United Nations Transforming Education Summit

Thematic Action Track 4 on 'Digital learning and transformation'

Discussion paper (Final draft - 15 July 2022)

The Digital Learning and Transformation Action Track aims to illuminate how technology can play a role as part of larger systemic efforts to transform education and lifelong learning, making it more inclusive, equitable, effective, relevant, and sustainable.

The term "digital learning" refers to the use of technologies — including hardware, software, and digital resources — that are either designed or appropriated for educational purposes.

1. Context: Opportunities and Challenges

Coordinated action is needed to ensure that everyone has the right and ability to acquire the skills, knowledge, and tools they need to thrive and ultimately lead the transformation of societies towards greater sustainability, improved equality, and more abundant peace and cooperation.

Technology alone cannot achieve these goals, but it can be a catalytic component of education reforms that will prepare young people, as well as adults, to lead needed transformations. Technology can – and must – help advance our aspirations for inclusive education based on principles of social and economic justice, equity, and respect for human rights.

When considering technology and its relationship to education, it is critical that stakeholders are guided by the question, "How can technology help all children, youth, caregivers, teachers, and education system leaders in their efforts to access and provide high quality learning opportunities?", rather than the narrower question "How can we use technology?" The former question avoids technocentric approaches that rarely facilitate sustained educational improvement.

Opportunities:

Digital technologies and resources in education can contribute to wider systemic efforts to improve learning for all by:

- Increasing access to high quality, contextually relevant, curriculum-aligned content for all learners, including those that are commonly marginalized

- Empowering teachers by providing them high quality professional development opportunities, and tools and resources to support their work with students
- Facilitating evidence-based pedagogical approaches such as formative assessment and project-based learning
- Helping learners in formal, non-formal and informal settings access information and knowledge autonomously and according to idiosyncratic interests Preparing learners to use technology productively for education, lifelong learning and other empowering purposes
- Providing education and lifelong learning systems expanded options to assure high quality education, including in times of disruption and in emergencies

Challenges:

Despite the considerable promise of digital technologies to support positive change and transformations in education, its potential is regularly stymied by several interrelated challenges.

First, a disproportionate focus on hardware provision over high quality content, good pedagogical practices, digital competencies, and implementation support has limited the effectiveness of digital learning interventions.

Second, many programs are not designed to benefit the most marginalized learners and communities. This oversight means that technology often widens existing educational divides and makes programs challenging to enlarge and sustain.

Third, insufficient access to electricity, devices, and connectivity means that digital learning initiatives bifurcates learning opportunities between privileged and under-privileged students, rather than bridging them. Approximately, two out of every three children and youth have no internet access at home and tens of millions lack hardware needed for digital learning such as smartphones, laptops, or personal computers. While nearly 90 percent of school-aged children and adolescents are connected in high-income countries, the figure is often under 10 percent in low-income countries, and under 5 percent in Sub-Saharan Africa. These gaps need to be closed urgently if technology is to function as an education 'leveler'. This also includes establishing conducive regulatory environments that allow all learners, including those who have been forcibly displaced, to equally access and benefit from the internet and all forms digital learning.

Fourth, a concerted effort is required to ensure that digital learning tools meet the needs of teachers as well as learners, and that teachers are equipped with the knowledge, skills, and resources to use these tools effectively. Moreover, technology should facilitate effective, evidence-based educational practices. This includes pedagogical approaches such as student-focused instruction, as well as school leadership, classroom management, communication between education stakeholders, and using data to improve decision-making at the classroom, school, and system levels. For this to occur, teachers and education leaders must receive adequate training and support to ensure that they can integrate

technology into their practice. They should further be trained to help students to build strong digital skills and competencies. In addition, technology can also enhance the reach and effectiveness of both pre and in-service teacher education.

Finally, there is the challenge of protecting education, information and knowledge as human rights and public goods, not mere consumer goods that are bought and sold, according to market logics. As subsequent UN Special Rapporteurs on the Right to Education have pointed out, the digital transformation of education has shown a troubling correlation with the privatization of education and private governance of users' data and online practices. While the private sector produces and disseminates important digital innovations, it rarely does this equally. Innovations tend to reach and benefit only advantaged communities of learners and teachers. This was particularly true during the rapid expansion of private sector involvement in education during the COVID-19 pandemic. With appropriate governance and regulation, it is possible to protect education as a basic human right and a public good while also leveraging the capacities of the private sector to accelerate and improve digital learning.

2. Charting a New Course for Digital Learning: Three Principles

Investments and action in digital learning should be guided by the three core principles outlined in the 2021 Rewired Global Declaration on Connectivity in Education and with a view to transform education in line with the vision put forward in the flagship report of the International Commission on the Future of Education, Reimagining our Futures Together. Adherence to these principles can help ensure that investments in digital learning accelerate progress toward the education commitments of the 2030 Agenda for Sustainable Development and lay foundations for deeper transformations that will strengthen education at all levels.

Principle 1: Put the most marginalized learners at the center

Connectivity and technology must be deployed to help close growing educational divides and accelerate progress towards Sustainable Development Goal 4, a set of internationally agreed education targets and indicators to be achieved by 2030. Too often, technology benefits privileged learners and educators first. Only later do strategies emerge to make them more inclusive and accessible to those who are economically, socially, or legally disadvantaged. Such approaches reflect and widen educational inequity. We must therefore recalibrate our policies, actions, and investments to center learners most in need of opportunities. This will help bridge inequalities, spark needed innovation, and make solutions easier to 'scale out' to more privileged groups. Asking how approaches can work for refugees, for learners with disabilities, for girls and women, for teachers in remote areas, and for other disadvantaged learners and educators needs to be a point of departure.

Principle 2: Develop free, high-quality digital education content and platforms

One of the ways that technology can support efforts to transform education is by expanding and accelerating access to high quality educational resources for children, teachers, and communities. For learning outcomes to improve at scale, including for the most marginalized, this content must be freely available, easy to access and use, and, when feasible, aligned with formal curriculum. It should also be available in many languages, adaptable, and contextually relevant. To this end, the promotion and use of open educational resources can be especially powerful.

Technology is valuable for educational purposes to the extent that it opens doors to high-quality educational content and interactions that facilitate learning and development. In the context of education, meaningful digital learning should catalyze human-centered learning experiences. Age-appropriate and high-quality digital learning programmes should be made accessible for all and, ideally, under open licenses to encourage sharing and reuse. High-quality digital learning content will incentivize students, teachers, caregivers, and educational institutions to establish and maintain portals to digital learning and help bridge formal and non-formal learning.

Principle 3: Facilitate pedagogical innovation and change

At their best, digital spaces can foster new and effective pedagogies that increase educational equity, expand knowledge and skills, nurture creativity, and foster responsible digital citizenship. Efforts should be made to ensure that the digital transformation of education pursues these aims and proactively avoids the potential of technology to restrict and limit information and intellectual freedom, through censorship and excessive surveillance, for example. Digital learning must open rather than close learning possibilities and help students understand how to use connected technologies in productive and healthy ways. Too much effort is expended trying to replicate models of in-person schooling in digital spaces. Online and virtual environments demand new types of learning content and new pedagogies. Innovation is needed to develop and test new digital and hybrid pedagogies that are less reliant on the proprietary and closed systems of many private sector digital providers. This requires platforms and tools designed to support rather than replace teachers, and integration of technology and technology-enabled pedagogies in pre- and in-service teacher training.

Efforts to operationalize these principles will require multi-sector and whole-of-society approaches and should be guided by the UN Secretary General's Roadmap for Digital Cooperation.

3. Recommendations

Countries are advised to follow three broad recommendations to actualize the principles outlined in the section above.

Undergirding all the recommendations is a commitment to assuring the digital wellbeing, safety, and rights of learners and educators. This entails establishing robust privacy guarantees, developing and enforcing regulations to help assure safety in digital spaces, and training learners as well as teachers

and families about how to navigate digital and online spaces safely and responsibly for education and wider purposes. As a guiding ethic, online safety, privacy, and mental health must be addressed in parallel to digital integration, not after-the-fact.

	PRINCIPLES		
	PUT THE MOST MARGINALIZED AT THE CENTER	FREE, HIGH-QUALITY DIGITAL CONTENT	PEDAGOGICAL INNOVATION AND CHANGE
1. Ensure connectivity and digital learning opportunities for all	✓	✓	✓
2. Build and maintain robust, free, public digital learning content and platforms	✓	✓	✓
3. Focus on how technology can accelerate learning by enabling evidence-based instructional practice at scale	✓	✓	✓

Recommendation 1: Ensure connectivity and digital learning opportunities for all

For digital learning to truly equalize and transform educational opportunity, it needs to enable anytime, anywhere access to education for learners, teachers, and families. An estimated 2.9 billion people are still offline with 96 percent of them living in low and middle-income economies, and around 369 million young people are unable to access the information, opportunity, and choice that comes with access to the internet. The urgent task ahead is ubiquitous connectivity—ideally, an internet connection that is universally available in schools and at home. This 'untethered' access, powered by mobile networks and devices, opens far more possibilities for education than 'tethered' access. It also facilitates informal learning opportunities and can help out-of-school youth find pathways back to formal education or build livelihoods.

Countries should define what meaningful digital connectivity for education means and set short, medium, and long-term targets for sustainably connecting all schools and communities to accelerate the achievement of SDG4. Connectivity efforts should include implementation plans to reduce digital gender divides and reach the most marginalized, including learners with disabilities, people on the move, and others living in fragile and emergency contexts.
Importantly, connecting schools, as the United Nation's led Giga initiative is doing, will, in addition to opening greater learning opportunities for learners, allow for better data-driven decision making at the system level.

The pursuit of ubiquitous connectivity is an ideal area for public private partnership and whole-of government collaboration. Financing to expand connectivity should not come from government education budgets and should not displace investment in other critical education areas such as the maintenance and improvement of physical schools.

To avoid exacerbating the education implications of the digital divide, efforts should also be directed to helping children, youth, and adults with intermittent or no internet connectivity benefit from digital learning, for example, through apps and platforms that function without internet, and other approaches that are not reliant on continuous access to the internet.

Recommendation 2: Build and maintain robust, free, public digital learning content and platforms

This recommendation has two interrelated parts requiring distinct investment: first, the development of high-quality *content*; and second, the development of *platforms* to make content accessible and easy-to-use.

High-quality content should:

- contain not only learning materials for learners but also materials to help teachers use materials productively with students
- be curriculum-aligned
- be interoperable and not tied to a particular type of platform or hardware or learning environment
- be freely available or affordable and accessible both in schools and outside of them
- enable wide use and facilitate adaptation, including translation
- include main subject areas and all grade levels
- provide differentiated resources including for those with disabilities
- reflect diversity in terms of gender, culture, and languages
- address rather than perpetuate gender-based stereotypes and norms

Platforms should:

- be user-friendly and intuitively organized
- available to children, educators, and caregivers
- build on existing digital infrastructure
- be accessible to all from a wide range of devices, especially mobile phones, due to their growing ubiquity
- support inclusive access for people with disabilities in terms of user interface design and functionality
- be optimized for use in online or offline settings

- protect users' digital wellbeing including security and data privacy

The creation and curation of digital platforms and high-quality learning content opens opportunities for cross-country collaboration. While each country, and regions within countries, will have unique needs and require customization, significant cost-savings are possible through sharing and coordination.

Recommendation 3: Focus on how technology can enhance learning by enabling evidence-based educational practices at scale

Digital learning investments with the most potential for impact are those that align with the robust evidence base on effective instructional practice, including, for example, mother-tongue instruction, teacher coaching, formative assessment, structured pedagogy, and teacher reflection. These practices are possible without the use of technology, *but* technology can help to streamline and widen their implementation.

At the same time, digital learning can enable instructional approaches not possible without technology. For example, blended and hybrid learning models have unique benefits including enhancing social and collaborative skills while enabling access to world class learning experiences from locations beyond schools. Meanwhile, digital-only provision can be beneficial in certain contexts, especially for adult learners balancing education with work and family obligations. An intervention portfolio approach that aligns context-specific needs with appropriate technology models as well as non-technology models will help education systems better provide holistic human-centered educational experiences.

Finally, supporting the pedagogical skills of teachers is crucial to building improved education systems. Systematic capacity development of education personnel including school leaders, teacher coaches, education officers, and others must be a core part of digital learning interventions.

4. Synergies and Alignment Across Action Tracks

The Digital Learning and Transformation Action Track has many synergies with the other TES Action Tracks. Technology is a tool that, when appropriately utilized, can help increase equity, promote lifelong learning, and support teachers and teaching.

Equity

To date, digital learning initiatives have a poor track record of improving educational equity. More often they widen existing divisions, as was evidenced during the COVID-19 pandemic. During periods of school closures, already privileged students were able to take advantage of technology-reliant distance learning while a global majority were not. Many often did not have the necessary hardware, could not afford connectivity, possessed very limited digital skills, or lacked appropriate support to leverage technology for educational purposes. As we move towards 2030, we need to take bolder steps to make digital technology an equalizer, instead of a tool that reinforces inequality. This requires redoubling

efforts to ensure that digital learning initiatives, as well as implementation strategies, are designed to reach the most disadvantaged from the outset. It is similarly critical that the equity implications of digital learning interventions are researched and understood before scaling up approaches that may exacerbate existing divides.

Lifelong learning

Digital learning platforms that are universally available will help facilitate formal education and non-formal or informal learning while also establishing connections between them. This will, in turn, establish foundations for strengthened lifelong learning systems. Increasing connectivity and access to digital tools is a critical step in preparing children, youth and adults for life and work in the digital age. Pedagogically sound teaching and learning approaches that leverage technology will build the digital literacy and soft skills that children and youth need to become future-ready citizens who are likely to enter an increasingly digitized marketplace.

Support teachers and teaching

Digital learning can be one part of holistic approaches helping teachers, schools, and communities carry out evidence-based instructional practices at scale. Any investment in digital learning should be complemented by investments in teacher preparation and in-service support. Digital platforms, tools and resources should also respond to the specific needs of teachers and support their work in classrooms and, overall, ease demanding job obligations, rather than present additional burdens.

Annex: Example Initiatives

This section names and briefly describes several initiatives that align with the three recommendations in the discussion paper about the Action Track on Digital Learning and Transformation. The list provides examples that can serve as inspiration and models for countries seeking to implement the recommendations. The criteria used to identify this non-exhaustive list include:

- Ethical soundness – promotion of human rights, equity, and gender equality
- Targeting or including the most marginalized learners
- Operates at scale or potential for scalability / cost-effectiveness
- Evidence of impact or evidence-informed design
- Comprehensive approaches / digital learning solutions that are more than a "product"

Recommendation 1: Ensure connectivity and digital learning opportunities for all

Giga	Goal of connecting all schools to the internet through real time mapping, innovative financing, procurement support to governments, and partnering with telecommunications partners
Plan Ceibal (Uruguay)	Plan Ceibal is an initiative under which laptops were distributed and no-cost internet was provided to all students and teachers, along with digital skills training. Plan Ceibal was created in 2007 as a plan for inclusion and equal opportunities with the aim of supporting Uruguayan educational policies with technology.
Network for Learning in New Zealand	Partnering with government to provide high-speed connectivity to schools, plus access to curriculum resources and school-to-school collaboration

Recommendation 2: Build and maintain robust, free, public digital learning content and platforms

Technology-enabled open schools	An UNESCO-coordinated project provides financial and technical support in 12 countries to plan and test technology-enabled schooling models through a holistic approach including building or enhancing national public digital learning content and platforms, training teachers on pedagogical use of technology, as well as supporting the design and pilot test pedagogical practices. The project also supports the development of national policies and masterplans to scale up the technology-enabled schooling models.
Learning Passport	In 25+ countries, a flexible and adaptable platform available online and offline, including on mobile devices. Makes local, contextualized, curriculum and curriculum-aligned content available alongside globally accessible supplementary resources.
Student Learning Space in Singapore	The SLS is an online learning portal providing equal access to quality curriculum-aligned resources in major subjects from primary to preuniversity level, in line with the development of 21st Century Competencies (21CC). The SLS also provides teachers with a range of tools to customize and create meaningful learning experiences that cater to diverse learning needs. The portal enables both selfdirected and collaborative learning.
Kolibri	In 100+ countries, free, open-source, offline-first teaching and learning products with easy DIY adoption. Tools to contextualize and align resources to curricula, and a vast library for teachers and learners.
eLimu	Provides a repository of interactive digital learning resources for countries across Africa including in mother tongue languages. Includes resources for children, teachers, and parents.
Digital Schools Project Education Above All	The Digital School Program is a hybrid self-learning model that offers out-of-school children and youth (OOSCY) a second chance at education by providing a way for them to learn at any time, any place and for any duration using technology and a flexible learning model.
LightTree	LightTree (Photodendro) is the Greek Ministry of Education Open Educational Resources platform which is free and accessible to all. Educational resources from school textbooks to digital content along with digital teaching modules are collected and organized by topic and grade level.

Recommendation 3: Focus on how technology can enhance learning by enabling evidence-based educational practices at scale

Tangerine (Kenya)	In more than 24,000 primary schools in Kenya, teachers receive support from an instructional coach, known formally as the Curriculum Support Officer. The coach has a tablet, and the tablet has a Tangerine tool on it, designed to help the coach give customized continuous support to teachers
eSchool260 (Zambia)	A holistic model provided to low-resource community schools that includes student-centered instruction, tablets and projectors containing pre-loaded, curriculum-aligned lesson plans for locally hired teachers, and weekly coaching sessions to support these teachers to improve classroom practices.
Lecture Pour Tous (Senegal)	Tech-enabled teacher coaching. USAID/Lecture Pour Tous supported the Senegalese government's efforts to boost early-grade reading, particularly through its national reading program. The program introduced practices, such as the use of mother-tongue instruction and communications that promoted social and behavioral change, to encourage families and communities to become more involved in their children's education.
Ei Mindspark	Ei Mindspark is a personalised learning software that allows children to effectively advance at their own pace. Ei Mindspark adapts itself to every student's learning level & progressively questions a student on a particular concept, providing feedback for their answers. If the student responds correctly, the next question presented is marginally more difficult than the previous one, which enables the student to self-learn the concept gradually and thoroughly.
Eidu	Eidu learning platform revolutionizes learning by facilitating access to the best globally available learning and teaching resources, constant measurement of learning outcomes and continuous optimization for maximal learning impact on whole education systems. Learners access the EIDU learning platform on mobile devices distributed directly to their schools, while teachers receive continuous coaching for their professional development based on the most impactful programs from around the world.

Can't Wait to Learn	Can't Wait to Learn provides a solution to close the education gap for millions of children – both in formal school and out-of-school settings. It offers children the opportunity to learn by playing educational games on tablet devices, contributing to their improved psycho-social wellbeing.
onebillion (severa countries)	Enables personalized learning by providing educational hardware (Onetab and a solar-powered projection solution) and software (Onecourse) for foundational literacy and numeracy that is implemented in schools as well as in communities with limited access to traditional education. Numeracy content is available in 50+ languages