

Seventh annual Multi-stakeholder Forum on Science, Technology and Innovation for the Sustainable Development Goals

Thematic Session 2: Innovations in education: towards quality access and common good

(16:00 - 17:00pm EDT, 5 May 2022)

Background

Quality education, including early childhood education, is a fundamental human right; it is a prerequisite for many long-term opportunities, and can serve as a societal equalizer. At the same time, progress in this area has been lagging. Even before the pandemic, the world was not on track to achieve SDG targets for school enrollment and literacy by 2030. The pandemic has been the single largest disruptor to education systems in history, impacting over 90% of students globally with school closures.ⁱ One year into the pandemic, close to half of all students were still affected by partial or total school closures. As a result, it is estimated that more than 1 billion children are at risk of falling behind, while over 100 million additional children will fall below the minimum proficiency level for reading.^{ii,iii} The World Bank estimates that students currently in school stand to lose a cumulative \$17 trillion in lost labor earnings over their work life due to school closures.^{iv} Some estimates suggest that COVID-19 has wiped out 20 years of education gains. Many children also suffer from mental health issues due to increasing isolation. These negative impacts have disproportionately affected vulnerable communities including developing countries, low-income households, women and girls, persons with disabilities, migrants, and refugees.

To mitigate the impact of the pandemic, many countries used new information and communication technologies (ICTs) to continue education through home schooling. The latest digital education technology solutions (edtech) disseminated via phone applications, TV and radio have expanded in many countries to support distance learning. These technologies have the potential to make education more interactive with more hands-on experience, for example through the Virtually Integrated Projects (VIP) model.^v They can also enhance tailored, personalized teaching as seen with Khan academy.^{vi} Such technologies enable students to learn essential 21st century skills including creativity, collaboration, communication, technology literacy and flexibility.

On the other hand, while technologies can facilitate interactive learning and help ameliorate the impacts of school disruptions, they often leave behind households with limited technology access and low-income countries, which struggle with lower digital connectivity overall. UNESCO estimates that half of all global learners do not have a household computer and 43% have no household internet access.^{vii} Furthermore, 37% of the world's population – or 2.9 billion people – have never used the Internet; 96% live in developing countries, highlighting the critical impacts of the digital divide. School closures are particularly problematic in places where students are unable to continue their studies virtually, not only because students stop learning, but because they tend to forget some of what they had learned previously. Dropout rates are likely to increase particularly among vulnerable populations including girls and marginalized communities.^{viii}

Despite recent advances in edtech and distance learning, there is no empirical evidence that digital solutions can replace traditional education, teachers, and practical skills training.^{ix} There is an urgent need to bolster global education systems through human-centered approaches, improved teaching methods and formative assessments. Improving the efficacy of digital solutions will require better digital infrastructure, particularly in developing countries, and support of private sector initiatives to build human-centered and inclusive ed-tech solutions and other innovations.

The Secretary General of the UN calls for transformative changes in education to address the current learning crisis. This is considered to be part of a broader challenge rooted in the limited ability of conventional education systems to equip children, youth and adults with the competences, knowledge, outlook, values and skills to “excel in today’s world and contribute to sustainable, healthy and peaceful futures”.^x UNESCO’s landmark report on the futures of education noted that ‘far too often, formal learning does not meet the needs and aspirations of children and youth and their communities’.^{xi}

This calls for innovations not only in content or digital provision, but also in the learning models and learning ecosystems. The system needs to be able to impart not only technical and core skills needed in labour markets, but also to impart competences, attitudes, values, and personal traits which, among others, nurture creativity, discovery, and innovation. Education systems should promote human agency to shape the future and make humans resilient and able to cope with crisis.^{xii}

To transform education systems in a way that helps enable opportunities and balance inequalities, new technologies should strive to narrow, and not widen disparities. Curricula can be designed to prepare students and youth for future market needs in a changing global economy, including by emphasizing STEM education, especially among women and girls. Innovations in teaching and learning, such as active learning and the use of artificial intelligence can help tailor online learning, especially for underserved children and adults to address a range of equity and equality issues. In the context of digitalization, strategic pedagogical approaches can enable teachers to improve learning models, for example by emphasizing theory of knowledge, and teaching students how to filter materials and recognize misinformation. Collaborative approaches and inclusive methods can help prepare the next generation to innovate solutions for addressing social and economic challenges and inequalities to build a more sustainable future.

Objectives and potential key messages

This session will discuss challenges in achieving SDG 4 on education, particularly in light of the pandemic, which has been the largest disruptor to education in history. It will discuss new technologies, digitalization strategies, and innovations in education and skills development systems to improve access and quality. The session will discuss the challenges, opportunities, and beneficial practices that have emerged through recent and imminent new technologies and approaches. Lastly, speakers will discuss good practices and new innovations that can help transform global education systems to better prepare youth for a sustainable and inclusive future.

Format

The session will be structured as a moderated panel discussion (5 minutes per panelist), the panel discussion will be followed by interactive discussion. After their intervention, the moderator will take comments and questions from the audience.

Guiding questions

The discussion will be guided by the following questions:

- What key technologies and innovations have emerged in education due to the pandemic? What specific solutions and approaches have been successful in developing countries given the challenges of the digital divide? How have digital technologies met the pedagogical challenge?
- What lessons can we take away from the remote learning and home-schooling experience? Will distance learning have a place in the future of education?
- How can decision-makers transform education, skills development systems, and learning models to develop human creativity, human resilience and human agency, as well as tolerance and responsible behaviour to support sustainable development.
- What are the new roles and functions of teachers and trainers in education and skills development system adopting digital technologies and implementing digital skills development strategies? How can teachers and trainers best prepare for these new roles’
- How can private sector initiatives support ed-tech solutions, innovations, and tailored support to special cases such as underprivileged communities and teaching during crisis situations? How can private sector entities employ a human-centered and inclusive approach?
- How can technology-supported learning enhance STEM education so that students develop a broad mix of hard and soft skills?
- Looking forward, how can the UN contribute to transforming education systems overall to be more inclusive, effective, and sustainable? Are there particular topics that benefit global curricula? Are there innovative approaches that could improve efficacy, inclusion, and sustainability? How can national STI roadmaps contribute to supporting innovative education?

ⁱ Our Common Agenda

ⁱⁱ UNICEF (2020). Education and COVID-19. <https://data.unicef.org/topic/education/covid-19/>

ⁱⁱⁱ UNESCO (2021). 100 million more children under minimum reading proficiency level due to COVID-19. <https://en.unesco.org/news/100-million-more-children-under-minimum-reading-proficiency-level-due-covid-19-unesco-convenes>

^{iv} World Bank (2022). The global education crisis – even more severe than previously estimated. <https://blogs.worldbank.org/education/global-education-crisis-even-more-severe-previously-estimated>

^v <https://www.vip.gatech.edu/>

^{vi} <https://www.khanacademy.org>

^{vii} UNESCO (April 2020). Startling digital divides in distance learning emerge. <https://en.unesco.org/news/startling-digital-divides-distance-learning-emerge#:~:text=Half%20of%20the%20total%20number,continuity%20in%20the%20vast%20majority>

^{viii} Center for Global Development (July 2020). Six ways COVID-19 will shape the future of education. <https://www.cgdev.org/blog/six-ways-covid-19-will-shape-future-education>.

^{ix} Center for Global Development (July 2020). Six ways COVID-19 will shape the future of education. <https://www.cgdev.org/blog/six-ways-covid-19-will-shape-future-education>.

^x [*_pFx1aVNyRHGFvVPCuPd_Transforming-20Education-20Summit-202022_Note-20on-20Preparatory-20Arrangements.pdf](https://www.un.org/News/Press/docs/2022/2201/220101.unsgsm.smt.20220101.docstxt.pdf)

^{xi} UNESCO: Reimagining our futures together: a new social contract for education <https://en.unesco.org/futuresofeducation>

^{xii} Richard Sennet 2008 The Craftsman ; Literature on humanistic education ;