

Open Science to Achieve United Nations 2030 Agenda

Rita Luthra, President, Women's Health and Education Center (WHEC)

Abstract

Openness in science is an essential component of the scientific process. Making science more accessible, affordable, inclusive and equitable, especially in health and education sectors, is the way forward – and achieving Sustainable Development Goals (SDGs) 3, 4, and 5 by 2030. We suggest avenues for providing Universal Health Care (UHC), online quality educational platforms and use of artificial intelligence (AI) and Big Data management for low- and middle-income countries to accelerate SDGs.

Science, Technology and Innovation (STI) for Building Back Better

The United Nations 2030 Agenda – is a plan of action for people, planet and prosperity. It also seeks to strengthen universal peace in larger freedom. We recognize that eradicating poverty in all forms and dimensions, including extreme poverty, is the greatest global challenge and an indispensable requirement for sustainable development.¹

Initiatives of Women's Health and Education Center (WHEC) have an unique role to play in strengthening the health and educational systems worldwide. Cultural diversity is now the norm in each and every country. The e-Health, e-Learning and Mobile Health, are providing healthcare services and achieving better health outcomes, in both developed and developing countries. Access to reliable *Broadband Internet*, is becoming essential to Education & Health Sectors, in every country – rich and poor alike.

Imagine, students in developing and developed countries, simultaneously reviewing the same medical education, and learning from each other. That is, e-Learning at its BEST, in an *Internet Classrooms*. With this goal, Women's Health and Education Center (WHEC) in collaboration with the Department of Public Information of the United Nations (UN) has launched an Global e-Health Platform, <http://www.WomensHealthSection.com>, in six official languages of the United Nations. Its work began on 24 October 2002. Today, we are serving in 227 countries and territories via, Global Internet Locations of [WHEC's Global Health Line \(WGHL\)](#). Our special focus is on Sustainable Development Goals # 3, 4, 5, 6, 10, 16 and 17.

Artificial Intelligence (AI) and Big Data presents opportunities for the advancement of all 17 SDGs and offers vast analytical possibilities to track and monitor progress of SDG indicators² (Letouzé, 2015; Wu et al., 2020).

¹UN 2030 Agenda positions public-private partnerships as a win-win partnership under the structure of corporate social responsibility.

²There are predictions that AI and Big Data may have negative economic and social impacts on developing nations in the near future, by reducing employment.

STEMM Programs for Girls, Women and Marginalized Population

STEMM (Science, Technology, Engineering, Mathematics, and Medical) Projects/Programs, with special focus on girls, women, migrants and marginalized population in improving affordability and accessibility, are at the core of these Initiatives. Digital technology does not exist in vacuum – it has enormous potential for positive change, but can also reinforce and magnify fault lines and worsen economic and other inequalities, as exemplified by the current pandemic. Our world needs science, and science needs girls, women and minorities. The COVID-19 pandemic has revealed the importance of STI for humans' well-being and survival, as well as a need for greater global cooperation.³

Science and Knowledge Translation & Dissemination

Sexual and reproductive health is critical to health and wellbeing across the life course, and therefore has to be embedded and integrated with universal health care and universal access to all. [Science and Knowledge Translation](#) in reproductive health research and [dissemination](#), exchange and clinical application of scientific knowledge with the healthcare providers worldwide and communities, is the purpose of WHEC's [LINK Access Project](#). Learning, Innovating, Networking for Knowledge (LINK) access project/program was launched in collaboration with the Reproductive Health Research Division of the WHO in 2013. It encourages dialogue between developing and developed countries with special focus on SDGs 3, 4, 5, and 17, to improve health and educational systems.

LINK Access Project – *To provide access to reproductive health research worldwide*, presented by WHEC in 2018 High-Level Political Forum (HLPF) Side Event 'Effective tools employed by Major Groups and other Stakeholders in the 2030 Agenda implementation, follow-up and review' SDGs Learning, Training and Practice, on July 10, 2018, has potential of making the scientific processes more transparent, inclusive and democratic. **LINK Access Project** – aims to provide access to quality health and educational programs and the best practices, in collaboration with the WHO and UNESCO. WHEC provides **free access** to educational and reproductive health research programs and courses to the Least Developed Countries (LDCs), identified by the United Nations Development Programme (UNDP).

<http://www.womenshealthsection.com/content/cme/>

By promoting science that is more accessible, inclusive and transparent, open science furthers the right of everyone to share in scientific advancement and its benefits as stated in Universal Declaration of Human Rights.⁴ Open science encourages scientists to develop tools and method for managing data so that as much as possible can be shared, as appropriate.

- ³ UNESCO 2021 Recommendations on open science is the first international standard setting instrument on open science.
- ⁴ Universal Declaration of Human Rights; Article 27.1; Our interconnected world needs open science to help solve complex social, environmental, and economic challenges and achieve the SDGs.

Figure 1. Objectives and Announcement/Invitation of Virtual Side Event 3 May 2023;
<http://www.womenshealthsection.com/content/whec/sti.php3>

TECHNOLOGY
FACILITATION MECHANISM

SUSTAINABLE DEVELOPMENT GOALS

8th Multi-stakeholder STI Forum—2023
Virtual Side Event
Open Science to Transform Health and Education Systems

Date: 3 May 2023 Time: 8:30 am to 9:45 am (EST)
 The objectives of this Virtual Side Event, is to share:

- The experiences of various technological solutions, in improving the affordability and accessibility of quality education and healthcare services for all .
- The Experts and Speakers, will highlight, how to best apply technology in the learning process. It is the poor and marginalized in our society and in our world, who have the most to gain, from the advances in science, technology, innovation, affordable e-Health & e-Learning—sadly—at this point, they are often the groups, who benefit the least.
- STI Solutions for the Least Developed Countries (LDCs) – Lessons Learned from Pandemic.
- Countries should take rapid actions towards the *Broad Band Internet* connectivity to their population.
- Women’s Health and Education Center (WHEC) with its partners, will continue to support country actions, & strengthen inclusive digital learning platforms and high quality information , world wide.

Open Science - a way forward!

Speakers / Presenters: World Health Organization (WHO) and Carnegie Mellon University (Pittsburgh, USA and Africa)

<http://www.WomensHealthSection.com>
 Women’s Health and Education Center (WHEC) - Continuing Medical Education -
 Continuing Medical Education (womenshealthsection.com)
 All Are Welcome

Open Science Capacity Building Efforts

Our *Open Science* projects/programs are based on the concepts of equity and inclusiveness:

- Respecting ethical considerations of producing and using open resources;
- Opening access while respecting intellectual property and other applicable legislations;
- Building inclusive governance of *Open Science Infrastructure*; and
- Creating two-way engagement with those affected by the policy.

[UNESCO’s efforts and our collaboration with UNESCO](#), will be helpful in developing and enabling policy environment for *Open Science*, AI applications and Big Data Governance.

Building The Capacity to Care – Collaboration with WHO and WHO Academy – To Achieve SDG 17

Health Promoting Schools – Each year up to 1 billion children experience some form of physical, sexual or psychological violence or neglect.⁵ Being a victim in childhood has lifelong impacts on education, health and well-being.⁵ Our webinars, Side Events at the United Nations, and literature reviews, aim to give readers and participants about everything schools can do to prevent violence and addressing violence at school level to strengthen existing interventions. It provides guidance on strategies that schools can use to increase parent and community engagement in school health portion activities.⁶

⁵. Notwithstanding, a number of questions emerge, such as who should bridge this divide? As gaps prevent developing countries adequately assessing their citizen's needs.

⁶. Collaboration with the private sector is essential to ensure that the progress positively contributes towards the SDGs.

[WHEC's e-Learning, e-Health and e-Government Initiative:](#)

Improving Global Partnerships for Education and Health (2022 HLPF).

[WHEC's proposal presented during 2022 HLPF](#) for **SDGs: 3, 4, 5, 10 and 17.**

Recommendations

Open science and utilizing AI and Big Data is necessary in achieving the SDGs, especially SDGs 3, 4, 5, and 17. It requires the construction of dynamic, robust and inclusive *Infrastructure* and *Capacity Building*. If we wish to leave no one behind, we must ensure that we give voice and work to all. Moving governance away from private companies, private-public partnerships or impartial algorithms towards an economy of information that is open and transparent in civic engagement. This process should be rooted in the three pillar concepts of international data justice (Taylor, 2017), that would integrated transnational data rights and privacy-based freedoms into publicly owned data systems and analytics.⁷

When open-science, artificial intelligence and big data meet the social reality of human coordination and governance, it becomes more sustainable, and might help to close digital divide. In summary, our recommendations are:

1. The United Nations and its Agencies, like WHO and UNESCO, should provide the required funding to close the digital divide between developing and developed countries.
2. Algorithmic Accountability programs and Data-ecosystem, to ensure AI-based systems in health and education sectors, do not reinforce institutional bias, unequal power structures and inequalities. ⁸ Establish consistent systemic examination of pre-, in-, and post-processing method of data by AI.
3. Data Co-operatives for data management storage, with their obligation solely towards benefiting its members. Fund and/or provide required training to these co-operatives that allow them to operate independently.
4. Advance and establish effective good digital governance procedures and regulatory policies, which establish accountability for global societal data.
5. Ensure data-cooperatives and their practitioners are vital stakeholders in designing and implementing policies related to future SDGs decision-making.
6. Data-Colonialism has the possibility of drawing developing states into asymmetrical Global North-South trade and investment scenarios. Fund and/or provide NGOs and government partnerships to construct and scale up data co-operatives to foster community-driven data sovereignty – a concept of a 'property-owning democracy.'

⁷ Data-ecosystem is a platform that combines data and information from numerous providers and constructs value through their process and usage.

⁸ The EU's General Data Protection Regulation (GDPR) (GDPR 2021), Strategy for Data (EC, 2020) and the Data Governance Act (EC, 2021), provides a governance framework for national data sovereignty.

<https://eur-lex.europa.eu/homepage.html>

Conclusion

[The WHEC with WHO Academy](#) aims to reach millions of people worldwide, offering high-tech learning environments. Providing learning opportunities for leaders, educators, researchers, healthcare workers, WHO staff and the broader public, and will deliver quality, multilingual learning, both online and in-person, alongside a cutting-edge simulation center for health emergencies.

Quality education and providing timely evidence-based information in health-sector, which is accessible to all, and reliable disaggregated data will be needed to help with the measurements of progress of United Nations 2030 Agenda, especially in health and education sectors. To ensure that no one is left behind, open science, AI and Big Data management will be the key to the decision-making process, in the future. The utilization of AI and Big Data can be capitalized upon through the construction of dynamic, robust and inclusive public data ecosystems, via UN funded data co-operatives and algorithmic accountability programs.

References

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