Futures of Education

LEARNING TO BECOME

The Futures of Education after COVID-19

Regional Dialogue

Synthesis Report

Context

COVID-19 has caused education disruptions and prolonged school closures all around the world, which affected 90% of the world's student population and led most countries to think about alternative ways of providing education to ensure that learning never stops[1]. Keeping education continuity in mind, most countries rushed to online distance education using online platforms, e-learning, and ICTs, which set off an unplanned and rapid shift in the education sector, opened the door to many opportunities, highlighted existing and new disparities and gave rise to several challenges.

In regards to this rush to online and distance education, the World Economic Forum cited Wang Tao, Vice President of Tencent Cloud and Tencent Education, to highlight that the way forward is to further harness available technologies and the internet in education and that online education will become an integral component of school education.[2] Yet, due to such an abrupt shift from school closures due to COVID-19, most teachers around the world were forced to deliver online learning without proper training, and support or time for preparation but being plied with diverse new tools; they had to digitize their course contents and/or develop new contents.

Concerning equity and digital divide, there are mainly two different perspectives. Jang and Weller, based on the United Nations (2018)[3], anticipated that technology would leverage inclusive and alternative education of marginalized and disadvantaged groups by benefitting from new ways of learning and participation[4]. Whereas, disparities in access to distance learning across countries and income brackets necessitate special attention by international communities. For instance, UNESCO identified that certain groups of students, such as those from low-income families, ethnic or religious minorities, migrants, in precarious home situations, in remote rural areas or with special needs, may require particular consideration and specific strategies when it comes to distance learning during COVID-19[5].

Against this backdrop, the following are key questions that are frequently raised across the region and that led UNESCO Regional Bureau for Education in the Arab States – Beirut (hereinafter referred to as UNESCO Beirut) in partnership with the Regional Center for Educational Planning

[1] UNESCO COVID-19 education response: Virtual knowledge-sharing workshop on distance education programmes using radio and television, 27 May 2020: summary report https://unesdoc.unesco.org/ark:/48223/pf0000373576

[2] World Economic Forum. April 2020. The COVID-19 pandemic has changed education forever. This is how. https://www.weforum.org/agenda/2020/04/coronavirus-education-global-covid19-online-digital-learning/

[3] United Nations. 2018. Technologies and the future of learning and education for all, discussion note prepared through the High-level Committee on Programmes (HLCP) under the leadership of UNICEF and UNESCO, with support from other UN agencies, First Regular Session of 2018 (May 2018, London).

[4] Jang, A. and Weller, C. 2019. The future of work and the teaching profession: background paper for Joint ILO–UNESCO Committee of Experts on the Application of the Recommendations concerning Teaching Personnel. https://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---sector/documents/meetingdocument/wcms_675238.pdf

[5] UNESCO, 2020 issue note n.2.1: Distance learning strategies in response to COVID-19 school closures. https://unesdoc.unesco.org/ark:/48223/pf0000373305

(RCEP) and Education Research and Foresight unit at UNESCO Headquarters to co-organize a regional dialogue on Futures of Education after COVID-19 on 16 June 2020.

- What are the lessons learned from the challenges that faced education systems during the pandemic? How can we benefit from these lessons to shape the future of education?
- What are the priorities that education systems should focus on when developing their plans and programs in the future?
- What is Pedagogy 4.0?
- How do we ensure that the scenarios envisaged for the future of education are more inclusive and bridge educational and learning gaps?

This webinar was built upon the achievement of the 2017 regional think tank seminar on "Rethinking Education" organized in Sharm EL Sheikh, Egypt and reaffirms the 2016 Cairo Declarations for rethinking education. It was carried out within the framework of UNESCO's Education Response to the COVID-19 crisis and the organization's continuous support for Arab Member States during and after COVID-19, and as part of the global Futures of Education initiative launched by UNESCO in September 2019.

Objectives and participation

The webinar aimed to examine the impact of COVID-19 on educational continuity in the Arab region, to reflect on the lessons learnt from the challenges faced during the COVID-19 crisis, and to explore and analyze scenarios and strategies proposed to reshape the vision of education after COVID-19.

From the 2,700 people who registered, only 500 participants were able to join the webinar due to technical limitations. Those included representatives of Ministries of education of participating countries, members of the Arab Regional Support Group for SDG 4, representatives from the Arab Region Global Steering Committee, the Arab Regional Task Force, including UNESCO's regional and field offices, Category 2 centres (RCEP, RCQE, ASFEC) and key partners (ABEG and ALECSO), in addition to key education stakeholders pertinent to the dialogue.

The welcoming speeches

Dr. Hegazi Idris Ibrahim, UNESCO Beirut (Arabic)

Dr. Hegazi Idris Ibrahim, Programme Specialist for Basic Education at UNESCO Beirut, highlighted the questions that the regional discussion aimed to respond, namely:

- What are the educational policies and opportunities that we can benefit from for the future of education in the Arab Region?
- What do we mean by "new pedagogy" or "pedagogy 4.0"?
- What are the necessary practices to ensure education continuity, especially in crisis-affected countries and for out-of-school children?

- What about children with special needs now and in the future?
- What are the lessons learnt about parents' role in learning and education?
- Are children in need of any psychosocial support now and after returning to school ?
- What is UNESCO's Global Initiative on the Future of Education 2050?

Dr. Mahra Al Mutaiwei, RCEP (Arabic)

Dr. Mahra stated that one of RCEP's visions is to build the capacities of Arab and Gulf states to better plan for the future of education. Therefore, RCEP has exerted unwavering efforts to target and meet the needs of Arab countries in its programmes, and reexamined, reviewed and modified its strategies and plans to serve education systems in the region through capacity-building and knowledge-sharing activities. The main points of the intervention are recapped hereunder.

The COVID-19 pandemic took its toll on education systems around the world and cast a shadow on the future of education, as the crisis affected the education of 1.6 billion students across different school levels preventing them from going to school and university and engaged in distance learning. This has pushed education stakeholders to think out of the box to provide unconventional and alternative education modalities based on the use of the internet, radio and TV, which resulted in some constructive and positive changes as well as concerns on ensuring quality of distance education provided.

Key recommendations drawn from RCEP are as follows:

- Education systems should explore new methods to train and prepare teachers and educators, so they may attain the required skills and competencies to keep up with the changes in the field of education.
- Education systems should review and upgrade the range of skills provided to students in a way that would better equip and prepare them for the future.
- Educational systems should undertake new measures for benchmarking the quality of education and tackling the current digital divide.
- It is essential and inevitable to develop a worldwide framework for coordination and cooperation and initiate effective and operative partnerships between public and private institutions with the aim of providing equitable and quality education to all students around the world.

Opening remarks

Dr. Hamed Al Hammami, UNESCO Beirut (Arabic)

Dr. Hamed started by stressing the potential transformations of education as well as the features of teaching and learning in the Arab Region after COVID-19. The main points of the intervention are detailed hereunder.

It is critical to draw lessons from the challenges faced by Ministries of Education and education systems during this pandemic, which includes but is not limited to:

- unpreparedness of some education systems in the Arab Region to provide remote learning;
- weak educational infrastructure;
- inequality in accessing the internet; and
- teachers' unpreparedness to switch to remote learning.

Education is undergoing unprecedented difficulties and challenges during the pandemic. However, the current crisis can be turned into an opportunity by building a more resilient education system. To achieve this transformation, we should exert effort to:

- capitalize on IT;
- provide vocational training for teachers and enhance their capacities;
- review assessment methods;
- engage in a comprehensive digital transformation;
- build effective partnerships; and
- review old educational philosophies, as well as the goals and outputs of the educational system, to be in line with recent developments as well as with labor market requirements.

The future of education in UAE after COVID-19

H.E. Hussain Ibrahim Al Hammadi, Minister of Education in UAE (Arabic)

The UAE's response to the COVID-19 crisis in the educational sector

The UAE launched the Mohammed bin Rashid Smart Learning Programme in 2012. The Programme aims to build solid educational infrastructure, train teachers and prepare students to use technological devices in education. At first, it was only used for distance learning in specific cases such as students' traveling and absence from school. Amid the COVID-19 pandemic and the trend of distance education, Spring break was brought forward by two weeks for Ministries of Education to be equipped with strategies to mitigate education disruption, thereby allowing them to improve education approaches, train teachers and prepare to launch the Smart Learning Programme for nearly 1.2 million students from different schools and universities. Enrollment rate reached 100% in all levels of education, from KG-1 to tertiary education, in Emirati schools - which includes private schools. The effective implementation of the smart learning system requires the following:

- Training teachers building their capacities and preparing them to provide distance learning and education;
- Creating, adapting and harmonizing curricula for distance learning;

COVID-19 global impact on education

In the short term,

- Positive impact:
    - Increased attention and appreciation to distance learning systems,

    - Growing appreciation and understanding of teachers' role in the community, and provision of technical development opportunities related to distance learning for teachers,
    - Establishing regional and international partnerships in the field of technology.

- Negative impact:
    - Existing gap in distance learning implementation on the national and international levels,
    - Variation of students' academic attainment based on the ability of educational institutions and countries to provide distance learning,
    - Negative impact on students, teachers and parents' quality of life during lockdown.

In the long term,

- Positive impact:
    - Increasing the scope and reach of education to all segments of society
    - Redefining the role of schools and developing assessment policies;
    - Developing innovative models for higher education and preparing students for new jobs;
    - Increasing research and entrepreneurship;
    - Establishing partnerships between the public and private sectors.

- Negative impact:
    - Possible inequality related to educational services provided to students;
    - Decreasing academic attainment in countries that lack technological means to provide distance learning;
    - Difficulties in measuring learning outcomes due to undeveloped student performance assessment systems.

Opportunities of the educational sector after the pandemic

By addressing the challenges and building on the success UAE have achieved, we can maximize the learning opportunities, ensure quality, fair and inclusive education, and enhance learning opportunities for all through 4 main themes as follows:

1. Possibilities for developing the educational system
2. Improving learning outcomes
3. Measuring the quality of education system outputs
4. Partnerships between countries and organizations in the education sector to achieve SDG 4

To seize aforementioned opportunities, recommendations were drawn up to:

- Enable infrastructure, make it available for everyone and ensure that it can accommodate all updates occurring in educational platforms and resources; and ensure mutual collaboration and support among organizations, institutions and states to empower underprivileged areas;

- Establish regulatory policies and frameworks to handle emergencies and ensure quality and equity in education in all circumstances;
- Improve curricula to accommodate different teaching and learning methods, especially the practical ones;
- Habilitate, train and enable teachers and education authorities to develop their teaching and learning methods for lifelong learning, optimise distance learning and adapt to the changing reality of the educational process.

Smart Education

Smart Education is not an option, but rather a strategic choice that has to be integrated in education systems. Arab countries should invest in building their capacities to make smart education available for everyone, given that this type of education can be delivered through mobiles, computers, tablets, etc.

New delivery methods & complementarity between school and university education

It is also important to find new ways to deliver educational activities to grasp students' attention and help them build their capacities and develop their skills. In addition, complementarity between school and university education is essential to avoid confusion among students when they transition from senior year at school to the first year of university. It might be helpful to allow high school students to take a few university classes to help them get acquainted with university teaching methods and educational contents.

Measuring the quality of the education system outputs

Monitoring and evaluating the performance of the education system

- Build a comprehensive framework for monitoring and evaluating the performance of the smart education system, which includes the quality of outputs and their alignment with inputs.

Establishing a smart measuring system

- Establish a smart, reliable, accurate and innovative measuring system to monitor students' performance in different teaching and learning patterns, and complement the system with a feedback mechanism that involves students, teachers and parents

Measuring Impact

- Invest in research programmes to measure the impact of expected changes on education systems,
- find scientific solutions for related challenges, and
- Share best practices to improve education systems and ensure quality.

Partnerships for education

It is important to do the following to promote and develop the education sector:

- Training parents and guardians for them to support their children's learning
- Creating specialized platforms for capacity-building and skill-development targeting students, teachers and education authorities;
- Promoting opportunities to exchange experiences and expertise either through participatory education or through establishing global and regional partnerships with specific goals to promote and support education.
- Investing in relevant industries to develop platforms, Arabic contents and resources for distance learning and promote research and development activities.

Covid-19 disruptions and the futures of education

Dr. Sobhi Tawil, Head, Education Research and Foresight at UNESCO HQ (English)

In countries around the world, coronavirus has disrupted public health services in an attempt to save lives. Preventive measures to contain the spread of infection through confinement and physical distancing have disrupted livelihoods, economies and education. What are the lessons we are learning from the Covid-19 disruptions as we think about the futures of education? There are three sets of challenges and opportunities.

1. An opportunity to address longstanding disparities in access and participation

In attempting to slow or contain the spread of Covid-19, most countries in the world closed schools and have provisioned some form of distance education alternatives. Almost overnight, educational processes have had to be transferred from schools to home-based remote learning, relying on a combination of high tech, low-tech or no-tech modalities. It is, however, important to note that over three quarters of national distance learning solutions deployed during the COVID-19 pandemic rely almost exclusively on on-line platforms.

And yet, close to half of all primary and secondary students being provisioned by national on-line learning platforms, do not have access to the Internet at home. While the share is less than 15% in Western Europe and North America, it is as high as 80% in SSA. This deployment of on-line remote learning has further reinforced inequality in educational opportunity. These gaps mirror the global digital divide. Close to half of the world's population (46%), or some 3 billion people, have no access to the internet. Not only does connectivity remain far from universal, but significant gaps exist across and within countries. These gaps are associated with a wide range of factors related, not only to income status, residence, but also to age, gender, and education.

The pandemic has laid bare these long-standing connectivity divides, exposed new ones and, overall, given their resolution a new sense of urgency. We need to ensure universal connectivity and close digital divides to advance learning for all. This means addressing technical barriers to connectivity – access to reliable connectivity and affordable services and devices. It also means addressing the human barriers to the use of connectivity. Lack of ICT skills is an equally significant barrier to effective Internet use, by teachers and learners, and parents/caregivers.

In addressing these digital learning divides, we must not forget those already out-of-school, and those who are currently disengaging because of interrupted education, because of inadequate or ineffective provision of distance learning. The current disruption is an opportunity to imagine more inclusive, flexible and equitable provision of education, based on a mix of technologies (including educational TV and radio) and a combination of school-based and remote learning.

2. An opportunity to reframe the right to education

The massive deployment of technology in education is causing serious challenges to privacy. Major questions are emerging about how ownership and control of such data, and potential use of personal data beyond educational purposes. It also raises concerns about education as a public service with education systems becoming more reliant on privately owned commercial technological infrastructure. With education becoming more dependent on connectivity, we must enlarge our established understanding of the right to education. It must be seen more broadly, beyond the educational sector silo. Indeed, the right to education must be associated with the right to information, to connectivity, and the right to privacy and protection of personal data.

3. An opportunity to rethink learning contents, methods and spaces

School closures and home confinement have fundamentally transformed the way in which students, teachers and parents engage with education and learning. This novel experience has also prompted us to reimagine the purpose of education and the organization of learning.

We have learned much from this experience of remote home-based learning. Firstly, that continuity of education can be ensured remotely thanks to technological platforms with the support of teachers and parents, and caregivers. Moreover, we have learned that distance learning can be more differentiated and personalized and that students can develop greater autonomy, as well as time management and self-organization skills. We have seen that remote home-based study requires a more active involvement of parents and a welcome strengthening of the relationship between parents and teachers in the educational process. Finally, the sudden shift to distance learning has also allowed for greater familiarity with, and acceptance of, digital learning tools among parents, teachers and students alike.

But we have also become aware that human contact is at the heart of learning and the technologies cannot replace the experience of being in school and human interaction it is based on. Nor can technologies replace the teacher who remains central to the educational process. Beyond this, we have come to realize that there is important learning that happens in schools - with others - through play, sports, art, and extracurricular activities. Much of this personal development and social learning cannot be delivered remotely. As a human experience, learning is rooted in social interaction and processes.

This unique unplanned experience of sudden and massive home-based distance learning is an opportunity to rethink education. It is an opportunity to revisit learning content, methods and spaces. This includes better balance between academic/cognitive learning on one hand, and

social-emotional, non-cognitive and civic learning on the other. While we need greater integration of blended learning, we also need to revisit learning methods with a better balance between individual study/learning and collective social learning. Finally, it is a unique opportunity to redefine the learning community by better networking learning spaces that connect classroom and school-based learning with the home, family and community at large.

The future is a perspective to inform our action in the present for more inclusive and meaningful learning for all. It is not about what the future will impose. Rather, it is about our collective effort to forge the alternative futures we want. This is what the Futures of Education initiative is about.

Lessons learned from the challenges faced during the pandemic and how can we benefit from them to shape the future of education?

Dr. Yin Cheong Cheng, Professor, Education University of Hong Kong (English)

Following the serious syndromes of pandemic, there are multiple disruptions locally and globally, including technological, economic, social, political, cultural and learning disruptions, creating various challenges to education systems worldwide. What lessons and implications can be drawn for designing the future of education after COVID-19? The speech aimed to address this crucial issue.

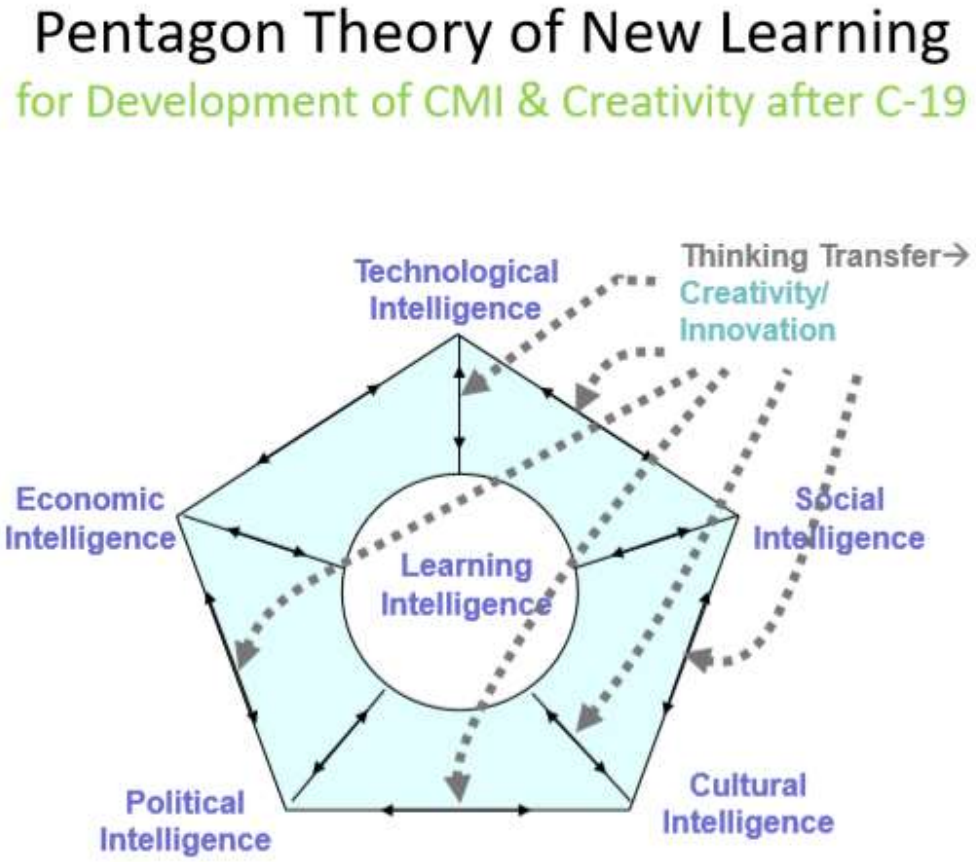
Disruptions & Lessons

Multiple Disruptions	Challenges to Ed Systems (examples)	Common Lessons & Opportunities
• Technological Disruptions	**Technology gaps** in online learning, change in learning modes, equity & equality….	**Using ICT & platforms** to redefine the nature & boundary of learning, build up ecosystems for effective learning…
• Economic Disruptions	**Lack of crucial resources** (e.g. masks, sanitizers, new facilities) to support school re-opening…	**Community collaborations** (+gov+business..) to creatively ensure the provision…
• Social Disruptions	**Social distancing & segregation** to discourage gathering & human touch, damaging the social climate & quality in schools..	**Creating social support messages** & **activities** to promote positive spirit, health knowledge & action among schools & the community…
• Political Disruptions	**Politicizing the pandemic** & creating political conflicts globally and locally, that finally affect Ed..	**Building up partnership**, working together among global/local students.. to support overcoming the pandemic..
• Cultural Disruptions	**Culturally diverse responses** to Pandemic, hindering the common understanding & effort in Ed..	**Grooming the culture of tolerance** of different views, but act based on the scientific knowledge, in ed systems…
• Learning Disruptions	**Learning gaps & psychological barriers** during school closure, change in learning mode…	**Using these disruptions as good opportunities** to make paradigm shift in learning with ecosystems…

Source: Cheng, Y. (2020). Multiple disruption and lessons. P.5. [PowerPoint slides]. Retrieved from https://drive.google.com/drive/u/0/folders/1aaTMesYrR3AviROmncnJE7jJTx0vsT5N

In addition to the common lessons directly learned from each type of disruptions, the speech also pointed out five key directions of future education, including:

(1) Developing CMI (Contextualized Multiple Intelligence) and creativity to meet multiple developments and disruptions;

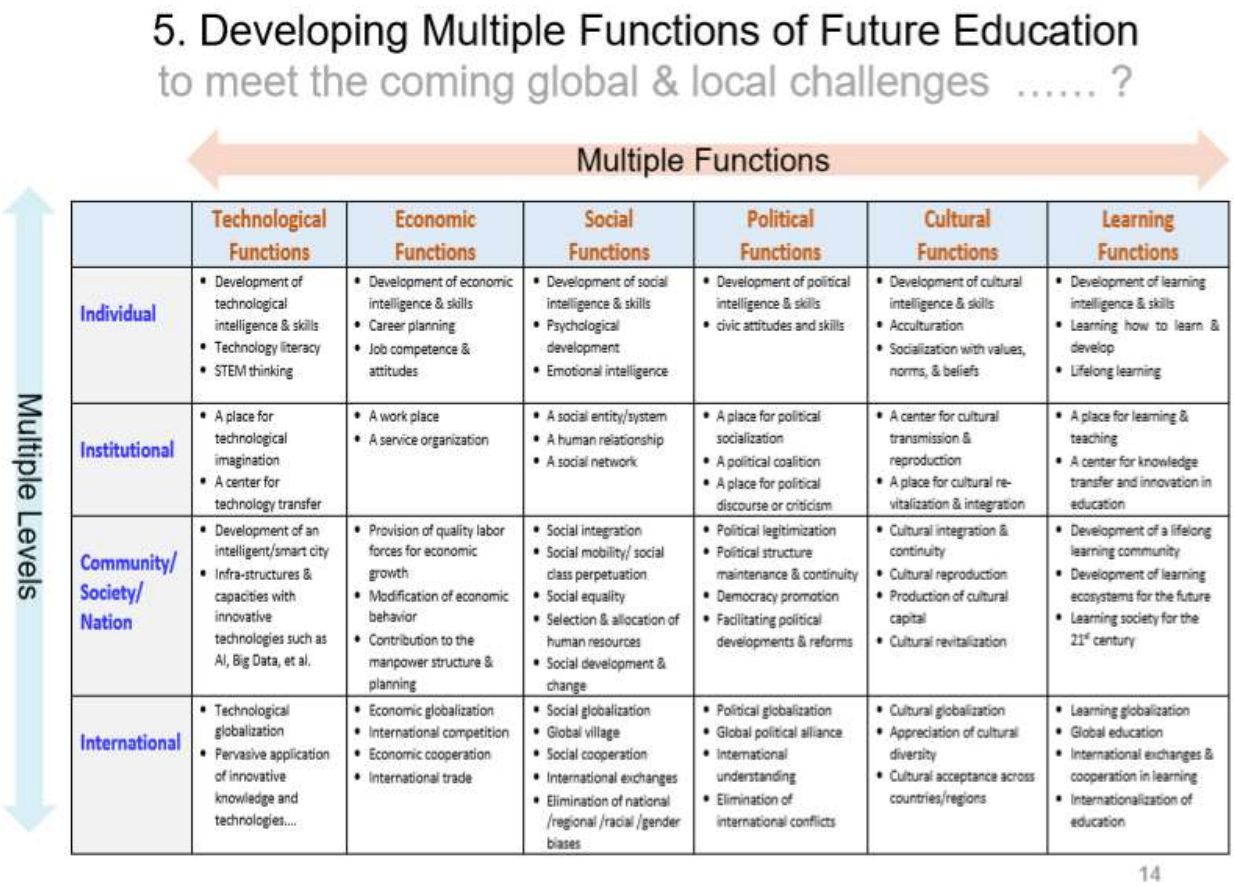


Source: Cheng, Y. (2020). Multiple disruption and lessons. P.8. [PowerPoint slides]. Retrieved from https://drive.google.com/drive/u/0/folders/1aaTMesYrR3AviROmncnJE7jJTx0vsT5N

(2) Paradigm shift in learning from the traditional site-bounded paradigm toward the new CMI-Triplization paradigm with emphasis on individualization (human motivation, potential and creativity of the individuals), localization (local resources, community support and cultural relevance) and globalization (global networking, international support and world-class resources) in learning;

(3) Using IT and AI to re-define learning in nature, context, players, format and speed, knowledge management and utilization, creating unlimited opportunities for learning and development;

(4) Building up ecosystems supported by systemic changes in culture, technology and paradigm of education for new E-learning through interactive AI technologies, students self-initiative and e-learning ecosystems instead of e-text or materials; and



Source: Cheng, Y. (2020). Multiple disruption and lessons. P.14. [PowerPoint slides]. Retrieved from https://drive.google.com/drive/u/0/folders/1aaTMesYrR3AviROmncnJE7jJTx0vsT5N

(5) Re-designing the future of education in terms of multiple functions at different levels of education systems that can serve the purposes of creating sustainable and multiple developments against multiple disruptions and others.

Scenarios for the future of education on the short and long term after the end of the pandemic

H.E. Khalfan Belhoul, Chief Executive Officer, Dubai Future Foundation (English)

Dubai Future Foundation in cooperation with a government think-thank Dubai Future Research, launched a series of forward-looking reports on the impact of COVID-19 on different sectors including education. They projected that Educational Technology (Ed Tech) is a growing market with more people consuming education online and its global market is expected to increase around 2.3 times more, to 40 billion US dollars by 2022 from the current 18.7 billion US dollars especially there have been more that 1.2 billion school children who have been affected by school closures around the world as a result of COVID-19. Highlighted opportunities and foresights that

they suggested for shaping the future of education post COVID-19 with a special emphasis on maintaining human connection despite high potential of technology are as follows:

Opportunities

- COVID-19 pushed governments to accelerate their efforts in the educational sector.
- The pandemic pushed us to assess and rethink current digital platforms for distant and life-long learning.
- As people are learning individually, systems are likely to become more personalized, focusing on the specific needs and interests of each student.

Foresights

- Surfacing of new regulations and EdTech platforms to accommodate such transitions. I.e. India's current Ed Tech market was worth 247 million US dollars but foreseen 2 billion US dollars with 9.6 million users in 2021.
- As the purpose of the physical school and operating system might be requested to be changed, how would traditional schooling position in the future?
- Lifelong Learning and Borderless Education will be a norm of the future. The overall market for online education is projected to reach $350 Billion by 2025.

They introduced several startups in the Ed tech industry that they closely collaborate with and could support poor internet connectivity access, building a community of knowledge exchange, remote teaching workforce and interlinking teachers, students and their parents.

- **Ustad Mobile** helps people with poor internet connectivity access educational content in remote locations. Its app allows the disadvantaged, displaced, and marginalized in society to learn from educational content that can be shared offline through Bluetooth technology as well as a peer-to peer sharing feature.
- **Synkers** is a mobile application which instantly connects learners to highly qualified and certified tutors.
- **Teacherly** aims to build the future of work for the remote teaching workforce – Turning Teachers into Teams.
- **Gobubble** is a safer, healthier and kinder digital community for teachers, kids and parents to connect and communicate with colleagues, friends and classmates.

Priorities for education systems to focus on when developing their plans and programs in the future

Dr. Federico Biagi, Professor, European Commission (English)

The Likely impact of COVID-19 on education

Most educational institutions around the world cancelled in-person instruction and moved to remote learning and teaching in March 2020 in an attempt to contain the spread of COVID-19. The adoption of distance learning is key to ensure the continuity of education, but students are likely to have experienced a learning loss during the lockdown. Emotional aspects should also be considered. The impact of COVID-19 is not likely to affect students and schools equally. European Commissions expect the following groups to suffer more from the lockdown:

- Children in primary and lower secondary schools
- Students from less advantaged backgrounds
- Students with special needs or disabilities

The consequences of reduced learning are likely to persist also in the long run. Learning loss will imply less available human capital in the future, lower productivity and lower output. European Commissions provide conservative estimates of these long-term consequences, in terms of reduced expected earnings for the current cohorts of primary students affected by physical school closure in France.

Learning loss

- Available evidence from a survey run in Austria, Germany, and Switzerland shows that students between 10 and 19 years of age reduced their weekly learning time by between 4 and 8 hours.
- Evidence gathered during the crisis shows that the majority (66.9%) of teachers used online teaching for the first time. Many of them had problems in accessing technology.
- Students who are confined at home with their parents due to COVID-19 may feel more stressed and anxious. Such adverse psychological factors may in turn have a detrimental effect on learning.
- The physical interaction with teachers and other students is found to be essential for the development of positive self-esteem, self-confidence and a sense of identity, especially for younger pupils.
- Some governments have announced that due to COVID-19, students will not have to repeat the school year regardless of their performance while studying remotely. This is likely to reduce students' external motivation.

Increased educational inequality

- Students from higher socio-economic status are significantly more likely to have a laptop or a computer at home than those from lower socio-economic status. Access to broadband internet connection varies significantly by household income[6].
- Students from a migrant background are less likely to have a computer at home[7].
- Students from a less advantaged background are less likely to study at schools that are well equipped in terms of digital technology resources[8].
- Parents from a higher socio-economic background are more likely to be able to support their children effectively during school closure, either directly (e.g. emotional support[9]) or indirectly (e.g. private tutoring).

Learning loss at some conservative estimates

[6] Source: Eurostat. (2019). Broadband internet access by household income in the EU
[7] Source: PISA. (2018). Presence of a computer at home by migrant status
[8] Source: PISA. (2018). ICT availability for the students to use at school by ESCS quartile
[9] Source: PISA. (2018). Parents' emotional support by parental education

	Italy	Germany	France
Grade	Upper secondary schools	Lower and upper secondary schools	Primary schools
Estimated period of school closures	12.71 weeks (as of 4 March 2020)	5 weeks (16 March to 4 May, 2020)	6 weeks (16 March to 11 May, 2020)
Reduction of learning hours and its proportion against net teaching hours during an entire academic year	67.61 hours, amounting to a decrease of 10.96% of the total number of net teaching hours	Between. 43.5 and 63.5 hours, amounting to a decrease of between 5.97% and 8.72% of the total number of net teaching hours	84 hours, amounting to a decrease of 9.33% of the total number of net teaching hours
Amount of learning loss adapting estimates on the relationship between learning hours and learning outcomes by Woessmann (2003)[10]	1.65%	Between 0.9 and 1.3%.	1.4%
Potential earning loss based on a study by Jaume and Willén (2019)[11]	N/A	N/A	Aggregated annual real earning loss of euros 815,869,953.9

Policy options

- Students, especially those from less advantaged backgrounds, those with disabilities, those who were struggling academically even before the COVID-19 crisis, and those who lost motivation during the lockdown, will have to make up for the learning loss they experienced. This should start as early as possible.
- Inequalities in students' achievement resulting from physical school closure need to be addressed effectively and rapidly, given that they may persist and even grow over time.
- Small group tuition may help needing students make academic progress more quickly. This type of support could be organized when students come back to school (or even during the summer break in case the appropriate conditions exist).
- A blended/rotating learning system (with online and offline elements) is an interesting option but…:

[10] Using data from TIMSS (Trends in International Mathematics and Science Study) for 39 countries, Woessmann (2003) finds that a 10% reduction in instruction time reduces test scores by 1.5%.
[11] Using the findings of Jaume and Willén (2019), 16.8 missed school days are estimated to decrease labour earnings by 0.49%

    - It requires a revision of the curriculum and the identification of the types of teaching and learning activities that need to be performed at school and those that can be done at home.
    - It requires a change in both the quantity and quality of the teaching capacity, implying significant investments in terms of qualified teachers and appropriate teaching/learning material.
    - Younger children are more likely to face difficulties adapting to a blended/rotation model, especially for the online learning part, unless they are closely followed by their parents.
    - The structure of existing school buildings may be inappropriate if one wants to maintain physical distancing.
- To make online learning effective and equitable (including within a blended/rotating model), it is necessary to:
    - Guarantee to all students access to the internet and availability of computers, laptops or tablets.
    - Adopt a proper Virtual Learning Environments (VLE), also based on teachers' pedagogical and technological readiness and on students' and parents' digital competences.
    - Use educational broadcasting to support remote learning for those who do not have access to the internet.
    - Guarantee financial and regulatory support (e.g. publicly funded parental leave) to working parents whose children are expected to be at home on a regular basis.
    - Improve availability of learning technology and support for students with Special Educational Needs and /or Disabilities (SEND).
- Support teachers: it is essential to improve teachers' digital competences across all ages, and this could be done with workshops and training courses, which should become part of their continuous professional development. Coordination among stakeholders is essential.
- Support parents: they should be involved in the design of the strategy and in its implementation as they need to fully understand what is taught and why. Parents should also be informed of the emotional challenges that online learning entails. They also need to learn how to support their children emotionally and in their daily home school tasks.
- Collect accurate, valid and reliable data, to gain a better understanding of what worked, did not work, and why during the COVID-19 crisis.

Education: the 4th generation

Dr. Sami Nassar, Professor, National Egyptian E-Learning University(Arabic)

The Corona pandemic has led us to rethink and review existing education infrastructure. It also revealed the weakness of the values we pretend to preserve and defend and proved the weakness and shortcomings of the "routine" we followed in our daily social and economic life.

Education - including educational infrastructures, institutions, systems, curricula and methods - was one of the most affected sectors by the pandemic. In fact, due to COVID-19:

- 1.57 billion students worldwide, which represents 91.4% of the global student population, were deprived of education. Poor and marginalized groups were disproportionately affected.
- Parents have little to no ability to help their children learn and study at home
- A lot of inequalities among learners in digital learning opportunities were brought to light
- Children suffered from social isolation and were thus deprived of social activities

As a result of school and university closures, educational institutions resorted to various modalities and strategies to provide distance learning, which made us rethink traditional teaching, learning and assessment methods. In fact, the pandemic has proved that traditional forms of education are no longer effective in the context of economic crisis, wars, asylum, immigration, pandemics, and in the modern world.

Learning is no longer an activity limited to a closed classroom and a specific time, but rather an activity that can be carried out irrespective of time and places, with the support of ICTs, the media and TV and radio programs. Ministries of Education and Higher Education in the Arab region are also creating and/or using many distance and e-learning platforms for students, teachers and parents.

Given that the world is now facing unprecedented challenges and revolutions, that many of our speculations and theories have fallen apart due to sweeping cognitive changes and the integration of ICTs and artificial intelligence (AI) in every aspect of our lives, and that no one knows what the future holds for us, the question that arises is “how can we prepare ourselves and our children to live in an uncertain, ever-changing world?

Those who are born now may still be around to witness the beginning of the twenty-second century. To guarantee our future, we must start formulating new education approaches, methods and modalities to raise people who are able to deal with change, learn and rebuild themselves in a world where the only constant is change.

The table below explains how to prepare students for pedagogies 1, 2, 3 and 4.

	بيداجوجي 1.0	بيداجوجي 2.0	بيداجوجي 3.0	بيداجوجي 4.0
المعنى	يتم إملاؤه	يتم بناؤه بمساعدة الانترنت	يتم انتاجه	يتم إنتاجه وتطبيقه في شكل ابتكارات
التكنولوجيا	داخل الصف الدراسي (الطلاب لاجئون رقميون	تستخدم على نطاق ضيق في التعليم المفتوح (الطلاب مهاجرون رقميون)	منتشرة في كل مكان (الطلاب مواطنون رقميون في عالم رقمي)	دائمة التغير ويتم توظيفها للابتكار
التدريس	من المعلم إلى الطالب	من المعلم إلى الطالب وبين الطلاب باستخدام الانترنت	من المعلم إلى الطلاب وبين الطلاب وبين أفراد المجتمع	يتسع نطاق التدريس نتيجة للابتكارات ويحدث في كل لحظة وفي أي مكان
المدرسة	مبنى من الأحجار	مبنى وعلى شبكة الانترنت	في كل مكان (المقاهي-أماكن العمل -الشوارع- أماكن اللهو)	شبكات في المجتمع الانساني
المعلمون	مهنيون	مهنيون يعملون على خلق بيئة تعليمية جذابة	اي فرد في اي مكان يملك جهازا لبث المعلومات والمعرفة	اي إنسان في أي مكان لديه برامج ذكية هو مصدر للابتكار
الأجهزة والبرامج المدرسية	تشترى بمبالغ باهظة ويتم إهمالها	متاحة بتكلفة قليلة	متاحة بتكلفة قليلة لإنتاج المعرفة	يتم ابتكارها يوميا
الخريجون في نظر رجال الصناعة	عمال في خط إنتاج	عمال لإنتاج المعرفة	عمال لإنتاج المعرفة وريادة الأعمال	عمال مبتكرون ورواد أعمال

The transition from pedagogy 1.0 to 4.0 summarized as follows:

- Shifting contents from more traditional ones used in direct instructions to more innovative contents
- Transitioning from the use of technologies in the classroom to beyond the classroom in innovative and creative ways
- Expanding the scope of education irrespective of time and place
- Changing the concept of schools from a physical structure to community networks
- Transitioning from traditional roles of teachers and concept of teaching to new roles of teacher and teaching accompanied by innovative pedagogy and educational technologies
- Transitioning from expensive educational software and digital devices to more affordable but innovative devices

The term pedagogy 4.0 refers to the education and training that aim to prepare individuals to acquire new skill sets and competencies put forth by the Fourth Industrial Revolution[12]. Thus, the vision of pedagogy 4.0 entails changing education goals and contents to respond to the advancement of the new era. Moreover, based on digital literacy, pedagogy 4.0 also requires creativity, autonomy, cooperation, and social skills, such as communication, presentation, teamwork, and management skills to be developed.

[12] Klaus Schwab who is a founder and executive chairman of the World Economic Forum coined the term, 'Fourth Industrial Revolution' to feature the fusion of the digital, biological, and physical worlds, as well as the increasing utilization of new technologies such as artificial intelligence, cloud computing, robotics, 3D printing, the Internet of Things, and advanced wireless technologies, amidst others. https://www.weforum.org/about/the-fourth-industrial-revolution-by-klaus-schwab

Heutagogy, otherwise known as self-determined learning, is a student-centered instructional strategy that emphasizes the development of autonomy, capacity, and capability. Teachers' role is limited to guiding the students and referring learning resources. Learners are more and more interested in Heutagogy due to the advancement and integration of technologies in distance learning.

Learning networks refer to the knowledge that was once provided by schools, and has now been made available online, which renders schools' existence subject to review. Distance learning, open education or e-learning have replaced traditional patterns and structures of education and are providing equal educational opportunities while making learning available for all. In Arab countries, education suffers from 4 elements: memorization, skills, centralization & imitation, which should be replaced by modernization, innovation and decentralization.

Pedagogy 4.0 urges Arab region to take following actions: i) adopt lifelong learning as a philosophy and concept that governs all learning activities based on 21st century skills (The 4Cs)[13]; ii) develop new educational structures and systems based on ICTs and AI; iii) prepare teachers for new roles, and adopt a system for the recognition of experiences and qualifications gained through non-formal and informal education as well as sturdy IT infrastructure that improves data flow between learning networks.

To conclude, our response must be a proactive step based on pedagogy 4.0 towards the future to enable us, to not only confront COVID-19 and counteract its effects, but also to live in and interact with the modern world economically and socially. People, be they young, adults or elderly, are in need to develop their abilities to learn and reinvent themselves.

A new pedagogical paradigm for future of education

Dr. Ahmad Ouzi, Professor, University of Mohammed V in Morocco (Arabic)

Dr. Ouzi presented a new pedagogical paradigm by reflecting on the educational consequences of COVID-19 pandemic and the profound socioeconomic changes in this digital era. The main points are highlighted below.

School closures cause serious education disruption. However, it also leads policymakers, teachers and education practitioners to rethink the role of schools and educators as well as the educational needs of many often-neglected learners, for instance, adult learners. To better prepare for the education after COVID-19, it is critical to rethink the traditional face-to-face teaching modality in schools as well as the future pedagogical possibilities, especially e-learning.

[13]The National Education Association and the Partnership for 21st Century Skills (P21) interviewed leaders in diverse fields to determine which of the 21st century skills were the most important for K-12 education and extracted four specific skills which became known as the "Four Cs"— critical thinking, communication, collaboration, and creativity.All four of these items are essential inside the 21st Century classroom. For more information, please see here: An Educator's Guide to the "Four Cs"

Nowadays, traditional teaching approaches can hardly fulfil modern educational requirements and needs. COVID-19 has accelerated the transition of education from traditional models that focus on rote learning and memorization to more digitized and learner-centred education modalities. Technology has integrated in education and will continue to play a pivotal role in education for future generations. In post-pandemic time, education might not be restricted in certain groups and time-space. And we have to prepare corresponding educational policies and strategies in line with the future-oriented education. The following should be reflected on:

- Adequate and quality education is key to form human capital, which is the foundation for any plan to succeed.
- An education system that values deep thoughts and diverse experiences is needed.
- Teaching resources have to be revised to prepare the learners for an envisioned future.
- The efficiency and values of digital schools should be considered to fill the gaps and alleviate the inequalities in the current education situation.

As for the development of e-learning, there are also some concerns:

- Students no longer “go to school” to learn since the schooling is based at home now.
- Teachers are lacking appropriate training responding to such a crisis.
- Many schools scarcely use technology in teaching.

Recommendations are drawn accordingly:

- Launch a platform for innovative teachers and ensure participatory work among teachers.
- Encourage and guide the students to continue self-learning as they experienced during the confinements due to COVID-19.
- Provide professional support to teachers to build their skills and competencies to deliver quality education in every educational setting including remote teaching.
- Ensure everyone has access to the internet and digital devices to conduct teaching and learning activities.

Q&A

1. **What is UNESCO's strategy to support countries to overcome COVID-19?**
   UNESCO is part of a global discussion on the futures of education in all areas. HQ and field offices are developing policy papers to help Member States deal with and overcome the challenges resulting from the pandemic, such as how to compensate learning losses, how to evaluate and assess learning, how to provide distance learning with the help of teachers. As an NGO, UNESCO cannot force a country to adopt or implement a certain policy; it can only provide guidance and advice. It is up to Member States to decide whether or not they put our suggestions into practice.

2. **Is there an international collaboration in distance education in terms of proving an interactive global education platform for all the groups that contain the latest time to pick information and distance education lessons in all languages of the world?**
   Part of what UNESCO has mobilized in the last three months following COVID-19 is the global coalition around education response for COVID-19. This includes more than one hundred and twenty partners of all types now, and it does not include many of the Ed-Tech partners. It does not also include academia who are involved in distance learning as well as some platforms. Currently, we have lists of resources on the website and we are working with the Ed-Tech corps to make that a searchable database, these are more in terms of resources, either learning resources, training resources, management for distance learning. That is what we have for the moment. We could work towards what participants have suggested, but that is still a more ambitious leap.

3. **How do we benefit from the COVID-19 opportunities and challenges to create a better, innovative environment for quality learning to achieve SDG 4?**
   The most important part in the future of education is the future of our children. We cannot measure the abilities and the learning of today's students using traditional means nor can we measure the quality of education based on the number of students who pass or fail academically and on academic attainment. We need to measure students' creativity, innovation and critical thinking as well as their ability to adapt to change and to whatever the future may hold for them.

4. **How can the Ministry of Education and those interested in this regard invest the crisis to reshape and utilize the basics of higher education and update it to keep pace with modern science locally and internationally?**
   Our colleagues have already gone over a number of ways that UNESCO is providing resources to the Ministry of Education about the next one. I would encourage us to all continue to organize conversations like this. It is particularly valuable for us to bring experiences from different countries, different regions together that allows us to see the range of possibilities and how challenges are being met in different ways. There is a developing body of expertise and guidance coming out of different parts of UNESCO. That is valuable. We are collectively developing some kind of comparative research in science into this, and I think we have seen that is positive today with the contributions from colleagues in different places.

Conclusion and way forward

Dr Sobe Noah Webster, UNESCO HQs

Post covid-world will be a very different world. As Dr. Hamami suggested at the beginning of discussion, we still have the opportunity to turn this ordeal into an opportunity. I have an observation, as a discussant, on how we are thinking about the future;

Dr. Belhoul brought us the motto of the Dubai Futures Foundation, 'the future belongs to those who can imagine it, design it and execute it', and my UNESCO colleague Dr. Tawil, talked about the future as an attitude, as a vision of what will come, with what we anticipate and what we desire shaping our actions and our planning. In fact, many people suggest that imagining and understanding the future, can be understood as a kind of literacy and in fact, something that we need to ensure is equitably available. Imagination and aspiration are important educational topics because they are essential for designing and realizing possible alternative futures that we want.

Alongside this though, I think we have also seen in the discussion an indication that there are changes, some truly significant transformations underway, transformations that are normally hard to observe while we are in the middle of them. Therefore, these are the shifts that usually only become apparent when they have unfolded over several years, maybe even decades. Dr. Yin, for example, talked about a possible shift that may be underway from traditional e-learning to new models of e-learning. Therefore, these futures sometimes sneak up on us and surprise us. Nevertheless, maybe this is part of the exceptional opportunity of this unique moment that the deeper transformations have come closer to the surface. They have become closer for us to understand and to redesign.

One of the things I heard across the presentations that I think is really important for all of our future work, is that we are at a moment where education should not simply be responding to these future changes but should be driving these future changes, should be causing them. For that, we need more discussion about values, purposes and principles. I particularly thank our last speaker, Dr. Ouzi, for talking about this so eloquently, so I will close with that.

Dr Mahra Al Mutaiwei, RCEP

In the past, Education systems around the world were used to a certain pattern in which change was only superficial. COVID-19 has pushed education systems out of their comfort zone to find new, creative and innovative solutions and create new learning opportunities for students. We, as organizations actively working in the field of education, need to make sure that innovation never stops in the education field, to always think of new solutions and modalities and measure the impact and quality thereof, and to monitor, assess and follow up on education.

Dr Hegazi Idris Ibrahim, UNESCO Beirut

The discussion on the futures of education will continue in upcoming webinars, which will be organized in collaboration with our partners and focus on a specific topic. We are planning to host a webinar every 2 weeks to go more in depth into the discussion. For those who were inquiring about the Tarbiyah 21 platform, the platform is already up and running. The platform is a community of practice targeting teachers and dedicated to sharing knowledge and information. We are constantly working on developing Tarbiyah 21 and on achieving the sustainability of thereof.

Related links and resources

- Recording of the webinar on the futures of education in Arab states after COVID-19.
- PPT slide pack of the webinar
- UNESCO-Rethinking education: towards a global common good? (EN, AR)
- UNESCO Beirut Office-Cairo Declaration For Rethinking Education: Towards a Common Global Good The Future of Education in the Arab World (p.28-32/ EN)
- UNESCO Beirut OFfice-Rethinking education: towards a common global good – Regional think tank seminar (EN)
- UNESCO-Futures of Education: Learning to become
- UNESCO-A series of papers on Futures of Learning and 21st century skills
  1: why must learning content and methods change in the 21st century? (EN, AR)
  2: what kind of learning for the 21st century? (EN, AR)
  3: what kind of pedagogies for the 21st century? (EN, AR)

- Cheng, Y.C. (2019). Paradigm shift in education: Towards the third wave of effectiveness. New York. NY: Routledge.

- Di Pietro, G., Biagi, F., Costa, P., Karpiński Z., Mazza, J., (2020). The likely impact of COVID-19 on education: Reflections based on the existing literature and recent international datasets, JRC Technical Reports. Available at: https://publications.jrc.ec.europa.eu/repository/handle/JRC121071