COVID-19 AND THE SHIFT IN THE CONCEPT OF EDUCATION

Hristina Ambareva, Assoc. Prof.
Institute for Philosophy and Sociology

Abstract. In this paper the author discusses the role of the health crises in 2019 – 2021 for the move towards new-media driven forms of education in Bulgaria. The text explores the idea coming from the field of the extension theory of technology and technological determinism paradigm that the implementation of digital technologies involves consequences for the presently dominant industrial concept of formal school education. Two cases are selected and reported in the paper as examples of digital innovators in Bulgaria prior to 2019, respectively in the secondary and vocational education (the companies of Ucha.se and Software University). The experience of ORES ("education from a distance in electronic environment") during the emergency is discussed in comparison to their practices. Following the comparative approach between the fully digitalized practices of education developed by the private tech-companies and the new "distance education" practices adopted by the Bulgarian school system, the author studies and defines the observed shift in the concept of education. While contextualizing and analyzing this shift within the broader frame of the digitalized education, the author is considering its implications for the concept of socialization as well.

Keywords: distance education; COVID-19; digitization; Bulgaria; secondary school; literacy.

Crises have great potential to change human and social life. Milton Friedman puts this idea perfectly into the words "*Only a crisis – actual or perceived – produces real change*" (Friedman 2002, p. xiv).

In the last several years European societies have entered a cycle of crises, one among them the outbreak of COVID-19 pandemics. It affected political agendas, the way of life, public opinion, and, in particular, it had a strong impact on education systems. Although there are crises, like the crisis of democracy, that cannot be managed only technologically, COVID-19 made the technological solutions for education to stand out. The task of the present paper is to examine the shift to digitization brought by COVID-19 to the education system in Bulgaria and to discuss how it innovates the concept of education.

The work on this article is motivated by technological determinism paradigm. One of the meanings applied to technological determinism is "*the development of technological artifacts and systems determines broad social changes*" (Kline 2001, p. 15495). The analysis provided here, on one side, points to the fact that a health crisis triggered a significant change in the sector of formal education in Bulgaria, but on the other side, in the presented cases of the private companies (paragraphs 3rd and 4th) we find advanced practices of digital education already established and the leading determinant being digital technologies and their related economy.

The article explores the effects of digital technology on the concept of education where literacy becomes separated from socialization and upbringing. This process is visible in the case of ORES education discussed in the sixth paragraph. The author analyzes it as an actual, yet, still a timid step towards a new concept of education because it did not change substantially the established practices.

1. COVID-19 and the digitization of education

In the spring of 2020, due to the emergency caused by COVID-19 and the many canceled classes, Bulgarian school system was facing the risk of annulment of the academic year. Faced with the peril of academic and political failure, the Bulgarian Ministry of Education and Science (*Ministerstvo na Obrazovanieto i Naukata – MON*) introduced the form of distance education from home. Due to the lack of ready solutions on political level, teachers were granted the responsibility to take ad-hock decisions and cope locally with the imposed distance and isolation. As a result, all around the country, the most popular social media like Facebook and Viber were quickly bestowed to the position of main communication tools for taking school lessons and handing out assignments.

By the beginning of the next academic year 2020/2021, MON introduced the new system of the so-called "*education from a distance in an electronic environment*" *(Obrazovanie ot Razstojnie v Elektronna Sreda* – ORES). A Bulgarian software platform for school administration and management named *Shkolo.bg* (2016) was also introduced. Each student was registered with a Microsoft account and access to *Office 365*, while *Teams* has become a leading tool for virtual classes. Along with the online platforms and their specialized tools for online education, Facebook and Viber remained a major channel for personal communication between parents and teachers and among parents. Their usage for such purposes remains stable so far.

In the process of advancement of online education in Bulgaria, the stages of change can be defined by the availability and level of implementation of digital instruments in the educational process and the ability of the teachers and students to use them. The time after 2021/2022 academic year can be described as a stage

of the introduction of ORES when many teachers were skillfully cooperating in the production and dissemination of educational materials for online classes. The political management of the crisis resulted in a positive reassurance of the educational technology sector, growth and active deployment of innovative solutions for digital education. Textbook publishers have adapted to the new situation as well. They established new business models and products, based on the existing know-how of the massive online open courses.

2. Resistance, adoption, optimization

School system is conservative and resistant to technological changes, especially fundamental one. For example, schools in Bulgaria have generally neglected the usage of television and the internet for educational purposes for years and the educational process used to stick entirely to the technology of printing and reading textbooks.

What we observe in the span of the three academic years of pandemics since the beginning of 2020 till the middle of 2022, is how, despite the initial resistance, ORES gets introduced under the pressure of the circumstances. Online education implemented because of COVID-19 is a good example that the adoption of a certain technology is not a matter of technology only. Very needed is the crisis of control (Beniger 1986). The emergency in Bulgaria brings for a crisis of control over the schooling process and demonstrates how the adoption of the digital tools here comes from the total impossibility to use the traditional tools and the imminent failure of the academic year with all political consequences for MON.

This point is important in order to set the limits of the technological determinism when discussing the influence of technological changes on society. What is obvious in the process in Bulgaria and the many other countries, as well, is that the adoption of online education came as a result of the joint influence of social need and political will. Despite the fact that technology is a very powerful agent of change for knowledge and education, it certainly does not act by itself. The crisis of control in the educational process during the global health crisis weakens the resistance and adoption comes under the pressure of the circumstances.

Once online education is introduced, despite the initial resistance, optimization starts. Due of optimization, the usage of the new technology does not leave the "analogue" system of education simply wrapped with digital tools. Once introduced, the new technology starts to produce consequences. When applied, nevertheless how awkward at first, the digital tools gradually bring for a deeper change.

Supporters of literacy thesis like Goody and Watt (Goody&Watt 1963), Ong (Ong&Hartley 2013), and Havelock (Havelock 1994) and the philosophers of technology like Heidegger (Heidegger 1977), McLuhan (McLuhan 1980; McLuhan&Lapham 1994), Stigler (Stiegler 1998), and Carr (Carr 2020) promote

the argument that each major wave of communication technology is powerful to shape ages of culture (like the age of orality or literacy, printing, audio-visual media and digital age of algorithms). Following Prensky's conviction about the existing "discontinuity" between students of the 20th and the "digital natives" of the 21st century (Prensky, 2001) a great number of educators and researchers explore the consequences of digitization for learning and education (Levin&Arafeh 2002; Oblinger&Oblinger, 2005; Selwyn, 2006; Palfrey&Gasser, 2008; Tapscott, 2009). Having the power to influence the experience of reality and the way information is being processed, technology is believed to exert a strong impact on the concept of education.

Without going into the depth of "discontinuity" arguments, which is not the purpose of the present paper, I will show how since 2021/2022 the optimizations of ORES (including digital tools and content production) have indeed affected the structure of education. The study of the Bulgarian case can serve to provide an argument to the thesis that the application of the digital technology to the field of knowledge alters the industrial concept of education.

Going further into discussing the change of the concept of education, I will introduce the cases of two companies, leading innovators in digital education in Bulgaria. These two cases demonstrate that Bulgaria had the technology and know-how to digitalize education several years in advance before the pandemics broke. At that time, the companies were successfully using and building digital tools for education –since 2012-2013. The main features of the companies presented here provide an excellent sample of some principles of digital education. The analysis of ORES, while having in mind the potential of digital education as exemplified by the studied cases of the private "ed-tech" companies, will be used to illustrate the transformation.

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3. The model of "Ucha.se"

Ucha.se is an educational platform for students from 1st to 12th grade. It produces and provides educational videos which are based on the state educational programs and school textbooks. The platform allows for a choice of a textbook and access to video-lessons 24/7, organized by subject and grade.

Social value which *Ucha.se* provides is a creative step towards the automation of the of private school lessons. Although available on subscription, which could discourage many parents to afford it, the service of the company is an alternative as much to the private lessons, as to the text-based learning as a leading modality of knowledge transfer.

Multimodality is the most significant innovation Ucha.se brings to school. Bulgarian education system is traditionally based on text writing and reading, while multimodality is achieved mainly through the usage of textbook pictures and photographic images. The idea of Ucha.se is to deliver the same textbook

content through video using animation, voice narration, and music. As video content closely follows the textbooks, it becomes a good supplement to text-based learning. Ucha.se produces educational content with quality that fits well into the audio-video media environment, each 21ˢᵗ century student is well accustomed to, and also allows for interaction between the platform and the user.

The service can be described as internet-based personalized learning on-demand, an **asynchronous form** of education designed by teachers for school students.

The platform offers **automatic test assessment**. Students can watch a video-lesson, take a test linked to the lesson, and receive immediate feedback. Unlike the paper test, the digital one can be overwritten many times, while the result and rating of the user are improving. The test has dual educational and motivational value – the user is rated towards its peers, but also allowed to restart the session many times.

Gamification is another prominent feature of digitalized forms of education. Games are found to be funny, on the first place, because no result is final. Gamification is a field for innovation in education with long history in entertainment industry. The gamified experience can be used both to strengthen competitiveness and promote winners or to cultivate teamwork and cooperation. The concept of the game that Ucha.se follows is based on individual competitiveness following the school system competitive model. The same element is used by *Shkolo. bg* to rate the students among their classmates, peers and all the pupils at the school. The users of Ucha.se have their avatars and the avatar is rewarded by the system with badges, points, and ratings, simulating the gaming experience. The accomplishment of a test brings symbolic rewards and encouragements.

For the first time, via the platform of Ucha.se children in Bulgaria watch short videos dedicated to the explanation of their school lessons. Following the model of Ucha.se, the platform of *E-Prosveta*, the leading textbook publishing house for the school system, also develops educational videos and content on demand, by subscription. The publishing sector prepares for the anticipated multimodal future of education embracing the "video-lesson" model: there have been mergers between small press-houses for educational content into one – *Klet*, which specializes in providing online educational resources. The success of the model of *Ucha.se* has led to exporting its business to Italy, Spain and Romania.

4. The model of "Software University"

Software University stands out among many Bulgarian educational institutions because of its concept of **blended education**, providing professional level of coding literacy with entirely digitalized service. Educational practices here are modeled after the know-how of the global companies providing vocational training in tech-related fields and is well adapted to the Bulgarian market. The leading features of the company model are as follows:

The teaching process is organized for both **online and offline classes.**

Online classes offer **synchronous and asynchronous options** due to life-streaming solutions and recordings.

Excellence comes from the efficiency of the business model allowing for the process of selection of leading national experts in the relevant field. One excellent lecturer may teach hundreds of students and the program can afford this excellence because of the scale. The quality of the teaching materials and lecturers is of high concern and there is a system for the course quality assessment by users.

Mentorship is an important element of this blended model of education. The idea of mentorship model is to create an intermediate level of assistance between the student and the lecturers. The assumption is that the student has received all the needed resources, has had the responsibility to learn them and the mentor is the one who helps the student deal with the difficulties. The system of mentorship is backed up by peers' network on Facebook and university forum.

There is an **automated system of assessment** that keeps the users and lecturers informed on the progress of the student assignments, while it removes the direct involvement of the lecturers in homework control. Homework is assigned and assessed automatically and each student's achievements are kept on record for a certain time. The students also have access to the achievements of other users, which is a gamified trigger for competition and motivation. The University automated and digitalized the almost whole process of education.

The principles of gamification are also applied here. *Software University*, as well as Ucha.se gamifies the competition for the highest results and keeps the opportunities for improvement open.

The business model of *Software University* serves as a pattern for other educational platforms selling short qualification courses like *Finance Academy* and etc. Software University also provides services to students in Serbia, Mongolia, Palestine, Romania and Indonesia.

The most important feature of the concept of education of the both companies analyzed here, is that they take the concept of education outside the industrial paradigm. *Ucha.se* rewrites the textbooks entirely in entertaining pictures and sounds which can be watched many times by numerous students on the internet. *Software University* efficiently delivers professional training following inclusive policy for life-long learning, well accustomed to the individual pace of study.

Thanks to the work of the tech companies innovating the field of education in Bulgaria after the first decade of the 21st century, the question about digitization of education in the country has not at all been do we have the know-how to provide for multimodal and digitalized forms of education. The business did have the technology and know-how well ahead before the pandemics. The platforms of *Ucha.se*, *Software University, Shkolo.bg* have made their steps towards the

digitalized future prior to 2019 and they have been ready for the challenge of the health crisis.

5. The "analog" model of ORES

In comparison to the know-how and the tools that *Software University* and *Ucha.se* have implemented in their service, ORES is not an advanced stage of digitization of education. The practice has a lot of shortcomings and can be described as analog education delivered via the digital channels of Web 2.0 under the of name "distance education".

ORES suffered at first by the lack of digital skills of teachers, students or parents, insufficient quality of internet connection, unsuitability of student's computer devices for online learning, or lack of any device at all (Hristova, Petrova & Tosheva 2021).

The combination of online and in-class education seems to result in lower quality online lessons. Teachers report that they have to prepare differently for online and offline classes (Hristova, Petrova & Tosheva 2021) and the workload is heavier to teach simultaneously both.

In the third year of online education, schools are still lagging in the provision of quality live streaming. The reasons are many - including technical ones like the quality of the internet connection and availability of the necessary hardware and software for every classroom.

Automation of homework assignments generally has not been achieved. Homework writing and assessment process was imitative of the process of in-class education. Unlike the model of *Ucha.se*, ORES education is primarily led by the concept of "analogue" education. For example, the students were reading digital copies of their textbooks or were writing their homework on hand and sending the scanned images to their teachers. The local school teacher remains the main agent for the transmission of knowledge and the process of lesson teaching repeat, as usually, class after class. The schools keep their usual organization of classes, which are well structured by age, place, subject, and schedule.

Looking at the well-known features of school education in the period from 2020 to 2022 we may be led to assume that the concept of education has not changed substantially. The structure of the classes, school program, expectations from students, and teaching methodology generally tended to be much like the traditional one. There is, however, an important difference.

6. The death of distance

The most important feature of ORES in 2020/2021 is the introduction of **distance** in a system, which has always been associated with physical attendance.

Physical attendance at school is important historically and conceptually. *Historically*, school attendance is vital for the monitorial and factory schools,

both of which were expected to educate the future factory workers (Watters 2015). Mokyr (Mokyr *2001*) analysis examines how first schools were created because of industrial development and the growing need of the capital for a better-educated workforce. Galor and Moav confirm that "capitalists were among the prime beneficiaries of the accumulation of human capital by masses. They therefore had the incentive to support public education that would sustain their profit rates" (Galor&Moav 2003, p.10).

This research on the purpose of the first mass schools attests that they were important instrument to instill discipline and punctuality in the future factory workers. We can imagine how schools require students to arrive on time and the famous school bell ringing to announce the start and the end of the classes.

Conceptually, on the other hand, physical attendance in mass schools is related to a much complex concept of education.

Mokyr*'s* research reports that at the factory school "much of this education… was not technical in nature but social and moral" (Mokyr 2001, p. 10). He also writes:

> "The early industrial capitalists spent a great deal of effort and time in the social conditioning of their labor force, especially in Sunday schools which were designed to inculcate middle class values and attitudes, so as to make the workers more susceptible to the incentives that the factory needed and to "train the lower classes in the habits of industry and piety" (Mitch, 1998, p. 245)." (Mokyr 2001, p. 10)

It cannot be denied that today's mass-schooling system reaches to this complexity of purposes. Today we have the same complex concept of education. In the Art. 3. (1) of the Bulgarian *Pre-School and School Education Act* we may read the definition: "Education is a process of instruction, upbringing and socialization" (Pre-school and School Education Act, 2016). In this definition instruction means "instruction in subjects", as explained in Art. 13 (4), and this is the closest definition of literacy in science and technology. Literacy is only one part of the configuration intended to shape the human being, while the appropriate behavior (upbringing) or the adoption of cultural values and adequacy to the market (socialization) make a larger share.

Reading French philosophers in the second half of the 20th century like Foucault (Foucault &Gordon 1980), Deleuze (Deleuze&Guattari 1983), or Althusser (Althusser 2014) we find similar confirmation of the idea of complexity in the concept of education. They regard the school as a leading instrument of political ideology and power. The authors are discussing authoritarian regimes and mind-control applied through the regimes of truth production, one of which – education.

Awareness of the substantial complexity of the concept of mass school education is necessary to understand the scale of change which the application of digital tools brings to the concept of education. ORES does something very

significant and simple in the same time: it shows it is possible to separate literacy from upbringing and socialization. Via digital solutions we have literacy emancipated from the traditional body of knowledge where literacy, upbringing, and socialization are meant to exert the combined power of the state, industry, and knowledge to produce a certain type of human being.

This separation affects the place of teacher and the role of student in the educational process. ORES can be seen as a quiet revolution in the complex concept of education. It is quiet because it is not really thought of as a revolution, but it is a revolution as far as it is resisted to by parents who regard it as "bad" education. The "good" education is the "tri-partite" concept of education.

The industrial concept of education is very much tied to the idea that the teacher's mission is exactly about the unity of literacy, upbringing, and socialization. In practice, this means that the teacher in addition to teaching the same lesson many times every day, has the task to instill discipline, to control for memorization, to keep children safe, positive, and motivated, to teach morals and skills for the 21st century, to do regular assessments and administrative tasks, to communicate patiently with demanding and unhappy parents. What we have instead as a result is that the teacher's profession is associated with the highest level of burn-out and this is a strong case in Bulgaria (Hristova, Petrova&Tosheva 2021). Discipline, motivation, morale, team-working are aspects of children's development that critically suffer according to a recent report by UNICEF (The Education Commission &UNICEF 2022).

Since the Industrial revolution, education, upbringing and socialization have left home and have been outsourced to schools. We can see ORES as a part of a new post-industrial paradigm of knowledge which is asking us to remember the time of pre-Industrial revolution when distance between "home" and "work-place" did not exist. In such a way the "distance education", ORES, can be seen as really bringing for the "death of distance" (Mokyr 2001, p. 3) which certainly opens a perspective for further research on the consequences of digitization for work and education.

In this process the roles of the students and teachers are getting defined in a new way.

Let us consider the following case. The digital age concept of efficiency suggests that the teacher can make a record of own teaching and recording can be accessed online. It is a question of time to ask: isn't it wiser for a teacher to prepare one lesson for all 5th graders, to explain the lesson in the best way, and to provide the record to the students instead of presenting the lesson several times in a hurry of 40 minutes while coping with bad discipline, tests, moral and administration? Later, other challenging questions follow immediately:

Won't it be wiser for students to exchange links to their teacher's recordings and choose a teacher they find the most suitable to their motivation?

Next, can students and their parents make their best choice of a teacher not among the teachers of the local school but from a national database of the best teachers?

Finally, can we then reach to a system of (well performing) teachers who can teach children in the whole country?

The last opportunity is exploited by the platform of *e-Prosveta* which upgraded the experience of the private platform *Ucha.se* and is building own database of life video-recordings by teachers from around the country. At present, *E-Prosveta* is developing the model of online videos on demand for each lesson and each grade.

In this way, as a result of using digital tools during ORES, we can find a new layer taking place in the system of education that compliments the traditional (text)book learning and creates a powerful and independent pool of knowledge – online data bases.
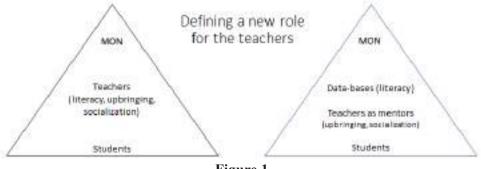

Figure 1

They represent the digital-age emancipation of literacy on the servers.

Literacy is the only element in the tri-partite structure of the concept of education that under emergency conditions can be achieved in complete isolation. In particular, technical and scientific literacy can all be acquired in the absence of a social network, as long as all needed learning materials are provided.

If literacy can be thought of as a stand-alone element of education that can be implemented in isolation, if necessary, this is not the case for upbringing and socialization. Assuming that digitalization encourages such processes of individualizing literacy, because reproduction of content can be automated and optimized, doesn't this mean that socialization should be given more weight in schooling? Shouldn't this purpose also be given more prominence so as not to fall into the shadow of literacy?

In the tri-partite notion of education, the idea of one-way flow of information from the teacher to the student is the leading one, which is why

the teacher has a status of authority as much in terms of literacy as education and socialization.

However, socialization is different from both literacy and education in that it cannot exist as a one-way transfer of sociocultural experience. It is not only an interaction between children and teachers: its purpose is fulfilled when it is able to become a meaningful interaction between children and the social world.

Socialization is not one-way transfer, but meaningful interaction

It is wrong to think about socialization only as a one-way transfer of sociocultural experience from adults to children in the way Vygotsky describes it. Actually, it is very important to understand that there is also a reverse process – children react to education and give feedback which can be measured with "indicators" like what kind of dreams they have, what kind of problems they see in society, what kind of questions they ask, what kind of projects they want to engage with in order to fix the problems they see. No such feedback? Then no real interaction and efficient socialization takes place.

Socialization has a lot to do with the connection between the students and social world. That is why the teacher is something more than a provider of literacy – he\she is a coach, a mentor, a facilitator – someone who provides the link between knowledge and practice so as the student to be able to interact with the world in a meaningful way. And the meaningful interaction explores things the both sides – the social world and the student - care about. In the context of this concept of efficient socialization connectivity, collaboration, team-work, problem-solving are all very powerful agents of change which digitization perfectly facilitates. This kind of socialization can work in a future where many crises and changes are awaiting and communication, vision, motivation, social skills, adaptability and problem-solving will be more needed than ever. Having in mind climate change and migration, wars and poverty, the crises of democracy and advance of authoritarianism, we may well expect that in time the challenges facing societies will grow.

It is true that during COVID-19 emergency the school system did not change substantially its practices and basic beliefs about the one-way adult-to-student transfer of knowledge and scores-oriented goals of learning. Providing literacy was a struggle and socialization was worse than ever. The concept of digital empowerment was far even from project-based learning, but yet, the very system of ORES was a kind of accomplishment despite these numerous glitches.

During COVID-19 emergency the school system went through a trial which demonstrated what education will look like in unstable and even unfriendly environment. ORES provided a real-life experience in unpredictability, problem-solving and adaptability, the school system could ever teach about the future. The system made advancement from educating factory workers to training creativity,

resilience and digital skills. The hands-on experience with digital technologies has finally reached the students, teachers, parents and the whole system. In comparison to pre-Covid times, teachers are now better qualified to work with digital technologies, students and parents obtained experience of using new digital tools for education.

Considering the breaking of the tri-partite concept of education, we may think more about the concept of democracy and how revolutionary it might have been once to think about the separation of powers. Today, however, the democratic countries take the separation of powers as the best way to exert each one of them.

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✉ **Hristina Ambareva, Assoc. Prof.**
ORCID ID: 0000-0002-4715-6956
Institute for Philosophy and Sociology
Bulgarian Academy of Sciences
1000 Sofia
4, Serdika St.
http://issk-bas.org/en/
E-mail: ambareva@yahoo.com