



Digital and online learning in education - the answer to corona pandemic - a challenge of “leaving no one behind”

With the pandemic that hit the whole world during 2020, lives of all people changed, our daily habits, the way we work, the way we move, the way we trade. The professional and productive fabric of each country suffered a huge blow and continued to operate only in alternative ways. Education changed, it had to adapt to the new era. The educational practice had to be applied with new data, remotely and via the internet. In this article an attempt is made to present the new model that was applied in Greece but also in many countries, that of distance education, digital and online learning.

Undoubtedly, during 2020, the social, political, economic and cultural conditions of the time have changed due to pandemic and their main feature is the rapid scientific and technological development and use of these means. In this context, the once classic role of the school, as a basic social institution, in the provision of knowledge and the development of skills, seems to be subject to some changes, because the conditions for the formation and provision of cognitive data are multifaceted and varied. The COVID-19 pandemic has created the largest disruption of education systems in history, affecting nearly 1.6 billion learners in more than 190 countries and all continents (UN, POLICY BRIEF: EDUCATION DURING COVID-19 AND BEYOND, Aug2020). In addition, today's reality forms a new framework of educational and social needs for each individual, especially in terms of the search, acquisition, management and utilization of new knowledge.

New information and communication technologies can be valuable tools for acquiring knowledge, promoting education and securing lifelong learning when the traditional way of life teaching is impossible to achieve. But their introduction and use in educational practice should not be seen in the light of a simple technological modernization, *“it must be done under “pedagogical conditions that will ensure humanitarian education for the society we envision”. As a result, the student will critically approach both the “information society” and the “knowledge society”* (Ministry of Education, 2003).

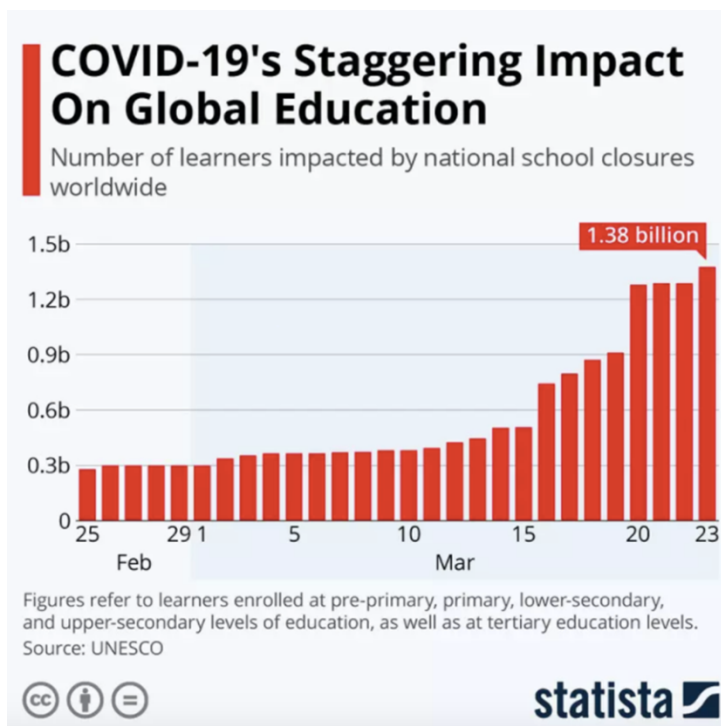
To achieve this goal, it was not enough just to equip schools and students with the necessary technological infrastructure, but mainly the implementation of a new pedagogical strategy and the development of appropriate IT programs to support all subjects. Modern educational means, products of information technologies, contribute



to the effectiveness of teaching, if they are used in the appropriate way, the equipment is available, and access is provided to all students. The role and value of using modern educational tools are of course found in those characteristics that differentiate them from traditional media. The promotion of this role of modern educational media is achieved at the instigation and guidance of teachers.

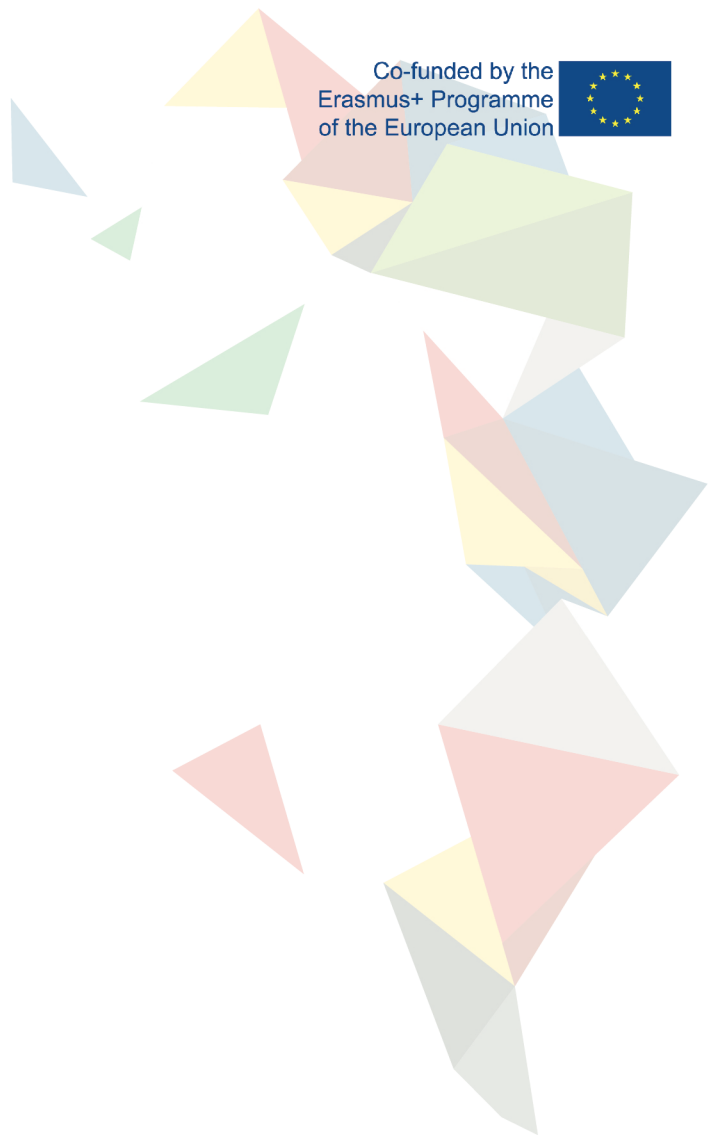
The COVID-19 has resulted in schools shut all across the world. Globally, over 1.2 billion children from 186 countries are out of the classroom. *At the peak of the pandemic, 45 countries in Europe and Central Asia closed their schools, affecting 185 million students* (Donnelly & Patrinos, 2020). In Greece, children up to the age of 11 returned to nurseries and schools for only a month at June after initially closing on 12 March, but secondary, higher and VET education students are mainly responding to roll calls from their teachers online. On November 7 Greece entered its second national lockdown following a sharp rise in Covid-19 cases, which signaled the imposition of emergency measures for 3 weeks at the beginning which extended until the first week of January 2021. At the second lockdown, restrictive measures include the mandatory wearing of a mask everywhere in public, 24-hour restriction on movement (Greek people are allowed to leave their homes only for specific reasons and must notify authorities by sending an SMS), mandatory Teleworking-online work for 50 percent of employees both in the public and private sectors, closing of certain businesses, including retail stores, bars, cafes and restaurants and closure of schools of all levels and compulsory distance learning in public and private sector.

Teachers and administrations were not well prepared for this transition and were forced since March 2020, to build emergency remote learning systems almost immediately. *As of early December, 5,623 schooling days have been lost across all of the countries in Europe and Central Asia, taking into consideration that since March 2020, most schools across ECA were closed* (Donnelly & Patrinos, 2020). One of the limitations of emergency remote learning was the lack of interaction between teacher and students. However, several countries showed initiative by using alternative methods to promote interaction between teachers and their students, including social media, email, telephone and even the post office. To overcome this obstacle due to lack of physical presence and interaction between students and teachers during the pedagogical process in classroom, teachers tried new ways of communicating with students taking advantage of technology and social media networking (Facebook, Messenger, Viber, What'sApp etc.).



In response to significant demand of all institutions, many online learning platforms are offering free access to their services. In Greece the government instructed full time students at primary and secondary education, to resume their studies through online platforms. The Greek Ministry of education provide, since March 2020, Cisco Webex platform (Video Conferencing and Online Meetings) for the synchronous lessons e-class platform for asynchronous lessons. Additionally they offered one channel of the public television to broadcast educational programs for primary education. Universities they were able to choose alternative platforms and methods.

In the first wave of the pandemic in March 2020, a ministerial decision determined the imposition of distance learning in primary and secondary education using synchronous and asynchronous education methods depending on the judgment, skills and capacities of teachers and existing technological and network infrastructure and the internet accessibility. Greek teachers and administrations were not well prepared for this transition and were forced since March 2020, to build emergency remote learning systems almost immediately. The application of e-learning during the first phase of the epidemic in Greece was extended to universities and was introduced as the only way of teaching in the period of the first lockdown with limited results. The test material for the national exams that are a prerequisite for admission to Greek public universities was reduced in all subjects and the Greek educational system was found to face a completely unprecedented situation despite the support of the social partners and the ambitious efforts of teachers.





Even before COVID-19, there was already high growth and adoption in education technology globally, with tech investments reaching US\$18.66 billion in 2019 and the overall market for online education projected to reach \$350 Billion by 2025 (Li & Lalani, 2020). In almost all European countries, specific strategies relating to digital competence and the use of ICT in schools have been adopted, yet data show that technology is greatly underused in the classroom. At both primary and secondary school levels, approximately half the students across the EU do not use computers in mathematics or science lessons, even when computer availability is not an issue (European Commission, 2011). In 2012, 96% of 15-year-old students in OECD countries reported having a computer at home, 72% of them reported computer use at school, though in some countries almost half of students reported using computers at school (OECD, 2015a). In Greece, the last decade was an effort to equip schools with computers and the training of teachers in IT skills is in progress. However, it is unclear to what extent these seminars were oriented towards profoundly changing teachers' practices by also changing their beliefs about the teaching and learning process.

While some believe that the unplanned and rapid move to online learning –with no training, insufficient bandwidth, and little preparation – will result in a poor user experience that is uncondusive to sustained growth, others believe that a new hybrid model of education will emerge, with significant benefits. For the curricula that every country has established, digital learning is taught across the subjects. However, in most cases this is not visible in the curriculum documents (i.e. implicit or described among expected learning outcomes), and restrictions already exist in terms of the way the curriculum is implemented in the education system as a whole. A similar problem arises from the formation of the assessment of all subjects.

At the advantages of the online learning is proven to be the quantity in both time and material. Some research shows that on average, students retain 25-60% more material when learning online compared to only 8-10% in a classroom and e-learning requires 40-60% less time to learn than in a traditional classroom setting because students can learn at their own pace. Additionally, the students have multiple opportunities to gain various ICT skills and to learn in a digital environment. Furthermore, educational standards in transversal competences, including digital competence, for secondary and VET education, are expanded through digital and online learning.



Analytically, the advantages of the online learning are the following:

- + The integration of ICT in the educational process leads to positive learning outcomes by enhancing the student's involvement (active participation) with the learning process.
- + Guidance is required for the student to justify his / her answer in detail using examples or references in the educational material that lead to increased learning outcomes (Dereshiwsky et al., 2017).
- + The adoption and implementation of learning strategies is strengthened, as it contributes to the acquisition of study skills, time management skills, and organizational skills.
- + Students manage the educational material at the pace they want. They return to the educational material as many times as they want and understand it by studying the difficult points more deeply (Kirtman, 2009).
- + Student-centered teaching and learning is promoted, where the improvement of the cognitive level, the increase of the active participation and the activation of the innate possibilities of each student are the demands. The teacher is the mediator.
- + Elimination of time and local constraints and differentiation in the study rate.
- + There is no limit to the number of students to whom knowledge is channeled, as access is given to a larger number of people.
- + New relationships between teacher and trainee.
- + The use of digital tools such as imagery includes a dynamic that contributes to the understanding of concepts that otherwise could not be easily grasped by students.
- + The experiential discovery of knowledge
- + The connection of theoretical teaching with technical education
- + The reduction of computer illiteracy
- + The flexibility of applying different teaching methods
- + The activation of the participation, the senses, the self-action of the student
- + The interdisciplinary approach to knowledge
- + Intercultural education: acquaintance with the culture, language, customs of other peoples
- + The formation of the school of the future that keeps pace with socio-economic developments and specialization in the labor market
- + The possibility of transmitting educational content in geographically remote areas, ensuring equal access to education
- + The reduction of social discrimination.
- + The independence of users



- + The ability of students to communicate with teachers who teach in other educational institutions
- + The possibility of attending the same course by different teachers
- + Possibility of group cooperation
- + Ability to present student work to a wide audience
- + Ability to access a wealth of information and data.
- + Interaction through technology tools and services, such as workgroups, blogs, discussion platforms
- + Computer simulations support active learning
- + Digital calendars help students respond faster and meet schedules

The major disadvantage of the new learning method is that a structured environment is required, because students are more easily distracted. There are, however, many challenges to overcome. Some students without reliable internet access or technology struggle to participate in digital learning; this gap is seen across and within countries. Additionally for some subjects it is natural to use digital tools, while in others the use of such tools depends on the individual teacher's initiative. However the latter issue is also connected to the significant lack of basic ICT skills among a large proportion of the enrolled students, indicating a lack of opportunity to acquire those skills in primary schools. IT is being used from students to share information and to socialize online, but there is, as yet, little evidence to indicate that the technology is being used to formulate new ways of learning and teaching and to co-construct new knowledge.

Analytically, the disadvantages of the online learning are the following:

- + The degree of two-way communication cannot be compared with the essential interpersonal communication offered by lifelong learning, where dialogue is alive and the expression of views and feelings is much more essential.
- + Discouragement of the degree of participation and involvement of the trainees with the educational content
- + Feeling of isolation from the educational process
- + Creation of inequalities related to the technological training of teachers and trainees
- + Administrative and technical support required
- + Training of all involved is required, as well as time to assimilate the changes by the whole society
- + Risk of the educational process being limited to passive transmission of knowledge, not fulfilling its pedagogical goal, which is the active participation of the student and the exercise of his critical ability



- + A new field of learning needs related to the use of digital tools opens (collection, access, evaluation, storage, presentation of information), where teachers and students will have to anticipate
- + The form of communication that is formed lags behind the living physical communication and can lead to a change in social relations
- + The ways of expression that are achieved through exclamations, gestures, handshakes, etc. are removed, a fact that reduces the personal character of communication
- + The predominance of the image should not replace the speech (words), as its power is used in the communication space for the purpose of manipulation.
- + The cost of upgrading, changing electronic devices, connecting and communicating with the internet
- + Students find that online learning requires less effort and therefore less engagement than traditional learning. Believing that less work is required, they commit to many lessons from the beginning, which reduces their ability to handle each lesson satisfactorily.
- + Students can experience the feeling of loneliness in the online classroom unless the teacher constantly makes their presence felt
- + They appear reluctant to ask a question because of the feeling of isolation that may be created

With this sudden shift away from the classroom in many parts of the globe, some are wondering whether the adoption of online learning will continue at post- pandemic time, and how such a shift would impact the worldwide education field (Li & Lalani, 2020). Although digital and online learning has the potential to innovate education and training, to open new ways of teaching and to increase the ability of individuals to acquire new skills, the lack of reliable data makes it difficult for governments and schools to develop coherent and effective policies in this area for the future and to assess the effectiveness online learning. It is critical to set realistic objectives, and to monitor and evaluate progress at school and system level, if concrete progress is to be made.

Currently, it seems that the COVID-19 crisis and the unparalleled education disruption in Greece and all over the world is far from over. But it is also clear that COVID-19 crisis has stimulated innovation in education sector and transformed the traditional in-person learning into the new “home-schooling” model embracing the fresh “learning anywhere, anytime” concept of digital education.



Although it is too early to judge how the distance learning modalities will affect education systems in globe, the existing evidence in Greece and in European countries, suggest that Digital On Line Learning could have a lasting impact on educational innovation and digitization, but at the same time remote learning could cause the widening of the educational gap to the detriment of under privileged students and the free public education. It seems that governments should fund remote learning - on line classes in public education (supply of modern ICT equipment and gadgets to schools and students at risk of economic and social exclusion, development of 5G network infrastructure, teachers training in new ICT and DOL technologies) considering that this is the solution to reduce the digital divide and prevent a learning crisis from becoming a generational catastrophe.



Glossary

Digital learning

Learning supported by ICT. Digital learning, also referred to as e-learning, is not limited to 'digital literacy' (acquiring ICT skills). It may encompass multiple formats and hybrid methods, including the use of software, the internet, CD-ROM, online learning or any other electronic or interactive media. Digital learning can be used as a tool for distance education and training, but also to support face-to-face learning.

Source:

www.cedefop.europa.eu/en/publications-and-resources/publications/4064

Online learning

Distance learning²⁰ imparted via the internet, incorporating media²¹ (i.e. text, graphics, audio, video, animation and simulations – live or recorded – protected by copyright or available as open educational resources) and web services (i.e. Web 2.0 social and networking services – synchronous²² or asynchronous²³) for a more collaborative, individualised and personalised learning experience, anywhere and at any time via desktop and mobile computing devices. Online learning is a specific type of distance learning.

Sources:

www.cedefop.europa.eu/en/publications-and-resources/publications/4064

Bibliography

- Dereshiwsky, M., Papa, R., & Brown, R. (2017). *Online Faculty Teaching, Novice to Expert: Effective Practices for the Student Learner*. USA: NCPEA.
- Donnelly, R., & Patrinos, H. (2020, 12 15). *3 things we can do reverse the 'COVID slide' in education*. Retrieved from World Economic Forum: <https://www.weforum.org/agenda/2020/12/coronavirus-covid-education-school-closures-europe-asia/>
- European Commission/ Eurydice. (2011). *Key data on learning and innovation through ICT at school in Europe*. Brussels: Education, Audiovisual and Culture Executive Agency.
- Evans, T., & Nation, D. (1989). *Critical Reflection on Distance Education*. Lewes, Falmer.
- Kirkup, G., & Jones, A. (1996). *New Technologies for Open Learning: The superhighway to the Learning Society?* In P. Raggat, R. Edwards, & N. Small, *The Learning Society: Challenges and Trends*. London: Routledge.
- Kirtman, L. (2009). *Online versus in-class courses: An examination of differences in learning outcomes*. *Issues in Teacher Education*, 18(2), 103.
- Li, C., & Lalani, F. (2020, 12 19). *The rise of online learning during the COVID-19 pandemic*. Retrieved from World Economic Forum: <https://www.weforum.org/agenda/2020/04/coronavirus-education-global-covid19-online-digital-learning/>



Ministry of Education. (2003). *Cross-current single Curriculum Framework (DEPPS) and Curriculum of Studies (APS) of mandatory education*. FEK 303B/13-03-2003 and 304B/13-03-2003.

OECD . (2015a). *Students, computers and learning. Making the connection*. Paris: OECD Publishing.

Stephens, D. (2007). *Culture in education and development: principles, practice and policy*. Symposium Books Ltd.

Αναστασιάδης, Π. (2020). *Η Σχολική Εξ Αποστάσεως Εκπαίδευση στην εποχή του Κορωνοϊού COVID-19: το παράδειγμα της Ελλάδας και η πρόκληση της μετάβασης στο «Ανοιχτό Σχολείο της Διερευνητικής Μάθησης, της Συνεργατικής Δημιουργικότητας και της Κοινωνικής Αλληλεγγύης»*. Retrieved from Πανεπιστήμιο Κρήτης: <https://doi.org/10.12681/jode.25506> Open Education, Volume 16, Number 2

Ζωγόπουλος, Ε. (n.d.). *Νεες τεχνολογίες και μέσα επικοινωνίας στην εκπαιδευτική διαδικασία*. Retrieved from Ελληνική Πύλη Παιδείας: <https://www.britishcouncil.org/voices-magazine/digital-education-china>

<https://ec.europa.eu/social/main.jsp?catId=1223&langId=el&moreDocuments=yes>

<https://ec.europa.eu/digital-single-market/en/scoreboard/greece>

<http://www.opengov.gr/digitalandbrief/?p=2133>

<https://unric.org/el/%CE%B1%CE%BD%CF%84%CE%BF%CE%BD%CE%B9%CE%BF-%CE%B3%CE%BA%CE%BF%CF%85%CF%84%CE%B5%CF%81%CE%B5%CF%83-covid-19-%CE%B1%CF%83->

[%CF%80%CF%81%CE%BF%CF%83%CF%84%CE%B1%CF%84%CE%B5%CF%88%CE%BF%CF%85%CE%BC%CE%B5/](https://unric.org/el/%CE%B1%CE%BD%CF%84%CE%BF%CE%BD%CE%B9%CE%BF-%CE%B3%CE%BA%CE%BF%CF%85%CF%84%CE%B5%CF%81%CE%B5%CF%83-covid-19-%CE%B1%CF%83-%CF%80%CF%81%CE%BF%CF%83%CF%84%CE%B1%CF%84%CE%B5%CF%88%CE%BF%CF%85%CE%BC%CE%B5/)

[https://www.thelancet.com/pdfs/journals/lanpub/PIIS2468-2667\(20\)30124-9.pdf](https://www.thelancet.com/pdfs/journals/lanpub/PIIS2468-2667(20)30124-9.pdf)