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**Questions (feel free to respond to those which are relevant to your work)**

1. Please provide examples of **how AI tools and systems, including generative AI, are used in education** **process and related decision making** in your country, organization or educational institution, with examples of specific software where relevant.
2. Please provide **specific evidence of the known** **impact** of AI tools and systems on learners and teachers and on education systems in general, both positive and negative and explain how the impact is monitored. For example, how does the use of AI affect:
   1. persons with special learning needs, learners with different linguistic and cultural backgrounds, women and girls;
   2. access to education of populations marginalized or underserved due to ethnicity, socio-economic status, displacement and other factors;
   3. human interaction between teachers and students;
   4. students’ and teachers’ human rights, privacy, safety, engagement, agency and critical thinking;
   5. perpetuation of stereotypes and inequalities;
   6. the type of information or disinformation that learners and educators are exposed to;
   7. assessment of learning;
   8. education management.

*1 Level of preparedness of educational institutions****.*** Disparities in AI integration among educational institutions, both within and between countries, could have a negative impact on the right to education (Article 26 UDHR 1948; Article 13 ICESCR 1966). Private schools are more prepared to integrate AI, which may favour privileged students and exclude disadvantaged communities, which in turn may affect the right to work, to equal pay and to protection from unemployment (Article 23 UDHR 1948; Articles 6 and 7 ICESCR 1966) and the right to an adequate standard of living (Article 25 UDHR 1948; Article 11 ICESCR 1966).

*2 Digital divide as a human rights issue.* Even in areas with internet access, many students lack computers and rely on phones to access the Internet (Langendorf and Farley 2021; Reik 2021), limiting their use of EdTech and AI tools, which are primarily designed for computers, and impacting their right to education (Article 26 UDHR 1948; Article 13 ICESCR 1966; Articles 28 and 29 UNCRC 1989), which in turn reinforces existing inequalities and impacts on children's right not to be discriminated against (Article 2 UNCRC 1989) and their right to access information (Article 13 UNCRC 1989). Those with lower digital skills are also disadvantaged, as this hinders their ability to use EdTech and AI tools effectively, and also makes individuals more vulnerable once they are online, which could jeopardise the right of children to be protected from all forms of violence and abuse (Article 19 UNCRC 1989).

3The digital gender divide in the MENA region not only affects women's right to quality education, but also their right to participate in and enjoy culture, art and science (Article 27 UDHR 1948; Article 15 ICESCR 1966), to socio-economic equality (Article 3 ICESCR 1966) and participation in decision-making (Article 21 UDHR 1948; Articles 7 and 8 CEDAW 1979). The fact that women are more likely to experience cyber violence, coupled with the inadequate protection of human rights, including women's rights, in the region, also impacts their right to equality (Article 2 CEDAW 1979) and to a life free from violence (Articles 2 and 3 DEVAW 1979).

*4.Data governance and protection in respect to privacy and freedom of expression.* Data protection policies are scarce in the region, and face many implementation challenges., AI’s dependence on large datasets, coupled with scarce data protection policies and implementation challenges, raises concerns about the right to privacy and freedom from attacks on one's reputation (Article 12 UDHR 1948; Article 17 ICCPR 1966), In a region characterised by weak rule of law and human rights protection AI also open the door to authoritarian abuses in the area of digital surveillance (Kautsch et al. 2022), impacting the right to freedom of opinion and expression (Article 19 UDHR 1948; Article 19 ICCPR 1966).

*5. Language barriers, AI bias and AI talent against education and equality.* The fact that most AI generative tools and EdTech content are primarily available in English impacts the right to inclusive education and may further increase inequalities. Moreover, the absence of Arabic developers and content in AI dataset systems increases the risk of algorithmic bias, which could affect children's right not to suffer discrimination (Article 2 UNCRC 1989).

*6. Cognitive effects of digital technologies in education.* AI integration in education may increase screen time and decrease face-to-face interactions, which could prevent children from developing the social, emotional and communication skills necessary to build healthy social relationships, therefore impacting students' mental health and their right to well-being (Article 25 UDHR 1948, Article 12 ICESCR 1966). This issue, not unique to the MENA region, will depend on whether AI is seen as a tool to enhance or replace traditional face-to-face education.

1. Please provide examples of **legislation, regulations** (including codes of conduct or institutional rules) or **policies** addressing or covering the use of AI in educational context, including **ethical or human rights concerns** around AI development and use, data privacy, bias mitigation, transparency, academic integrit**y**, plagiarism and proper attribution. Is due diligence mandated for the use of AI in educational context? Do students have clear guidance for citing AI usage?

7. Most MENA countries lack regulatory strategies to integrate AI into education, but some MENA countries, notably GCC, are investing in digital infrastructure, teacher training, etc. (Middle East Institute 2021).

A common weakness across the region is the lack of talent working on AI solutions (Tortoise Intelligence 2023). Therefore, a key policy focus is to **cultivate local AI talent** for an increasingly tech-dependent economy (Langendorf and Farley 2021). For example, KSA aims to increase AI literacy in 40 percent of its workforce by incorporating AI into educational institutions (Economist Impact 2022). The country also partnered with Kazakhstan's EdTech startup CodiPlay and Artificially Intelligent Learning Assistant (AILA) to introduce advanced tech to 200 schools (Asia Education Review 2024). The UAE is also increasingly using technology to improve educational outcomes, with plans to introduce generative AI in classrooms (Oxford Business Group 2023).

8. AI integration in education in MENA countries has predominantly focused on talent development, overlooking human rights implications, particularly regarding access to education for disadvantaged groups. The 2023 ALESCO symposium highlighted AI’s potential to address educational challenges and support SDG4 of the 2030 Agenda, yet the region’s digital divide hinders the potential role of AI in reducing inequalities and risks exacerbating existing inequalities.

9. Significantly, the closure of educational institutions during the pandemic and the transition to distance learning exposed disparities in technology and internet access between and within countries. Disadvantaged communities without sufficient access to digital infrastructure, devices or connectivity were particularly affected by school closures (UNHCR 2021). A UNICEF (2020) survey in seven countries[[1]](#footnote-1) of the region highlights that only 55 percent of students aged 5-17 had access to distance learning.

1. Please provide examples of **participation** of teachers, parents, students or communities in the development of nationwide or internal regulations addressing the use of AI in education. What has been the feedback from teachers, students and parents? Are there mechanisms in place to solicit such feedback?
2. How does the education system support management staff, teachers and students in understanding how to use AI and how AI works? Please provide examples and /or texts of curricula that address both the **technological and human dimensions of** **AI competency** (both how it works (the techniques and the technologies) and what its impact is on people (on human cognition, privacy, agency)).
3. Please provide examples of existing **professional development programmes for teachers** to use AI technologies. What training and support are provided to educators to effectively utilize AI tools in their daily work?
4. Please provide examples of policies addressing **gaps and inequalities** in access to necessary conditions for the use of AI in teaching and learning, for instance aimed at reducing the digital divide between students with easy access to AI tools at home and those dependent on school resources? What measures are in place to ensure that trustworthy and pedagogically appropriate AI tools and resources are accessible to all students, regardless of their socio-economic background or geographical location?

10. Policies on AI in education in the MENA region are limited. Current efforts, led by GCC countries, focus on talent development and educational enhancement, but overlook AI’s impact on the right to education.

11. Amid COVID-10, MENA governments launched initiatives to address the digital divide, such as: purchasing devices for teachers and underprivileged students; partnering with telecommunications companies for free access to educational websites; extending electricity hours in refugee camps; broadcasting educational lessons on national media; or enabling access to online learning platforms through mobile phones (Al-Fanar 2020; UNESCO, UNICEF and World Bank 2021; Miwa and Blom 2021). In addition, 33 percent of MENA countries provided digital literacy training for teachers (UNESCO, UNICEF and World Bank 2021).

12. The most compelling cases are found in government’s strategies to address inequalities during the Covid-19 pandemic:

* **Jordan**’s MoE partnered with the Ministry of Digital Economy and Entrepreneurship, and with private companies to create online learning platforms, and repurposed a national TV sports channel for student learning.
* **Egypt** established a e national online knowledge bank, provided extra data for home bundles via Vodafone and aired educational content on national TV.
* **Bahrain’s** Internet provider Batelco offered free browsing on education websites.
* **Iraq’s** Asiacell offered Internet access to educational content for primary and secondary students.
* **Morocco**’s Inwi granted free access to MoE training sites for students.
* **Lebanon** used TV channels for educational broadcasts and the Alsama project streamed English lessons to children in refugee camps.

Source: Farley and Langendorf (2021); Hall et al. (2022).

1. Please provide examples of state-supported **collaboration or partnership** between public educational institutions and corporations producing AI tools for education. Does the education system enforce contracts with specific software providers or is there a choice, at which level and is it informed by feedback from teachers, parents and students, as appropriate? How are data sovereignty and localization being addressed in the context of using international or foreign-developed AI tools in education?
2. What are the main **challenges** encountered during the implementation of AI in education? Have there been any technical, ethical, financial or regulatory hurdles in deploying AI solutions in the educational context?

13. Common policy challenges for AI integration in education can be identified in the MENA region:

**14. Readiness of educational institutions.** In general, public education systems in the MENA region are poorly prepared for AI integration due to limited technology, internet access, and teacher training (Carey Institute for Global Good 2021). While GCC countries show higher tech adoption, with around 80 percent of schools equipped with computers and high-speed internet access, North African and conflict-affected countries lag behind (McKinsey 2017; Hamlaoui and Salah 2021).

Despite differences, internet access is limited across all education levels, suggesting that AI will not become a fundamental element of public schools’ infrastructure in the short term (UNESCO, UNICEF and World Bank 2021; Economist Impact 2022).

**15. Digital divide.** The digital divide in the MENA region is mainly associated with low socio-economic status and rural contexts, as well as gender disparities. There is a large gap in internet use between rural and urban areas, with 82 percent of people in urban areas and 51 percent in rural areas (ITU 2023). In terms of digital infrastructure, only 34 percent of rural households had access to a computer in 2021 (Langendorf and Farley 2021).

16. The gender digital divide is one of the largest in the world. In 2023, 74 percent of men and 64 percent of women used the Internet, respectively, meaning that women were 10 percent less likely to use it than men (ITU 2023). Family dynamics often prioritise male members’ access to computers or mobile phones (Langendorf and Farley 2021, and Al-Khazraji, Al-Breiki and Al-Hosani 2021). In addition, women also face a higher risk of cyber violence (Farley and Langendorf 2021; Al-Sumait 2022).

17. Despite progress, inequalities in internet access in the region are among the highest globally (Arab Barometer 2020; Farley and Langendorf 2021). In 2023, regional internet usage was 69 percent, but with significant variation; the GCC countries had some of the highest rates in the world (Farley and Langendorf 2021), and other countries such as Sudan and Yemen had rates as low as 30 percent (UNICEF 2020; Internet World Stats 2022).

18. While 82 percent of MENA residents own mobile phones (ITU 2023), computer access varies widely. In 2022, 99.5 percent of households in KSA had access to a computer, laptop, or tablet, compared with 27.2 percent in Jordan (ITU 2022). Mobile devices are key to internet access in the region, used by 67 percent of its residents in 2021 (Langendorf and Farley 2021).

19. Despite rising internet access, digital inclusion remains inadequate. Digital literacy is crucial for the effective use of AI tools, and the region faces significant inequalities. In Tunisia, where 16 percent have advanced digital skills, only 20 percent possess basic skills (Farley and Langendorf 2021).

**20. Data governance and protection.** Data privacy concerns are amplified by the lack of comprehensive regulations for personal data protection and digital security. Some countries such as UAE, KSA, Egypt and Morocco have introduced legislation, but enforcement is limited (Economist Impact 2022; Kautsch et al. 2022 Langendorf et al. 2023).

**21. Language barriers, AI biases and AI talent.** The scarcity of Arabic content in the datasets raises concerns about the reliability of AI-generated knowledge about the MENA region, as well as potential biases. The lack of AI tools and EdTech content in Arabic, which partly stems from a shortage of local AI talent, represents a barrier to accessibility and inclusivity (UNESCO, 2021).

As stated in a UNESCO press release in December 2021, ‘for AI systems to be accessible and inclusive, there is a need for AI tools that use native languages and dialects rather than rely on the English language for Natural Language Processing (NLP)’. For AI systems to be useful for the region’s population and to minimise bias, they need to be trained in Arabic-language data. However, Al Muscat (2023) notes that Arabic’s rich morphology and complex syntax pose challenges for language processing.

1. Are there any specific areas within education where you see significant potential for AI integration in the **future**?

22. The potential positive impacts, which are still aspirational given the early stage of AI integration in education and the lack of comprehensive research, are outlined in three sub-paragraphs by following the connections identified by Holmes et al. (2022): learning with AI; using AI to learn about learning; and learning about AI or AI literacy.

*23. Enhancing educational outcomes.* MENA countries often lag behind in global education assessments due to outdated teaching methods and curricula (Hall et al., 2022). AI tools could update MENA education systems by making learning more dynamic and interactive, which could increase student engagement and motivation. A recent study (González, Baren and Zapata 2023) has found that AI can enhance learning by providing wider access to tutoring and mentoring services. However, excessive reliance on AI risks diminishing problem-solving skills.

*24. Supporting teachers*. AI tools could alleviate teachers’ administrative burden by automating tasks like grading, freeing up time for more student engagement, especially in public schools with high student-teacher ratios (Bryant et al. 2022). However, the integration of AI will require rethinking the evaluation and learning and it also raises concerns about AI’s accuracy compared to teachers (Holmes et al. 2019), as well as its potential to change teachers’ role to mere facilitators (Seldon and Abidoye 2018, cited in Holmes et al. 2022).

*25. Tailoring educational content to individual needs*. Research on data-driven AI in education (Ahmed et al. 2020; Hall et al. 2022; Aparicio-Gómez 2023) has found that using AI to collect data on student progress could improve the learning process by informing educators about student’s individual needs and tailoring content accordingly. It could also enable early identification of learning issues, potentially reducing dropout rates. However, concerns persist regarding data privacy and its usage by private entities.

*26. Improving youth employment opportunities.* High youth unemployment in the region is attributed to a skills gap due between education and market demand (Farley and Langendorf 2021). Enhancing AI knowledge could bridge this gap, equipping students with the digital skills sought by employers (Miwa and Bloom 2021; UNESCO, UNICEF, and World Bank 2021)[[2]](#footnote-2). However, AI literacy should extend beyond technical aspects to encompass its societal impact, including human rights considerations.

*27. Facilitating women’s access to the labour market.* Despite comparable education levels, female participation in the labour market is particularly low in the region, especially in STEM fields (World Economic Forum 2020; National Geographic 2022). As highlighted by Afouaiz (2021, cited in Al-Khazraji, Al-Breiki and Al-Hosani 2021), the digital gender gap hinders women's employment opportunities in the era of 4th IR. In this context, AI literacy could potentially improve women's access to the labour market.

1. The survey was conducted with families across 7 countries in the region: Algeria, Egypt, Jordan, Qatar, Morocco, Syria and Tunisia. [↑](#footnote-ref-1)
2. The Information and Communications Technology Association (Int@j) in Jordan, has published several skills gap and labour market assessments and conducted workshops to ensure that the digital skills taught in schools match those required by employers. [↑](#footnote-ref-2)