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Task Force 05
INCLUSIVE DIGITAL TRANSFORMATION

Harmonizing Governance Frameworks for the Agentic use of AI in Education across the G20

Sean Leahy, Research Scientist & Senior Global Futures Scholar, Arizona State University, (United States of America)

Charlotte Holland, Deputy Dean & Professor, Dublin City University, (Ireland)

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Abstract

The emergence of Artificial Intelligence (AI) presents both opportunities and challenges for education systems and practices, and work within G20 partner countries (European Commission 2022; Accenture 2023). The integration of AI in education affords interesting new opportunities and capabilities for educators to customize learning experiences and promote higher order learning. However, the unsystematic adoption of Generative AI (GenAI) tools can create additional challenges and inequities for educational systems unprepared to address this new and rapidly evolving technology. This raises cause for concern on several fronts. Firstly, GenAI content raises issues of privacy, accuracy and authenticity of content that challenges the integrity of traditional assessment processes (Moorhouse et al. 2023). Secondly, the arbitrary use of GenAI content can result in lower levels of cognitive engagement, impacting the development of competent, self-directed learners. Thirdly, GenAI created content may reinforce misconceptions and biases and reduce the plurality of represented perspectives. Disparities in access to technology have the potential to further deepen existing digital and developmental divides. Lastly, GenAI has a substantial carbon footprint, which is of particular concern in terms of responding to the sustainable development goals of Agenda 2030 (UN 2015). Educators and policy makers in G20 partner countries are actively considering the wider implications of AI for education, with various artificial intelligence guidelines emerging from international organizations such as UNESCO (Miao & Holmes 2023), European Parliament and the United Nations, as well as bodies at national levels such as the National Academic Integrity Network in Ireland (NAIN 2022). This policy brief recommends the harmonization of governance frameworks regulating AI integration in education across G20 partner countries.

Keywords: artificial intelligence, GenAI, education, policy, governance.

Diagnosis of the Issue

Artificial intelligence in education has been an established track of research and innovation for several decades that was heavily focused on the development of AI powered teaching and learning processes and tools. In late November 2022, OpenAI released their first mainstream accessible Generative Artificial Intelligence (GenAI) platform called ChatGPT, that using a relatively new technological innovation of pre-text transformer (originally developed by Google) led to a new transformation of user accessible Generative Artificial Intelligence (GenAI) platforms through a simple web-based user interface and application. The innovation and ease of access to GenAI marks a new era in the global education systems and has emerged as a critical theme on the G20 agenda.

This policy brief seeks to address the nuanced opportunities and challenges presented by AI in education, specifically GenAI, emphasizing the need for a harmonized approach to AI governance across formal and non-formal educational sectors. The motivation behind this focus stems from the duality of GenAI as both a catalyst of innovative and novel learning experiences and a conundrum of ethical, operational, and pedagogical dilemmas (European Commission 2022; Accenture 2023).

The G20 aims to support the sustainable growth targets of UN Sustainable Development Goal 4, "ensuring inclusive and equitable quality education and promote lifelong learning opportunities for all" (UN 2015). AI offers a potential to transform education through personalizing learning, increasing access to information and knowledge, and boosting cognitive skills and performance that align with goals of enhancing human capabilities and reducing digital divides. However, continued advancement of GenAI present new challenges along the lines of uncharted ethical issues, learner engagement and autonomy, reliable and accurate information, and equitable

access (Miao & Holmes/ UNESCO 2023), to name a few, that require coordinated policies to ensure promotion and not underminng human-agency and increased quality education for all.

AI's growing global prevalence in educational systems provides an opportunity to reevaluate existing pedagogical models, assessment methods, and the intentional inclusion of GenAI tools in formal and non-formal educational settings. Educational systems around the world are individually grappling with AI integration at local and national levels, in which disparities in access to technology, resources, and digital literacy create significant challenges for equitable and quality experiences. Regionally, initiatives like the European Commission's AI Act (European Commission 2024) reflects a proactive stance on leveraging AI to enhance learning while addressing associated risks. The Biden administration in the United States has also published an Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence (The White House 2024). Globally, there is a critical need to address the use of AI in education, as digital technologies often operate across borders and pose global concerns on environmental sustainability. Traditional frameworks fail to address the speed and disruption of new and emergent AI innovations. Therefore, it is crucial to establish new frameworks based on guidelines from international organizations such as UNESCO to ensure educational benefits of AI are accessible to all learners, while addressing and working to mitigate potential harms or unintended consequences.

Broadly, GenAI offers a potential to create transformational opportunities in education around personalized learning, increased accessibility and efficiencies, new methods of engaging students, creating educational content and resources, and bridge traditional barriers such as language, cultural, and learning gaps. Despite these opportunities, there remains multiple unresolved challenges and potential harms. The rapid pace of

unregulated integration risks worsening the global digital divide, raises ethical considerations, privacy concerns, and challenges to intellectual property, and quality (and authenticity) of information, and further perpetuating biases and marginalization of voices (Miao & Holmes/ UNESCO 2023). Additionally, the rapid innovation of GenAI outpaces institutional ability to redesign and adapt new AI policies and guidelines for academic integrity and assessment (Moorhouse et al. 2023). Furthermore, the increased environmental and technologic ecosystem impact of AI technologies cannot be ignored. Finally, the absence (or intentional blocking) of AI in education presents a significant threat to the preparation of the future workforce that will likely require AI literacy in professional careers.

To navigate these challenges, it is advised that G20 partner countries adopt comprehensive AI policies, and ethical guidelines that balance the benefits of AI on empowering human flourishing while protecting educational quality, equitable access, and foster a culture of responsible AI use (European Commission 2022). Such guidelines should encourage innovation while instituting safeguards against the misuse of AI technologies in educational settings.

Recommendations

According to the UN AI Advisory Body, while the impact of AI is global, its "governance remains territorial and fragmented" (UN 2023, 10). To help alleviate challenges associated with these weaknesses in governance, the policy brief recommends the harmonization of recommendations for AI integration across formal and non-formal education through whole-government and system-wide approaches, promoting interdisciplinary and multi-stakeholder engagement in decision making within G20 partner countries, as advised by UNESCO (2023).

The G20 reiterated its commitment in the 2020 Ministerial Declaration to supporting the G20 AI principles and ensuring human-centered approaches to AI integration across partner countries (G20 Saudi Arabia 2020). In the rapidly evolving landscape where AI continues to reshape the boundaries of technology, education, and governance, the imperative for harmonized global frameworks has never been more pressing. The European Commission (2022) has highlighted that the "governance and use of AI and data in education requires that there is a common understanding about what needs to be controlled, how the governance processes should be organized and managed and how the responsibilities are allocated" (9). To achieve this, the necessity of informed and strategic foresight cannot be overstated. Leaders and policymakers must commit to a continuous and rigorous evaluation of the AI policy and regulatory efforts across all jurisdictions of operation. This requires a proactive stance in understanding and anticipating the regulatory domains that will gain prominence, guided by lessons learned from the societal impact of previous technologic diffusion. By anchoring policies in the ongoing discourse at national and international levels, leaders can establish a baseline that not only informs but also enhances their strategic positioning in the face of AI's transformative power.

New AI in Education Governance Framework

Policymakers are advised to focus on establishing frameworks that govern the societal impact of rapidly evolving AI, rather than specific applications or tools. Keeping human agency, and human-centered designs need to be at the core of policy. Key considerations should speak to ways in which policies strengthen and advance human-agency and human flourishing through AI governance. To address the need to increase the responsiveness of global, national, and local regulation on AI in education, it is recommended that policymakers adapt a cyclical process of evaluation and forecasting of impacts of AI on education and society from ethical, constitutional, social, economic, cultural, and political contexts (Thielemann et al. 2023).

Multiple trends were identified on AI governance for public policy and regulation in the EU's Final report of the Commission expert group on Artificial Intelligence and data in education and training (European Commission 2022). To ensure a human-centered approach to GenAI in education, the European Commission (2022, 6) proposed that "Ethical Guidelines on the use of Artificial Intelligence (AI) and Data in Teaching and Learning for Educators" be established within a detailed "Digital Education Action Plan" to provide educators with a clear understanding of the challenges and opportunities of emergent AI tools, and how they are impacting the digital educational ecosystem. These guidelines will offer educators a clear path to discuss, critique, and understand the ethical implications of emerging technologies and their impact on education, learning, and society.

To ensure a humanistic approach is adopted as an overarching principle underpinning policy frameworks for GenAI, it is recommended that policymakers implement framework elements from the Miao & Holmes/ UNESCO (2023) 'Guidance for Generative AI in Education and Research' (Fig. 1), in which they present eight key areas

that protect human rights and equip citizens with knowledge, skills, values, and competencies needed for "sustainable development and effective human-machine collaboration in life, learning and work" (18).

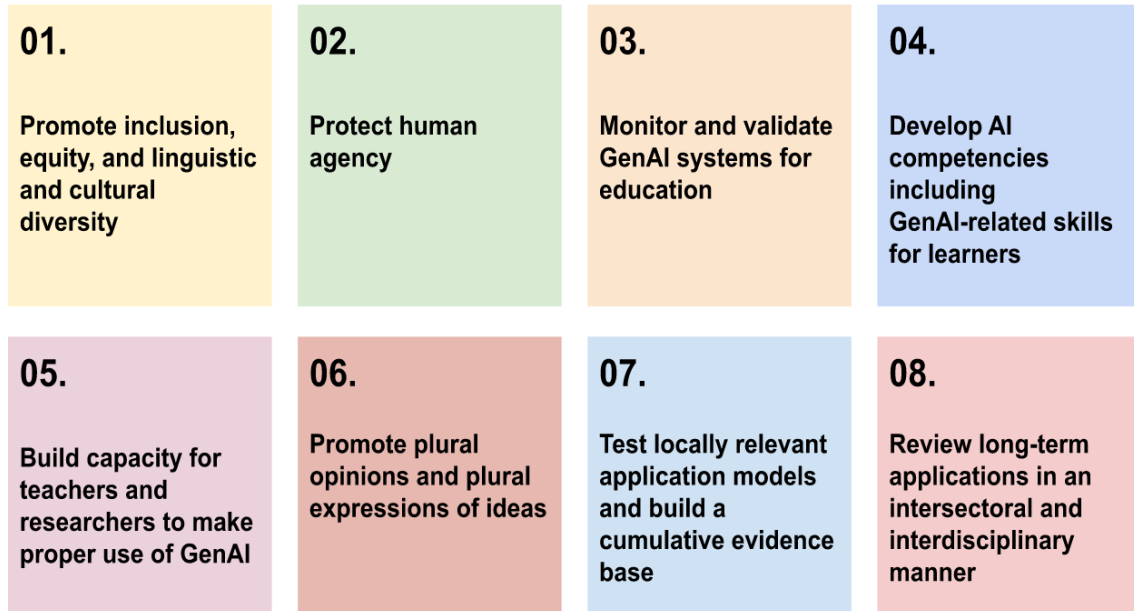| 01.	02.	03.	04.
Promote inclusion, equity, and linguistic and cultural diversity	Protect human agency	Monitor and validate GenAI systems for education	Develop AI competencies including GenAI-related skills for learners
05.	06.	07.	08.
Build capacity for teachers and researchers to make proper use of GenAI	Promote plural opinions and plural expressions of ideas	Test locally relevant application models and build a cumulative evidence base	Review long-term applications in an intersectoral and interdisciplinary manner

FIGURE 1 - Gen AI in Education Principles, adapted from Miao & Holmes/ UNESCO (2023, 24-27).

Finally, in terms of responsible AI, there is "balance that needs to be struck between leveraging AI's benefits and evaluating and mitigating potential risks and ensuring that human oversight is included, and human values are served" (European Commission 2023, 108). Transparency and openness of decision-making are crucial to building trust in AI systems in education.

Establishment of new AI Literacy

The field of AI is an umbrella term that encompasses many categories of use and technology. Governing AI in education involves understanding the complex technologies and broad uses, including Generative AI. To navigate this, developing AI literacy among

educators, students, and policymakers is essential for a foundational grasp of AI technologies.

Incorporating AI education into curricula and teacher training is crucial for providing educators and learners with a foundational understanding of AI and its diverse tools. By identifying necessary AI competencies, professional development and training can be implemented, enabling educators to effectively integrate AI into teaching. Access to AI tools and resources is essential for educators to assess the relevance and potential of AI applications in their classrooms.

Sustainability Strategy

While the advancement of AI offers unprecedented opportunities to rethink and engage new approaches to teaching and learning, this growth is accompanied by significant environmental impacts, notably through increased energy consumption and carbon footprint associated with the development, training, and operation of AI systems. To address this, sustainability-by-design principles must underpin the development of AI tools, ensuring that AI solutions are developed with energy efficiency and minimal ecological footprint in mind. Furthermore, the innovation of "Green AI Technologies" must be encouraged - providing incentives to significantly reduce energy consumption without compromising the quality and effectiveness of educational outcomes that align with ecological sustainability goals, including environmental impact assessments, leveraging renewable energy sources, lifecycle management, and waste reduction.

Integrating environmental sustainability considerations into the governance of AI in education, ensures the deployment of AI technologies contributes positively to both educational and ecological outcomes aligned to the Sustainable Development Goals (UN

2015). This balanced approach promotes not only innovation and inclusivity but also the stewardship of our planet for future generations.

Possible Scenarios of Outcomes

The following scenarios illustrate the possible outcomes and trade-offs of adopting the aforementioned recommendations.

Scenario 1: Enhanced AI literacy and educational equity

The successful implementation of the framework leads to widespread AI literacy among students and educators. Enhanced understanding of AI technologies facilitates innovative teaching methods and personalized learning experiences, significantly reducing educational disparities. New and innovative approaches to knowledge are created, students experience elevated levels of access that lead to greater knowledge and skill acquisition for future economic and academic opportunities.

A potential trade-off to this adoption is while AI literacy increases, the digital divide may widen if infrastructure and resources are not evenly distributed. Educational environments in affluent areas could significantly benefit from AI-driven tools, whereas underfunded schools struggle to access or implement the latest technologies, exacerbating educational inequalities.

Scenario 2: Harmonization of AI ethics and standards in education

The framework harmonizes AI ethics and standards across educational institutions, ensuring that AI technologies are developed and used responsibly. This fosters an environment of trust among students, educators, and community regarding AI's role in

education. AI tool development is heavily influenced by the educational sector leading to broader linguistic and cultural diversity and plurality of platforms and outputs from AI tools.

In contrast, the adoption of a standardized ethical framework may restrict or stifle innovation due to regulatory constraints. One example of this can be found within the proposal for the Artificial Intelligence Act, where the European Parliament proposes a ban on the usage of AI systems for emotion recognition (except for medical or safety reasons) based on the premise of potential "discriminatory outcomes and can be intrusive to the rights and freedoms of the concerned persons" (European Parliament 2024: Point 44). They further propose any use of AI to determine access, admissions, or for evaluation of learning levels, learning outcomes, or learning progress be classified as high-risk (European Parliament 2024: Point 56). In addition to this, the European Parliament advises the integration of ongoing fundamental rights impact assessment in the use of AI in education, with the purpose of eliminating or reducing risks through identification of measures to be articulated and applied by the developers (European Parliament 2024:56). Hence, strict guidelines or predefined AI applications may restrict developers and educators, stifling creativity, and technological progress in educational AI.

Scenario 3: Global competitiveness and preparedness

By fostering AI literacy and innovation in education, the framework prepares students for the future workforce, enhancing global competitiveness. Graduates enter the job market with valuable AI skills, driving economic growth and technological advancement.

In contradiction, a focus on AI and technology might divert attention and resources from other essential skills and knowledge areas, depriving learners from formative experiences and learning from iterations of failure. Balancing AI education with a holistic

curriculum that includes critical thinking, creativity, and social-emotional learning becomes crucial.

Conclusion

As the development and integration of AI technologies in education continue to evolve, it is critical G20 nations adopt a harmonized approach to AI governance frameworks. These strategies foster innovations that can increase equity and access to quality education, human-agency, and new AI literacies and skills while safeguarding risks and potential harms. Adopting the recommendations outlined that include guidance frameworks from UNESCO, provides G20 nations a proactive pathway to lead by example and integrate AI in education that addresses ethical, social, and environmental considerations and creating an educational ecosystem aimed at providing quality education to all.

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