

Educational Technology in the Corona virus time: challenges and opportunities

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ABSTRACT: *The world is currently witnessing a major event that may threaten education with a huge crisis, perhaps the most dangerous in our contemporary times. As of March 28, 2020, the Coronavirus (COVID-19) pandemic had caused more than 1.6 billion children and young adults to drop out of education in 161 countries, nearly 80% of students enrolled in schools worldwide. This came at a time when we are already suffering from a global educational crisis. There are many students in schools, but they do not receive the basic skills they need in working life. The World Bank's "Learning Poverty" indicator - or the proportion of students who cannot read or understand at the age of ten - shows that 53% of these children in low- and middle-income countries before the outbreak of the virus reached 53%. If we do not act, then this pandemic may lead to a worsening of this result.*

KEYWORDS: *Education, COVID-19, Educational technology.*

Date of Submission: 21-05-2020

Date of acceptance: 07-06-2020

I. INTRODUCTION

Delays in the start or interruption of the school year (depending on the place of living in the northern or southern hemisphere) will cause a complete disruption in the lives of many children, their families, and their teachers. There is much that can be done to minimize these impacts, at least, through distance learning strategies. The richer countries are better prepared to move to online learning strategies, albeit with a great deal of effort and challenges facing teachers and parents. But the situation in both middle-income and poorer countries is not the same, and if we do not act appropriately, then this lack of equal opportunities - which is horrific and fundamentally unacceptable - will worsen. Many children do not have an office to study, nor books, as well as the difficulty of their Internet connection or the lack of laptop computers at home, but there are those who do not find any support from their parents as hoped, while others have all of the above. Therefore, we must avoid widening these differences in opportunities - or reduce them as much as we can in a way - and avoid the increase in the negative impacts on the learning of poor children.

Fortunately, we are witnessing a great deal of creativity in this regard in many countries. Many ministries of education are already worried about relying solely on Internet-based strategies, and thus only their best-off family members can reap their benefits. The strategy appropriate for most countries is to use all possible means provided by the current infrastructure to deliver the service. Internet tools can be used to make lesson plans, videos, tutorials and other resources available to some students, and most likely to teachers. However, blogs, audios and other resources that use less data should also be used. Work with telecommunications companies to implement policies that exempt users from fees, to facilitate the download of learning materials to smartphones, which are often carried by most students.

Radio and television are among the tools that should not be underestimated as well. The benefits provided by social networks, such as WhatsApp or SMS, can be used to enable education ministries to communicate effectively with parents and teachers, to provide them with instructions, instructions and the structure of the learning process, using the content provided via radio or television. Distance learning is not only about using the Internet, but it involves learning that relies on a variety of media that ensure it reaches the largest possible number of students today.

II. MAINTAINING ENTHUSIASM FOR PARTICIPATION

It is extremely important to maintain the enthusiasm of children to participate, especially young people at the secondary level. Dropout rates are still very high in many countries, and their prolonged discontinuation can increase them. The student not only goes to school to learn mathematics and science, but he also goes to establish social relationships and deals with his peers, learns to be a citizen, and develops his social skills. Therefore, it is necessary to maintain contact with the school by any necessary means. For all students, this is a time to develop emotional social skills, and learn more about how they can contribute as citizens to the development of their societies. Although the role of parents and family is always extremely important, it is more important in that regard. Therefore, a great deal of aid from the ministries of education, through the mass media, must be directed to parents as well. Radio, television and SMS messages should be used to provide them with advice and advice that will help them better support their children.

In many parts of the world, school feeding programs provide children with the most important meal they eat every day. It is necessary to develop their perception and well-being. These programs, even if they require complicated logistical and administrative efforts, however, these meals should be provided in an organized manner in school buildings, community buildings or networks, or distributed to families directly, if necessary, which is not easy, but countries must find a way What to implement. If meals or food cannot be delivered for logistical reasons, the cash transfer programs should be expanded and applied in order to compensate parents in this regard. It is necessary to plan for this, provided that the plans are flexible and accept the amendment, in light of in light of the change in our information about pandemic paths from day to day, in light of the uncertainty surrounding the pandemic mitigation measures taken by each country in the light of what it deems necessary. Schools are likely to gradually reopen, as authorities want to limit gatherings, or the possibility of a second wave of the pandemic, which could affect some countries. In such an atmosphere of uncertainty, it might be better to take a decision based on a scenario that assumes that events will take longer, not short. The bright side of the matter is that many of the improvements, initiatives, and investments that educational systems may take will have a long-term positive impact.

This includes, but is not limited to, increasing the digital skills of teachers in some countries. Radio and television stations must realize the pivotal role entrusted to them in supporting the national educational goals - and then pushing, as hoped, towards improving the quality of their programs, while understanding their great social responsibility. Parents' participation in the educational process of their children will increase, and the ministries of education will gain a clearer understanding of the gaps and challenges (in the ability to communicate, equipment, the integration of digital tools in the curricula, and the readiness of teachers) to use technology effectively, and will take action on it. All of this would enhance the future education system in countries.

In front of all educational systems, one task is to overcome the learning crisis that we are currently witnessing, and to address the pandemic that we all face. The challenge today is to reduce the negative effects of this pandemic on learning and school education whenever possible, and to use this experience to return to the path of improving learning at a faster pace. And educational systems, as you think about responding to this crisis, must also think about how to get out of it, which is stronger than before, and with a renewed sense of responsibility on the part of all its actors, and a clear awareness of the urgency of the need to bridge gaps in educational opportunities, and ensure that all children Have equal opportunities for good education.

III. DISTANCE EDUCATION IN THE TIME OF CORONA

There is no doubt that this stage the whole world is going through is a difficult stage and has repercussions at all levels of health, education, social, economic, political and humanitarian.

The spread of the Corona epidemic demonstrated the nature and behavior of peoples, the level of countries in dealing with the crisis, but we even more discovered the nature of the political system in the world, the extent of the real readiness of many countries that were claiming to have a high level of health care, and superior scientific ability, and even reached That the United States of America has become the largest country in the number of casualties worldwide, with the hegemony and control it exercises over most of the countries of the world.

1. When did distance education begin?

Distance education has become an urgent necessity, especially in times of crisis, the spread of epidemics and viruses that require social separation. And this method of communication started a long time ago and took different forms.

In 1892 AD, the University of Chicago was founded as the first independent department for correspondence education, and thus became the first university in the world to adopt distance education, and distance education provided opportunities for adult students, and it also gave students a sense of responsibility

towards their learning, as students were sending their homework and jobs By mail, then the teachers correct it, send it back to students, and the examination system is controlled remotely.

In 1970 the Open University began using technology such as television, radio, and videotapes in the structure of distance learning, and in the last two decades four universities were established in Europe, and more than twenty around the world applied the technology of distance education, and NYSES is the first American university Open, established to fulfill learners' desires to make higher education accessible to them through unconventional methods.

In 1999, TV educations, where courses were offered via television in what was known as "tele courses", were among the most successful methods used by the British open universities, especially those founded in the United States of America under the name: (The United States Open University).

In 1956 in Chicago, community colleges provided television service in teaching by coordinating a number of cable channels, and across educational channels in compliance with the Federal Communications Commission Act.

In the late 1980's, distance education made progress as it employed compact technology for educational video films. It consisted of optical fibers in both directions for video and audio. Thus, the new technology was able to reduce the great distances between learners and teachers, and the two parties heard each other.

With the advancement of technology and electronic communications, distance education has transformed into education using computers, the Internet, and multimedia in order to achieve maximum effectiveness, and all this has shaped the revolution in the field of information technology.

2. Countries willing to distance education

The evolution of the Corona virus, and its widespread spread around the world, and its transformation into a looming ghost, pushed all countries to resort to using the distance education method to achieve social divergence, with technical and information capabilities varying from one country to another, depending on the willingness to use this method, and training Teachers, the nature of students, their ease of use of this method, and getting used to it.

It is the era of the digital transformation in education, despite everyone, to complete the educational process and not stop it. This virus, "the emerging corona" or "Covid-19", put billions of people around the world face to face in front of the "distance education" system.

And a side of these billions found himself ready with his proven tools, documented in the face of the decision to disable, and others wrestle, and rush to perhaps catch some of what they missed.

As the statistics from the United Nations Science and Culture Organization (UNESCO) say: That the number of students forced by Corona to drop out of schools is one billion and 344 million, and 914 thousand students in 138 countries around the world, with 82.2% of the students enrolled in schools, including about 83 million school students in the Arab countries (in addition to the number of dropouts from education And those who were arrested by wars and ongoing conflicts).

In the Arab countries, the method used in distance education varies and varies according to the capabilities of each country separately, and within each country, where there are national and national digital gaps, and their infrastructure is ready due to the lack of many of these countries for the requirements and equipment related to distance education, with The lack of prior experiences to measure its success in the event of its application, as a precautionary measure to combat the Corona virus.

And obstacles remain, most notably the slow Internet, as Syria, for example, ranks No. 195 globally in the speed of the Internet, but there are many villages and hamlets in some poor countries that do not have internet access.



Figure 1. Countries that have shut down or localized the schools in the world (UNESCO Report)

For the year of 2020 the country has 592900 students in 2313 schools countrywide. There are 2086 public schools with 530100 and 227 private schools with 62800 students (Geostat 2020). In a situation where the students are not allowed to go to school, the alternative is to move from traditional to online education. In this case the essential parts are the internet coverage, availability of computers or smartphones in the population. By the information of the National statistics office of Georgia for July of 2019 a total of 79.3% of the Georgian homes are connected to the internet, where the city population of 86.1 has access and the villages have 69.9%. (Geostat, Share of households with internet access, 2019). As for the computer access the country's 62.0% has the computer at home where the urban percentage is 74.6 and the rural is only 44.7% (Geostat, Share of households with computer access, 2019).

3. What if there is no internet?!

Life was going on without the internet about 25 years ago, and gradually broke into our lives, and took complete control of it, until it became impossible to dispense with it, but the risk of a complete malfunction causing the internet to stop remains a possibility, whether in the form of technical malfunction, or deliberate arrest.

The Internet has become an integral part of the details of our daily life, and it cannot be dispensed with in any way, whether on the personal level or the professional in all its forms, especially in the field of education, which has become a duty of time, to complete the educational process until the spread of this dangerous virus continues.

Perhaps the closest means of application in the field of distance education, with the absence of the Internet, educational programs will be on television screens, especially if the period is prolonged, God forbid, in which social and educational communication between students is forbidden.

Therefore, television is a specific way for the teacher to communicate information and clarify it to learners, and the role of television in the field of education and learning has supported the remarkable development of communication technologies.

IV. E-LEARNING CHALLENGES IN LIGHT OF THE CORONA CRISIS AND BEYOND

The Corona Virus crisis has clouded the education sector; As it pushed schools, universities and educational institutions to close its doors, reducing the chances of its spread. This has caused great concern among those affiliated with this sector, especially students who are ready to take exams that they prepare for such fate as Tawjihi, Cambridge and others. In light of the crisis may be prolonged.

All of this pushed educational institutions to switch to E-Learning, as a long-discussed alternative and controversy over the need to integrate it into the educational process; Especially after the educational process was directly affected by industrial automation and the development of technology "artificial intelligence"

(Artificial Intelligence) and "Internet of Things" (Internet of Things), as well as the information technology revolution that broke into most forms of human life and became an integral part of it.

Between the generation called "X", which is characterized by its attachment to smartphones and the use of different applications, and between the industry's need for technologically skilled cadres; The integration of technology into the educational process has become a global trend. The provision of educational material through mobile devices for "Generation X" has become a catalyst for learning instead of merely studying traditional, as it develops appropriate knowledge and skills that qualify it to meet the needs of the labor market.

The use of the Internet in the educational process is not born today but dates back to before 2000. Most universities today use what are called "Learning Management Systems". In light of the "Corona crisis" experienced by the world; The majority of educational institutions have moved towards e-learning as a more appropriate alternative to ensure the continuity of the educational process. The use of online video chatting applications such as Zoom, Google, Meeting, and WebXmate has increased significantly, among others.

According to Techcrunch, The downloads of these programs reached 62 million times between 14-21 March 2020, that is, with the start of the movement bans in many countries. The use of many educational applications and programs has also doubled. Such as Google Learning Case, Office 365 ", Apple applications, evaluation service sites and interactive activities.

According to the same site; IOS and Google software downloads increased by 45% in a week, and many readers of these lines may experience these experiences themselves while they are "forcibly" staying at home.

Despite the positives of e-learning, questions remain in the minds of many about its effectiveness as a total alternative to traditional methods and how prepared for that? What are the challenges facing e-learning?

1- Educational content

Many teachers resort to what is called "Instructional Design", in order to prepare an educational material that achieves the goals with high efficiency. This design is generally based on studying the educational needs of students, setting goals and appropriate means to achieve them, and tools to measure the extent of learning and feedback. Examples used in educational design are ADDIE, ASSURE, and others, and e-learning is no exception.

But what's the challenge here? There are several aspects that should be considered before using e-learning. We offer the most important of them:

2- Teaching aids

Choosing educational methods constitutes a fundamental challenge in the traditional and electronic educational design, but in the latter it is greater, especially with the urgent need to employ interactive learning that increases the attention of students by involving them directly as contributors rather than as recipients, and this will increase the motivation factor and achieve better results. Here, the teacher must make a determined effort to determine the appropriate interactive means for each goal; The process of engaging students in different places, and maintaining their attention across devices, is not easy, but it is certainly not impossible.

The same applies to the assessment process, in particular the calculation of marks (Summative Assessment); While written examinations are considered the most common method, especially in midterm and final exams - despite a noticeable shift towards alternative evaluation methods - electronic evaluation seems difficult, because monitoring is impossible to avoid fraud by using the same devices.

There are a lot of programs and applications available on the Internet to achieve student interaction in the educational process individually or in groups, including Quizziz, Socrative, Padlet, kahoot and Mindmaps, not to mention the applications provided by Google, Microsoft, Apple and others. All that the teacher needs is good planning to choose the appropriate method for each educational goal, but it may not yet be sufficient for the final evaluation and monitoring of students' scores.

3- Covering different needs and learning styles

Considering the diversity of learning styles is part of planning elements for a fair and effective educational process; There are — according to Fleming and Mills's VARK model — four basic modes of learning: auditory learners, visual learners and Kinesthetic Learners, and the reading and writing learners pattern.

The responsibility of the teacher here is to vary his means to cover different needs. Focusing on speaking from his side during the time of the educational session may be appropriate for the hearing, but it is tedious for the visual and the dynamic. Here, the teacher needs to choose the appropriate programs and applications to prepare a "combination" of educational materials in line with the different patterns.

4- The readiness of the teacher

The term "Baby Boomers Gen" is called the categories that were born between 1944 and 1964, and one of the biggest problems facing this category - regarding the subject of this article - is the readiness to use modern technology in the learning process, This is not a derogation from them, but it is a reality imposed by the late discovery of many devices of technology and applications.

It was among those who sensed the importance of joining her knees so he learned and used them, and some of them thought that he was indispensable to them. However, the tyranny of technology, the passion of generations with it, and the environmental awareness of the need to reduce the use of leaves, to other factors; It led to a gradual and large shift towards technology, which constituted a shock to this group, which has now become under the reality of the necessity to use technology, and in detail extends beyond uploading and sharing files on electronic clouds even further.

And there is another category - not from this generation, but from "generation X" and "generation of millennials" (millennials) - she lived in a state of denial and neglect of all these variables, she did not use technology appropriately in the past, and she now lives in the same dilemma, but she may be Better than the previous generation, given its knowledge of the basics of technology.

Therefore, the Corona crisis resulted in the launching of courses for teachers in the field of e-learning and its various means. There is no doubt that they will face a "funny" challenge which is the speed of their students in keeping pace with technology compared to them, and their choice here is to accept it with a sporty spirit and some fun!

5- Availability of technology:

Availability of technology is an important factor for the success of the e-learning idea. Without it, it will become a dream. There are different levels of this challenge. The availability of devices, the Internet, Internet speed and Internet bundles, each of which is a challenge in itself or in combination with others. The student (or even the teacher) may have the device, but he may not have internet access in the first place, and if it is available, it may be slow, or perhaps with an insufficient package to cover video presentations and large-sized materials.

Here, the teacher must know the conditions of all his students to choose the most appropriate methods for the group. For example, if the problem is related to the lack of adequate packages for students, then the materials can be prepared in small or medium sizes, and it may also be better to reduce the use of video in direct meetings or use it for a short time.

The problem of effective learning is not restricted to young people. Adults, too, are increasingly required to refresh their knowledge and acquire new skills as they change jobs and careers.

This failure to instil learning is costly, with Unesco estimating that 10% of global spending on primary education is lost through poor-quality delivery. On the other hand, Unesco data also show that quality education can increase a country's gross domestic product (GDP) per capita by 23% over 40 years.

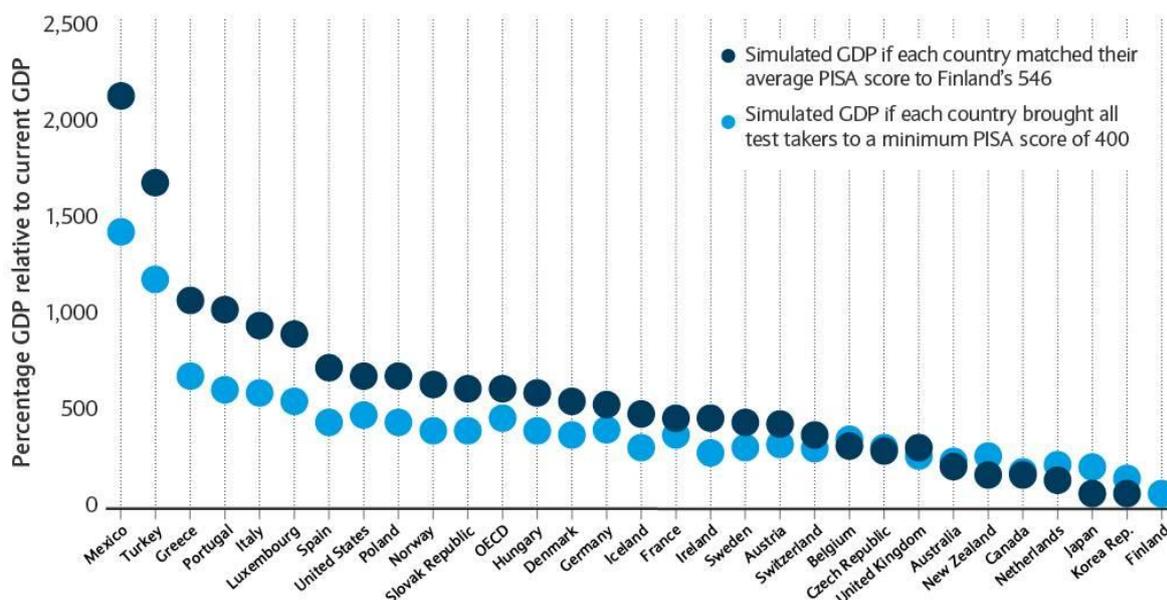


Fig 2: Simulated additional GDP between 2015 and 2090 attributable to increased learning (relative to current GDP), by scenario, selected countries.

With the help of advanced technologies such as artificial intelligence and virtual and augmented reality, lifelong learning is expected to become the norm, with education tailored to people's individual needs as they move through their life cycles. Could this transformation happen through technology, and as the education sector is forced to embrace the change, what will come of this kind of digital disruption?

V. CONCLUSION

After life stopped in most of its fields in response to the reality imposed by Virus Corona, that heavy guest, education was one of the least vital areas stopped; As all educational institutions rushed to e-learning and its platforms or distance learning in order to keep the education wheel continuing in its rotation, and from here began the debate about e-learning among the community of teachers and students, so many became confused about what they will do; Some even forgot that before the e-learning there was education, then the facts about e-learning soon unfolded.

Many teachers and workers in the educational field believe that the use of technology in education is a guarantee of understanding the student. If you use technology, you will not accept any result from the student except complete understanding and overwhelming pleasure, and this is not a valid matter. Technology is not a means in the hands of the teacher and at his disposal From the black plate to the green plate, the white and the smart, the student could only understand his lesson from the creative teacher first, then he was able to his field secondly, and the fun was only by employing that creative teacher because of the means and putting it in its right place and time so that it would not be a burden on it. Then he begins to blame himself and to blame that he has not achieved with the students despite the amount of technology available in the class.

Certainly, the crisis that faced the educational sector - due to the outbreak of the Corona virus - pushed e-learning towards the forefront, so it became an irreplaceable option (except in the absence of infrastructure). Teachers will face great challenges to cope with this sudden shift, but with appropriate planning many obstacles can be overcome.

There remains an important question in the minds of many, which is: Will the momentum of e-learning continue after Corona, or will it fade and things return to their previous track? There are many opinions here among those who think - or may wish - that things will return to what they were, and those who believe that the long-awaited e-learning is irreversible.

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