, the rapid growth of human-AI collaboration and the digital transformation of our societies have profound implications for what it means to be human and how we relate to each other and to technology. The traditional conceptions of humanism need to be reframed, and a digital humanism is being defined and will guide our education and development efforts.

¹ <https://unesdoc.unesco.org/ark:/48223/pf0000375746>

In the *Beijing Consensus on AI and Education*² and UNESCO's recent publication, *AI and education: Guidance for policy-makers*,³ the humanistic approach towards the use of AI has been clearly articulated: the design and use of technology should be in the service of people to enhance human capacity, protect human rights and ensure sustainable development. More fundamentally, a humanistic approach should frame technological innovation as a digital public good for all and as part of the global commons that must be freely accessible to all.

However, AI innovations are not yet adequately directed at the common good of humanity. In a 2021 survey circulated to all Member States by UNESCO on the use of AI to support the learning continuity and quality during the COVID-19 crisis, only five countries answered positively to the use of AI tools in the education response to COVID-19. Apart from commercially driven AI platforms, there are limited AI tools and AI in education practices orientated to the common good of education and humanity, including: (1) regulations, strategies or tools for protecting learners' and teachers' human rights as well as data privacy; (2) the use of language- and image- processing technologies to enable inclusive and equitable access to online learning opportunities for persons with disabilities and from linguistic and cultural minority groups; (3) the use of data analytics to improve the quality of learning and enable development of interdisciplinary competencies; (4) the use of AI-powered tools to support remote summative assessments and high-stake examinations; and (5) the use of big data to monitor long-term learning outcomes and to provide early warning of education dropouts.

Global governance of the use of AI in education

The rapid deployment of AI across sectors potentially threatens data privacy and human rights, exacerbates existing discrimination, and produces new forms of bias and exclusion. In terms of the governance of AI, the inter-governmental governing bodies and the public governance of Member States are facing the rapid rise of private governance imposed by the commercial AI technology providers. Private AI developers, especially owners of digital platforms, have defined and implemented private normative systems. The algorithms – used by AI tools to track users' data, recognize behavioural patterns and rate users' practices – are usually implemented without users' full consciousness and explicit consent. In addition to being the rule-setters, the private owners of AI tools are also taking on the roles of regulators of the rules and the resolution bodies when conflicts occur among users and between AI providers and users. The rise of the private governance undermines the public governance that is accountable to make AI a common good.

The Recommendation on the Ethics of Artificial Intelligence adopted by the 41th session of the UNESCO General Conference in November 2021 will therefore provide an instrument to support legislations to rebalance this governance landscape. The Recommendation still needs to be adopted and implemented through national regulations on AI and on data protection. However, up to now, there are still more than one third of countries around the world without any forms of privacy laws for data protection to ensure

² <https://unesdoc.unesco.org/ark:/48223/pf0000368303>

³ <https://unesdoc.unesco.org/ark:/48223/pf0000376709>

that citizens' data are offered under rigorous protections and controls.⁴ Beyond the general data protection regulations, policy-makers in the education sector need to deepen their understanding of unique ethical issues relating to the use of AI in education, and further provide practical guidance on regulating the use of learners' data, preventing algorithm discrimination, curbing the use of intrusive AI tools, and promoting human agency in AI-supported learning settings. It is therefore imperative for UNESCO to facilitate the adoption of international regulations and strengthen national capacities in regulating the use of AI in education.

AI as a common good for Africa, gender equality and marginalized groups: The basis to build

When schools were closed during the COVID-19 pandemic, digital technologies were the crucial lifeline for accessing distance learning opportunities. During and after the pandemic, digital technologies have become a social necessity to ensure that education as a human right is not disrupted. However, the UNESCO-WB-UNICEF joint surveys revealed that the unavailability of broadband connectivity in the least developed countries left one-third to a half of all learners without access to any distance learning opportunities.

The 211th session of the UNESCO Executive Board adopted UNESCO's Strategy on Technological Innovation in Education (2021 – 2025). The Strategy pays particular attention to UNESCO's global priorities of gender equality and Africa, and places further priority focus on the most vulnerable groups, including persons with disabilities. Through the Strategy, UNESCO is committed to: mobilizing resources and providing capacity development to support Member States in planning and managing technology-enabled flexible and crisis-resilient learning systems; and strengthening capacity in the use of big data in learning management systems and promoting the development of a global data commons to facilitate human rights-based, safe and ethical sharing of trusted data and algorithms that can help improve teaching and learning.

A profound and robust foundation needs to be built if the digital divide is to be closed and the developing countries are to catch up with the AI revolution. This includes:

- **Building AI infrastructure and enhancing country ownership**

This includes promoting universal access to internet connectivity and cloud computing centres with national ownership. Even though cloud-based computing has been promoted to be a more efficient solution, it has also triggered issue on "data sovereignty", which relates to how national institutions can maintain the sovereignty of their data when the data of local groups subject to the national laws and governance structures are stored in cloud platforms controlled by foreign or private owners. With this issue, debates and experience-sharing are needed to balance cloud-based AI deployment and the country ownership of AI platforms and data.

- **Addressing the dilemma between protecting private data and mining data as a public good**

While it is critical to ensure the private ownership of learners' personal data, an extremist approach to data protection will lead to the absence of data available to train AI tools that are potentially a public

⁴ <https://www.thalesgroup.com/en/markets/digital-identity-and-security/government/magazine/beyond-gdpr-data-protection-around-world>

good to enhance the quality of learning. For example, ViLLE,⁵ an AI-powered learning platform developed by the University of Turku of Finland, the Laureate of the 2020 edition of UNESCO Prize for ICT in Education, uses learners' data to monitor learning outcomes and provide early warning for possible dropouts. International knowledge sharing is urgently needed on how countries can possibly address the data dilemma.

- **Designing algorithms relevant to the challenges of local education systems**

The transferability of current algorithms is weak, meaning that algorithms based on data of one group of users cannot be used directly to solve similar problems of groups in different contexts. Developing countries, as late adopters of AI in education, can learn lessons from the early adopters about failing algorithms and direct algorithms at the common good in education. More importantly, developing countries should build locally relevant AI systems using open-source algorithms. One of the examples is M-Shule⁶ – or “mobile school” in Swahili from Kenya – one of the first personalized knowledge-building platform developed in Africa to connect learners via SMS to tailored learning, evaluation and activation. For this to happen, international organizations are obliged to promote open-source algorithms.

- **Developing AI competencies and AI literacy**

Regulations on their own are insufficient to ensure AI will be steered for the common good, so all citizens need to be equipped with some level of competency with regard to AI. This includes the knowledge, understanding, skills and value orientation that can be called AI Literacy. Developing countries also need to develop human resources with advanced AI skills to meet the needs of new jobs created by the adoption of AI and to foster local AI innovations. The most effective way is to mainstream AI competencies development in national curriculum for schools, TVET institutions and higher education institutions. However, according to the recent survey conducted by UNESCO on governmental AI curricula for schools, fewer than ten countries among all the Member States are implementing governmental AI curricula for school students, and none of these are from Africa.

- **Preparing teachers to work in AI-rich education settings**

The Beijing Consensus affirms that human interaction and collaboration between teachers and learners must remain at the core of education, and teachers cannot be displaced by AI systems. The Consensus calls on Member States and partners to ensure that teachers' rights and working conditions are protected when adopting AI systems. Leading regions and countries in AI, including China, the Republic of Korea and European countries, have started to review teachers' roles and to define the required competencies in AI-rich education settings. Training programmes have been developed and implemented to prepare teachers to work effectively with AI tools and platforms. Developing countries also need to review evidence-based arguments about how AI might influence teaching and learning in the future, and integrate relevant skills into training programmes.

⁵ <https://www.learninganalytics.fi/en/ville>

⁶ <https://m-shule.com>

The Beijing Consensus and the international conferences on AI and education

To support education policy and planning in the era of AI, UNESCO, the Ministry of Education of the People's Republic of China, and the National Commission of the People's Republic of China for UNESCO co-organized the first International Conference on AI and Education (Beijing, May 2019), and the International Forum on AI and the Futures of Education dedicated to a theme on the development of AI competencies (online and in-person meeting in Beijing, December 2020). The Conference in 2019 resulted in the first international consensus on AI and education, the Beijing Consensus.

The Beijing Consensus recommends that UNESCO reinforce its leading role in AI and education across concerned sectors and mobilize the Organization's institutes and networks, and further expand its external networks in the field of AI and education with relevant partners. The Ministry of Education of the People's Republic of China has expressed its commitment to sponsor and co-organize the international event on AI and education annually with UNESCO until an agreement on the termination of the partnership is reached.

The knowledge shared during the Forum of 2020 was published in the *Synthesis report on developing competencies for the AI era*.⁷ Building upon the two international events, UNESCO published *AI and Education: Guidance for policy-makers* in April 2021 with an aim to foster AI-ready policy-makers. UNESCO will take the opportunity of this planned International Forum of 2021 to launch the publication in six UN languages. Following up on the outputs of the Forum of 2020, UNESCO launched the project on AI and the Futures of Learning⁸ to work on three independent but complementary strands: (1) a report proposing recommendations on AI-enabled futures of learning, (2) a guidance on ethical principles on the use of AI in education, and (3) a guiding framework on AI competencies for school students. In this context, a survey on AI curricula for school education has been completed, and the report will be presented in this planned International Forum of 2021.

Meanwhile, after adopting the Strategy on Technological Innovation in Education in October 2021, UNESCO will adopt Recommendation on the Ethics of Artificial Intelligence and release the global report *Reimagining Our Futures Together: A new social contract for education* at its 41th session of the General Conference in November 2021. At this special historical juncture, there is an urgent need to convene global and regional organizations, governmental agencies, private partners, academic researchers and practitioners to deliberate on how AI governance and AI innovation networks can be enhanced to direct AI at the common good for education and for humanity.

Aim

In response to this need, the Ministry of Education of the People's Republic of China, and the National Commission of the People's Republic of China for UNESCO will co-organize with UNESCO an online edition

⁷ <https://unesdoc.unesco.org/ark:/48223/pf0000377251>

⁸ <https://events.unesco.org/event?id=2883602288>

of the International Forum on Artificial Intelligence and Education on 7 and 8 December 2021 under the theme *Ensuring AI as a Common Good to Transform Education*.

The online Forum will deliberate on how AI governance and AI innovation networks can be enhanced to direct AI at the common good for education and for humanity.

Subthemes

The Forum will be structured around the following sub-themes:

1. **Global governance and national policies on AI in education** – Deepen the debate on digital humanism in the context of the futures of education, share experiences on how global governance of AI and national policies can be enhanced and synergized to ensure AI can be used for the common good of humanity and education, and launch UNESCO's report *AI and education: Guidance for policy-makers*.
2. **Ensuring AI as a common good for achieving SDG 4** - Promote proven best practices and effective use of trusted AI tools for education; explore the system-wide principles to guide the next-generation of AI innovations to serve teachers and to enable the futures of learning; present the results of the UNESCO surveys on governmental and non-governmental AI curricula for school education, share knowledge on defining AI literacies and frameworks on AI curriculum as well as on preparing teachers to work in AI-rich settings.
3. **Mining data to enhance education management and learning assessment** - Examines the emerging practices of mining data across platforms or multiple data sources to enhance education management and public service, assess lifelong learning outcomes, and diagnose the major problems of learning systems; assess the limitation in using data and AI to support learning assessment and ethical issues relating to the use of data and AI tools to predict human behaviours including data privacy and security, and algorithm biases.
4. **Directing AI innovations at inclusion, equity and gender equality in education** – Catalyze AI innovations to advance inclusion, equity and gender equality in education as well as sustainable development especially among youth; promote gender equality to ensure that girls and women have equitable access to AI technologies and AI-enabled learning activities; facilitate debate on how to prevent gender discrimination in algorithms and AI tools; share experiences on empowering girls and women with digital skills and AI competencies, and increasing their self-efficacy and participation in AI areas.
5. **Promoting the use of AI in Africa: Build the partnership** – Focus on partnerships and well-resourced programmes to support the building of the multi-layer and multi-disciplinary basis needed by African countries and other marginalized groups to maximize the potential of AI innovations including building AI infrastructure, promoting open-source AI algorithms and AI tools, and developing AI competencies for key stakeholders.

Target Participants

The participants will include Ministers of Education and/or ICT, senior policy-makers, experts from international organizations, representatives of private sector partners and civil society organizations, prominent academic researchers, and managers of selected AI in education projects.

Co-organizers

The Forum is co-organized by:

- United Nations Educational, Scientific and Cultural Organization
- Ministry of Education of the People's Republic of China
- National Commission of the People's Republic of China for UNESCO

The following institutes are providing support in hosting the Forum:

- Beijing Normal University
- UNESCO Institute for Information Technologies in Education

Financial support has been provided by:

- National Commission of the People's Republic of China for UNESCO

Working Languages

Interpretation services will be provided in English, French and Chinese.

Provisional Programme Structure

(CET Time, Paris Time)

Day 1 (7 December 2021)		Day 2 (8 December 2021)	
09:30-11:30	Opening Session and Session 1: High-level panel on global governance and national policies on AI in education Sign in	09:00-10:30	Session 3: High-level panel on mining data to enhance education management and learning assessment Sign in
		10:30-11:00	Break
		11:00-12:30	Session 4: Promoting gender equality and empowering girls and women with AI competencies Sign in
11:30-12:00	Break	12:30-13:00	Break
12:00-14:00	Session 2: Ensuring AI as a common good for achieving SDG 4 Sign in	13:00-14:30	Session 5: Promoting the use of AI in Africa: Build the partnership Sign in
		14:30-15:00	Closing Session Sign in

Session 1 - High-level panel on global governance and national policies on AI in education is scheduled back to back with the Opening Session, and presents speeches of high-level speakers of international organizations and ministers on how global governance of AI can be enhanced by the cross-border adoption and implementation of international regulations, as well as on how national strategies on AI and education are being developed to promote the use of AI for the common good of education. During the high-level panel, the latest UNESCO publication, *AI and education: Guidance for policy-makers*, will be launched in the six UN languages.

Session 2 - Ensuring AI as a common good for achieving SDG 4 presents the report of the UNESCO surveys on governmental and non-governmental AI curricula for school education, and reviews how AI literacies and advanced AI competencies are being defined and developed. It shares recommendations on how governmental agencies and partners should collaborate to develop competencies needed by human-AI collaboration, and demonstrates innovative examples on AI competencies development. During the session, a partnership for developing algorithm and data literacy will be announced.

Session 3 - High-level panel on mining data to enhance education management and learning assessment examines the emerging practices of mining data across platforms or multiple data sources to enhance education management, assess lifelong learning outcomes, and diagnose the major problems of learning systems. Specific focus will be given to the use of learning analytics to monitor learning processes and to predict learning failure in order to alert education administrators and policy-makers to dropouts. The session will examine the limitation in using data and AI to support learning assessment and ethical issues relating to the use of data and AI tools to assess and predict human behaviours including data privacy and security, and algorithm biases.

Session 4 - Promoting gender equality and empowering girls and women with AI competencies shares programmes on promoting gender equality to ensure that girls and women have equitable access to AI technologies and AI-enabled learning activities. The session aims to present gender-transformative interventions to empower girls and women with digital skills and AI competencies, and increase their self-efficacy and participation in AI areas. It also facilitates the sharing of knowledge on how to prevent gender discrimination in algorithms and AI tools.

Session 5 - Promoting the use of AI in Africa: Build the partnership focuses on building and promoting partnerships and well-resourced programmes with a vision to build a multi-layer and multi-disciplinary basis needed by African countries and other marginalized groups to maximize the potential of AI innovations. The session aims to strengthen operational partnerships for building AI infrastructure with a special focus on promoting open-source AI algorithms and AI tools as well as the development of AI competencies for key stakeholders. The session will also serve as a follow-up action to other initiatives set out within the framework of UNESCO's Global Priority Africa, in particular the 2018 Benguerir Outcome Statement adopted at UNESCO's First Forum on Artificial Intelligence in Africa. The latest progress on the organization of regional forums on AI in Africa will be shared.

Session 5 will be followed immediately by the **Closing Session**.

Technical specifications

The event uses Zoom applications to support the live sessions, and uses an online conferencing website to support the registration, the update of live sessions and networking among participants. Live streaming platforms will be used to expand real-time participation.

Stay in touch

International Forum on AI and the Futures of Education



aied@unesco.org; literacy@moe.edu.cn



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