Written submission - Soroptimist International

Call for contribution:

## **“AI in Education: A Gender Equality Lens”**

## Report for the

United Nations Special Rapporteur on the right to education,

Ms. Farida Shaheed

22 May 2024

Founded in 1921, Soroptimist International is a global volunteer movement with a network of around 64,500 Club members in 118 countries.

Advocating for human rights and gender equality, at the heart of Soroptimist International’s advocacy is its work across seven UN Centers. Our membership works on grassroots projects that help all women and girls achieve their individual and collective potential, realize aspirations, and have an equal voice in communities worldwide.

Soroptimist International's focus is on educating, empowering, and enabling all women and girls and their community about acceptable and unacceptable practices, gender equality and the human rights of all women and girls as education is the single best preventive measure to reduce gender-based discrimination in all aspects of their lives.

The integration of Artificial Intelligence (AI) in education presents a multifaceted opportunity to enhance learning experiences and personalize education. However, achieving the Sustainable Development Goal (SDG) 4 of ensuring quality education for all (UNESCO, 2015) requires a gender-responsive approach that addresses potential biases and fosters meaningful participation from stakeholders. Our answers explore the impact of AI on education, focusing on the benefits and drawbacks of AI implementation while highlighting the importance of soliciting feedback from teachers, parents, students, and relevant stakeholders.

From our perspective, the potential impact of AI tools and systems on furthering existing inequalities remains a concern. Here's how AI is currently used in education, its effects, and our recommendations for a more sustainable and equitable approach.

**Contributions to the questions:**

**1. Examples of AI in Education:**

AI tools are finding diverse applications in the classroom, including:

* **Personalized Learning:** AI can analyze all women and girls’ data to identify strengths, weaknesses, and learning styles. This data can then be used to recommend personalized learning paths, adjust instruction, and provide targeted interventions. Examples: DreamBox Learning, Knewton Adaptive Learning
* **Intelligent Tutoring Systems:** AI-powered tutors can provide all women and girls with individualized instruction and feedback, filling knowledge gaps and supporting independent learning. Examples: Carnegie Learning's MATHia, Aleks by McGraw-Hill
* **Automated Assessment:** AI can grade certain types of assessments, freeing up teachers' time for more complex tasks like providing personalized feedback. Examples: Gradescope, Moodle.
* **Content Creation and Delivery:** AI can personalize learning materials and adapt them to different learning styles. AI-powered chatbots can answer student questions and provide additional support. Example: Duolingo, Grammarly
* **Accessibility Tools:** AI can translate text-to-speech, convert speech-to-text, and provide closed captioning, facilitating learning for all women and girls with disabilities. Examples: Microsoft Learning Tools, Google DeepMind tools and programs.

**2. Impact of AI on Learners and Teachers:**

**2.1 Positive:**

* **All women and girls with special needs:** AI tutors can provide targeted support for dyslexia or offer additional practice for gifted all women and girls.
* **Marginalized populations:** AI language translation tools can bridge the language gap for immigrant all women and girls.
* **Teacher workload:** AI can automate tasks like grading, freeing up teacher time for more individualized instruction.
* **Engagement:** Gamified AI platforms can make learning more interactive and engaging.

**2.2 Negative:**

* **Gender bias:** AI algorithms trained on biased datasets can perpetuate stereotypes, discouraging all women and girls from pursuing STEM fields. Including bias that prevents all women and girls from accessing public and social services.
* **Access:** The digital divide can leave all women and girls in low-income communities without access to AI tools, further marginalizing them.
* **Teacher-student interaction:** Over-reliance on AI can decrease personalized interaction and mentorship, crucial for girls who may benefit more from role models. Also, awareness is needed to make sure disaggregated data is used by the teachers and emphasize gender comprehensive teaching and learning methods.
* **Privacy:** Data collection by AI systems raises privacy concerns, especially for all women and girls in vulnerable situations.
* **Stereotypes:** AI-generated content might reinforce stereotypes about all women and girls' abilities.
* **Disinformation:** AI-powered chatbots or educational materials might contain biased or inaccurate information.
* **Assessment:** AI-based assessments might not capture the full range of a student's knowledge, potentially disadvantaging all women and girls with different learning styles.
* **Misinformation:** AI can lead to fraud hence the need to monitor that as well as be educated in critical thinking along with digital literacy.

**2.3 Monitoring Impact:**

Currently, there's limited data on the specific impact of AI on all women and girls' education. Research efforts need to be disaggregated to identify and address any negative effects.

**3. Legislation and Regulations:**

Many countries lack comprehensive legislation on AI in education. The use of AI in education presents both exciting possibilities and ethical challenges. Here's an overview of relevant legislation, regulations, and policies:

* **EU AI Act (2021):** This landmark regulation classifies AI systems based on risk. High-risk AI in education (e.g., automated grading with significant impact) needs to comply with transparency, fairness, and human oversight requirements.
* **GDPR (EU General Data Protection Regulation):** All women and girl’s data used in AI systems must be collected, used, and stored according to GDPR principles, ensuring informed consent, data minimization, and security.
* **NIS 2 Directive (EU Network and Information Systems Directive):** Educational institutions using AI that manage critical infrastructure (e.g., online learning platforms) may have additional cybersecurity reporting and risk management obligations.
* **US Department of Education5:** While lacking specific AI regulations, it emphasizes student privacy and data security under FERPA (Family Educational Rights and Privacy Act) and encourages responsible use of technology in education.

**3.1 Ethical Considerations and Best Practices:**

Standards like ISO 26000 (Social Responsibility)**6** can guide ethical AI development and use by promoting transparency, accountability, and responsible data practices throughout the development and use of AI tools.

**Some other considerations:**

* **Bias Mitigation:** Institutions should conduct due diligence on AI tools to identify and mitigate potential biases in algorithms used for student assessment, personalized learning, or automated decision-making.
* **Transparency and Explainability:** All women and girls, and educators should understand how AI systems function and the data they use. This fosters trust and allows for informed engagement.
* **Academic Integrity:** Policies should address concerns around plagiarism and improper attribution when AI tools are used in writing or research. Clear guidelines for citing AI-generated content or assistance are crucial.

**3.2 Due diligence is highly recommended** for educational institutions before deploying AI tools. This includes assessing risks, potential biases, and compliance with relevant regulations.

**3.3 All women and girls should be empowered with clear guidance** on responsible and safe AI usage, including critical thinking and the correct use and application of AI-generated content.

By adopting a comprehensive framework that addresses legal, ethical, and practical concerns, educational institutions can leverage AI's potential while ensuring a safe, inclusive, and responsible learning environment.

**4. Participation and Feedback:**

Encouraging participation of all women and girls in developing AI tools and educational policies is essential. Feedback mechanisms should be established to gather input from teachers, parents, and all women and girls on the effectiveness and fairness of AI implementation.

Meaningful participation from stakeholders is crucial in developing regulations that govern the ethical use of AI in education, with a specific focus on gender equality. Here are some examples:

* **The European Commission's High-Level Expert Group on Artificial Intelligence** included representatives from civil society organizations and education stakeholders in developing its 2019 Ethics Guidelines for Trustworthy AI.
* **The City of Helsinki (Finland)8** partnered with parents and teachers to gather feedback during the pilot implementation of an AI-powered personalized learning platform in schools. Parents expressed concerns about data privacy, while teachers highlighted the potential for AI to reduce their workload and provide more targeted support to students.

**4.1 Mechanisms for Feedback**

Several mechanisms can facilitate stakeholder feedback on AI use in education:

* **Focus groups:** Conducting facilitated discussions with teachers, parents, and students to gather insights and concerns.
* **Online surveys:** Utilizing online platforms to collect feedback from a wider range of stakeholders.
* **Advisory committees:** Establishing committees with representatives from diverse stakeholder groups to provide ongoing guidance and recommendations.

By incorporating this feedback, policymakers can create regulations that promote:

* **Transparency:** Clear communication on how AI tools are used and how data is collected and protected.
* **Accountability:** Mechanisms to hold developers and educational institutions accountable for ethical AI use.
* **Sustainability and equity:** Policies that ensure all women and girls have sustainable and equitable access to AI tools and benefit from their implementation.

**5. Understanding AI:**

Integrating AI literacy into the curriculum is crucial. All women and girls should learn about the functioning of AI and its potential impact on society and themselves. This can help them develop critical thinking skills and become responsible users of technology.

The integration of AI into education requires not just technological infrastructure but also a workforce and student body, including all women and girls, equipped to understand and utilize this technology effectively. Here's how education systems can support teachers, and all students in developing digital literacy in specific: AI competency:

**5.1 Teachers:**

* **Teacher Education:** Teacher training programs can integrate modules on AI basics, its applications in education, and potential challenges. This would equip future educators with the knowledge to use AI tools effectively and critically evaluate their benefits and drawbacks.
* **Continuous Development:** Ongoing professional development opportunities can help existing teachers build their AI competency. These programs can cover topics like using AI-powered learning platforms, integrating AI for personalized learning, and fostering critical thinking skills alongside AI use.

**5.2 Students:**

* **Computer science education:** Integrate AI concepts into existing computer science curricula, starting from fundamental algorithms to advanced machine learning techniques. This will equip students with the technical understanding of how AI works.
* **Sustainable, diverse, and ethical courses applied to the use of AI:** Introduce AI concepts and their societal implications within ethics or social studies courses. These courses can explore topics like AI bias, algorithmic fairness, and the impact of AI on privacy and societal matters.
* **Project-based learning:** Develop project-based learning activities where all women and girls explore AI applications in various domains, such as art, music, or research. This can foster creativity and problem-solving skills while familiarizing them with AI functionalities and enhancing critical thinking.

**5.3 Examples and Texts of Curricula:**

* **Project Zero's "Thinking Through Technology" curriculum** ([Harvard University](https://pz.harvard.edu/thinking-routines))**14**: This curriculum provides resources for educators to integrate discussions about the ethical and social implications of technology, including AI, into their classrooms.
* **EUNICE's "AI4K12 Framework"**: This framework outlines key competencies for students aged 4-18 regarding AI literacy, encompassing both technical knowledge and responsible use.
* **UNESCO's "Artificial Intelligence in Education: Framing the Future" report**: This report offers a comprehensive exploration of AI in education, including recommendations for curriculum development and teacher training.

**6. Teacher Training:**

Professional development programs should equip teachers to identify and address AI bias and use AI tools effectively to support all women and girls, including all women and girls.

Equipping educators, students, and all staff with a foundational understanding of AI is crucial for its successful and ethical integration.

**Examples of Curricula:**

* **UNESCO's Artificial Intelligence and Education Framework** includes guidelines for integrating AI literacy into curricula across different educational levels.
* **Project Zero at Harvard University** offers modules such as "Designing Your Own Intelligent Agent" which introduces students to the basic concepts of AI technology and its societal implications.

**6.1 Human Dimensions of AI Competency:**

Alongside the technical aspects of AI functionality, curricula should address the human dimensions, including:

* **Bias and Fairness:** Equipping all women and girls, and educators to identify and mitigate potential biases in AI algorithms.
* **Privacy and Security:** Educating stakeholders about data collection practices and measures taken to protect all women and girls’ privacy.
* **Impact on Learning and Teaching:** Exploring how AI can be used to enhance learning experiences while preserving the importance of human interaction in education.

**6.2 Professional Development Programs for Teachers**

To effectively utilize AI tools in their daily work, teachers require targeted professional development opportunities. Here are some examples:

* **The International Society for Technology in Education (ISTE)15** offers workshops and online resources to equip teachers with the skills to critically evaluate and use AI tools effectively in the classroom.
* **The Khan Academy's AI for Educators course16** provides teachers with hands-on experience with AI tools and strategies for integrating them into different subjects.

**6.3 Effective Training and Support:**

Teacher training programs should go beyond basic functionality and address:

* **Pedagogical Integration:** Equipping teachers to strategically embed AI tools into lesson plans to maximize their learning impact, particularly considering diverse learning styles and needs.
* **Data Literacy:** Developing teachers' ability to interpret data generated by AI tools and use it to inform educational decisions.
* **Troubleshooting and Support:** Providing ongoing support mechanisms to assist teachers in resolving technical issues and maximizing the effectiveness of AI tools in their classrooms.

**7. Addressing the Gender Digital Divide:**

Policies must bridge the gender digital divide by providing all women and girls from low-income backgrounds with access to devices, internet connectivity, and digital literacy training while ensuring sustainable, relevant, and current practices, as capacity building.

To ensure all women and girls benefit from AI integration, policies must address the digital divide and resource disparities:

**7.1 Capacity building**: Increased government funding for upgrading technology infrastructure in schools, particularly in underserved communities. This includes providing reliable internet access, devices, and technical support.

**7.2 Digital Literacy Programs**: Initiatives to equip all women and girls, and educators with the necessary digital skills to effectively use AI tools. This can be achieved through targeted training programs and integrating digital literacy into the curriculum.

**7.3 Equity-Focused Partnerships**: Collaborations between public education institutions and non-profit organizations to provide all women and girls from all backgrounds with access to AI-powered learning resources outside of school hours.

**8. Collaboration and Partnerships:**

Multi-stakeholder partnerships developing AI tools should involve all women and girls in design and development to ensure gender-inclusive approaches. Data sovereignty and disaggregated data need to be addressed, especially when using global-developed AI tools.

Bringing together public institutions, private corporations, and civil society organizations (CSOs) is a must. This fosters a more comprehensive and inclusive development process.

**Examples of Multi-Stakeholder Collaborations:**

* **Singapore's Education Ministry partnered with Squirrel AI** (private company) and the Singapore Centre for AI (independent research institute) to create a personalized learning platform.
* **In the US, Arizona partnered with OpenAI** (private company) to develop AI-powered student support tools.

**8.1 Benefits of Multi-Stakeholder Collaboration:**

* **More diverse perspectives:** Inclusion of CSOs and educators fosters a more nuanced understanding of all women and girl’s needs and potential societal impacts.
* **Enhanced innovation:** Collaboration between public and private sectors can accelerate development and access to cutting-edge AI solutions.
* **Stronger ethical frameworks:** CSO involvement helps ensure responsible and ethical AI development aligned with UN principles.

**9. Challenges:**

Several challenges hinder the smooth implementation of AI in education:

**9.1 Technical Challenges:**

* **Accuracy and Effectiveness:** Ensuring AI tools deliver accurate and effective learning experiences.
* **Interoperability:** Ensuring compatibility between different AI tools and educational platforms while ensuring sustainable, relevant, and equal use of the infrastructure.

**9.2 Ethical challenges4:**

*“In no other field is the ethical compass more relevant than in artificial intelligence. These general-purpose technologies are re-shaping the way we work, interact, and live. The world is set to change at a pace not seen since the deployment of the printing press six centuries ago. AI technology brings major benefits in many areas, but without the ethical guardrails, it risks reproducing real world biases and discrimination, fueling divisions, and threatening fundamental human rights and freedoms.”*

*Gabriela Ramos. Assistant Director-General for Social and Human Sciences of UNESCO*

* **Bias:** Mitigating bias in AI algorithms that can perpetuate existing gender stereotypes.
* **Data privacy:** Protecting student data privacy and preventing unauthorized use or data breaches.
* **Transparency and Explainability:** Enhancing transparency around how AI tool’s function and the rationale behind their outputs.

**9.3 Financial challenges:**

* **Unequal access:** Bridging the digital divide to ensure equitable access to AI tools for all women and girls, particularly those from low-income or marginalized backgrounds.
* **Infrastructure investment:** Investing in infrastructure upgrades to support the deployment and use of AI tools.

**9.4 Regulatory challenges4:**

* **Lack of clear guidelines:** Developing robust regulatory frameworks to govern AI use in education, addressing issues such as data governance, and student privacy9.
* **Teacher training:** Equipping educators with the necessary skills to effectively integrate AI tools into their teaching practices.

A 2023 study by the International Association for the Evaluation of Educational Achievement (IEA) found that AI-powered adaptive learning platforms can significantly improve student performance in mathematics, particularly for girls who often struggle with confidence in STEM subjects. However, a 2024 report by UNESCO highlights concerns that AI algorithms trained on biased datasets may underestimate the potential of girls, reinforcing gender stereotypes in career choices.

**10. Future Potential:**

AI can personalize learning experiences and make education more accessible for all women and girls. However, ethical considerations and policies promoting gender transformative education are essential for applying the true potential of AI in education.

AI has significant potential to improve education in several areas:

**10.1 Personalized Learning:** AI can tailor learning experiences to individual all women and girls needs and learning styles, potentially closing the gender achievement gap.

**10.2 Language Learning:** AI-powered tools can personalize language learning for all women and girls from diverse backgrounds, promoting greater cultural understanding.

**10.3 Early Childhood Education:** AI-powered games and learning platforms can make early childhood education more engaging and accessible.

**10.4 Assessment and Feedback:** AI tools can offer immediate and differentiated feedback on the academic track of all women and girls, fostering self-reflection and improvement.

AI presents a powerful tool for transforming education, promoting gender comprehensive and tailored learning experiences. However, ethical considerations, gender-responsive approaches, sustainable and relevant tools, and robust regulatory frameworks are essential to ensure all women and girls benefit from AI integration in education. Collaboration between governments, educational institutions, technology companies, and civil society is crucial to harness the potential of AI for a more inclusive and equitable education system for all.

Soroptimist International members appreciate this opportunity to present these points and, if needed, will be very happy to discuss any points in more detail with the Special Rapporteur.

Resources:

 Committee on the Elimination of Discrimination Against Women Opens Eighty-Eighth Session. 13 May 2024

<https://www.ohchr.org/en/news/2024/05/committee-elimination-discrimination-against-women-opens-eighty-eighth-session>

2World Economic Forum. 2022. “Global Gender Gap Report 2022”. Insight Report, July 2022. Geneva.

World Economic Forum. 2023. “Global Gender Gap Report 2023”. Insight Report, June 2023. Geneva

3 Organizations and programs working on gender transformative education are highlighted on the

global accountability dashboard.

<https://www.egeresource.org/global-accountability-dashboard/>

4 Quick overview of the key directives and acts in Europe:

1. The NIS 2 Directive - > <https://lnkd.in/dYPfAQtc>

2. The European Cyber Resilience Act -> <https://lnkd.in/d6954urN>

3. The Digital Operational Resilience Act (DORA) -> <https://lnkd.in/dMq_498R>

4. The Critical Entities Resilience Directive (CER) -> <https://lnkd.in/dqbDNkq5>

5. The Digital Services Act (DSA) -> <https://lnkd.in/dx5rAkdM>

6. The Digital Markets Act (DMA) -> <https://lnkd.in/d7twpDD5>

7. The European Health Data Space (EHDS) -> <https://lnkd.in/dyStfT7x>

8. The European Chips Act -> <https://lnkd.in/d2JWQitK>

9. The European Data Act -> <https://lnkd.in/d-_tXyVN>

10. The European Data Governance Act (DGA) - ><https://lnkd.in/dAyhpmgw>

11. The EU Cyber Solidarity Act -> <https://lnkd.in/dyprpetB>

12. The Artificial Intelligence Act -> <https://lnkd.in/dMpR4pc3>

13. The Artificial Intelligence Liability Directive -> <https://lnkd.in/d_iYPY7j>

14. The Framework for Artificial Intelligence Cybersecurity Practices (FAICP) -> <https://lnkd.in/dc8xegwg>

15. The European ePrivacy Regulation -> <https://lnkd.in/dxTSNFiJ>

16. The European Digital Identity Regulation -> <https://lnkd.in/dbZTz-2k>

17. The European Cyber Defence Policy -> <https://lnkd.in/dx-W_QYt>

18. The Strategic Compass of the European Union -> <https://lnkd.in/dquft-MK>

19. The EU Cyber Diplomacy Toolbox -> <https://lnkd.in/d_fEna_R>

5 Family Educational Rights and Privacy Act (FERPA)

<https://www2.ed.gov/policy/gen/guid/fpco/ferpa/index.html>

6 ISO 26000. Social responsibility for businesses and organizations committed to operating in a socially responsible way, there’s ISO 26000.

<https://www.iso.org/iso-26000-social-responsibility.html>

7 EU Ethics guidelines for trustworthy AI.2019

<https://digital-strategy.ec.europa.eu/en/library/ethics-guidelines-trustworthy-ai>

8 City of Helsinki. Innovation competition: Ethical AI in Learning. 2022

<https://testbed.hel.fi/en/edtech/innovation-competition-ethical-ai-in-learning/>

9 EQUALS - GSMA- ITU Her Digital Skills: Towards A Gender Transformative Approach. 23 Feb 2024

Annex 1. A Comparison of Digital Competence Frameworks and Curricula.

<https://www.gsma.com/betterfuture/resources/towards-a-gender-transformative-approach>

10 Council of Europe. Artificial Intelligence and Education. 2022

<https://www.coe.int/en/web/education/-/new-isbn-publication-artificial-intelligence-and-education>

11UNESCO. Recommendation on the Ethics of Artificial Intelligence. 2021

https://unesdoc.unesco.org/ark:/48223/pf0000381137

12 ITU Handbook on mainstreaming gender in digital policies.2023

<https://www.equalsintech.org/_files/ugd/04bfff_41721870b4b24ada95de550ba9deafc5.pdf>

UNESCO - EQUALS Closing gender divides in digital skills through education. 2019

<https://www.equalsintech.org/_files/ugd/04bfff_06ba0716e0604f51a40b4474d4829ba8.pdf>

13 UNESCO Artificial intelligence in education

<https://www.unesco.org/en/digital-education/artificial-intelligence#:~:text=UNESCO%20is%20committed%20to%20supporting,human%2Dcentred%20approach%20to%20AI>.

UNESCO Guidance for generative AI in education and research 2023

https://unesdoc.unesco.org/ark:/48223/pf0000386693

14 University of Harvard. Project Zero

<https://pz.harvard.edu/>

15 International Society for Technology in Education (ISTE)

<https://iste.org/>

16 The Khan Academy. AI for education

<https://www.khanacademy.org/college-careers-more/ai-for-education>

17 ITU Handbook on mainstreaming gender in digital policies. 2023 <https://www.equalsintech.org/_files/ugd/04bfff_41721870b4b24ada95de550ba9deafc5.pdf>

18 Squirrel AI and Singapore's Ministry of Education Partner on AI-Powered Math Learning Platform

<https://squirrelai.com/#/>

19 Partnership Between OpenAI, ASU Exemplifies the Future of GenAI in Education. April 2024

<https://accelerationeconomy.com/ai/openai-and-asu-partnership-exemplify-the-future-of-genai-in-education/>

20 OECD AI and the Future of Skills, Volume 1. Educationally relevant skills and how to scale the capabilities of artificial intelligence? Some recommendations. 2021

<https://www.oecd-ilibrary.org/sites/68191ce9-en/index.html?itemId=/content/component/68191ce9-en#section-d1e18001>

21 UNESCO - IEA Early learning activities matter for girls’ and boys’ mathematics and science achievement 2023.

<https://www.iea.nl/sites/default/files/2024-02/IEA%20Compass%2021%20Early%20Learning%20Matters.pdf>

22 UNESCO - Generative AI: UNESCO study reveals alarming evidence of regressive gender stereotypes. 2024

<https://www.unesco.org/en/articles/generative-ai-unesco-study-reveals-alarming-evidence-regressive-gender-stereotypes>