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DIGITALIZATION OF ROMANIAN PRE-UNIVERSITY EDUCATION IN CORONAVIRUS PANDEMIC CONDITIONS

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Abstract

The article analyzes the decisions regarding the implementation of the online education system in Romania as a result of the health crisis caused by Covid-19. The analysis was carried out in the period between the establishment of the state of emergency (March 2020) and the repeal of the state of alert (March 2022), during the first pandemic waves in Romania. General bibliographic resources, elements of the legislative framework and information from mass media were used. The conclusions highlight a lack of coherence in the management of educational activities during this period, embodied in the frequent change of criteria according to which the transition was made from educational activities with physical presence to those in the online system. This favored the intensification of the virus circulation during certain periods of the pandemic, contributed to widening social gaps between students and limited the usefulness of some investments in computer technology for students' access to online education.
Keywords: digitization, online education, pandemic, management of educational activities, Romania.

1. Background

The crisis caused by the new coronavirus pandemic has engendered new challenges, unprecedented in the last hundred years, in the economies and societies management around the world and in special conditions of health protection. Among these, an important role has the management of the educational process, which traditionally involves

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communities of children and young people who have to carry out their activities in best possible physical distance, as a basic premise for limiting the spread of the virus. In this context, in April 2020 was introduced for the first time in Romania the online education system, by Government Order, as a compromise solution, in order to avoid the freezing of the 2019-2020 school year, from the kindergarten level to the last year of high school.

Until that moment there was no reference in the Romanian legislation to online education, because in recent decades of Romanian society, and humanity in general, have not faced a health crisis of this magnitude.

2. Objectives

In this context, our paper aims to highlight the experience and the consequences of the forced digitalization of Romanian pre-university education dictated by the pandemic situation, in the conditions of inconsistent decision-making framework, next to insufficient endowment and training in this sense of the teachers and the school childrens.

The analysis was made during the first five pandemic waves in Romania, respectively from the establishment of the state of emergency (March 2020) until the abrogation of the state of alert (March 2022), a period in which both the health system and the education system in Romania have been managed through exceptional political-administrative decisions.

3. Methodology

The *methods* used consisted in the processing of theoretical background, in the analysis of the legislative framework, of the information flows in the mass media, as well as of the points of view of some specialists in the field.

Data analysis/Instrumentation

Bibliographical resources and legislative framework were processed, with official statistical data and the flows of information from the media (over 500 internet and media sources), the opinions of the main protagonists of the political-administrative decisions at the time, as well as those of various specialists in education and public health, based on which the authors outlined their own vision on the causes, dynamics and impact on the educational process of the analyzed phenomena in Romania during two years (march 2020, when the state of emergency was established – march 2022, when the state of epidemiological alert was abolished).

Key findings in relation to existing scientific literature:

- Digitalization and beyond: the effects of Covid-19 on post-pandemic educational policy and delivery in Europe and in Romania (Parysek, Mierzejewska, 2021; Uzzoli et al., 2021; Mocanu et al., 2021; Zancajo et al., 2022; Săgeată, 2022; Săgeată et al., 2023);
- Examining students' attitudes towards online education during Covid-19 pandemic (Sun et al., 2020; Edelhauser, Lupu-Dima, 2020 & 2021);
- The impact of digitalization on educational and administrative systems pre- and post- Covid-19 pandemic crisis (Cucoş, 2006; Ionescu et al., 2020; Paven & Banaduc, 2022).

4. Results

The crisis caused by the new coronavirus pandemic has engendered new challenges, among which management and digitalization of the educational process. In relation to the impact of the pandemic crisis on the educational process in Romania, we have identified several characteristic stages:

I. The first wave of the pandemic and preparations for an atypical school year: 2020-2021

Online education based on the cumulative incidence of infections (10 March – 12 June 2020)

Slow increase of infections under the partial lockdown imposed by a state of emergency (16 March – 15 May 2020), followed by a state of health alert. Under these conditions, the number of infections and deaths in Romania was relatively low compared to other European countries (Italy, Spain, France, UK etc.).

The schools were closed, and in order to avoid the freezing of the academic year, it was decided, by order issued by the Ministry of Education, for the first time in Romania, to transfer educational activities to the online system. The Romanian legislation did not make any reference to this education system, therefore both the teaching staff and the students had to adapt, as best they could, to the new challenges. In general, these challenges were determined by poor infrastructure and connectivity, especially in some rural areas, the lack of training of teachers and students in the use of online platforms.

For the smooth running of educational activities, especially in poor communities, 3,080,000 euros (equivalent to lei) were allocated from government sources for the purchase of electronic devices with internet connection in order to equip state pre-university education units. Later, the Government launched the procedure for the purchase of 250,000 tablets.

II. The beginning of the 2020-2021 school year

The characteristic of educational process: the premises for the return to the online education system (14 September – 5 November 2020)

The summer period, which coincided with the holidays, brought a gradual relaxation of the restrictions at the same time as crowds gathered in the resorts and tourist areas. Given the situation, the number of cases was on the rise, foreshadowing the second wave of the pandemic.

In this context, the decision on how to start the school year was decentralized from the central level to the level of local authorities, depending on the epidemiological situation in the respective school. In this sense, three scenarios were developed by the Ministries of Education and Health, depending on the incidence of infection per thousand inhabitants: green (which implied the participation of students in classes), yellow (in conditions of an average risk of infection, which implied the physical participation only of preschool, primary and secondary school students) and red (in which schools closed physically and classes were held exclusively online).

Another challenge faced by the Romanian educational system in the conditions of the transition of didactic activities to the online system was the lack of facilities granted to parents for home supervision of young students during the period when schools were closed. In order to avoid a budgetary effort in this regard, the yellow education scenario provided for the participation in educational activities with the physical presence of all students from the preschool and primary school cycles, these being considered, according to WHO statistics, to be the least affected by Sars- CoV-2 infection. A characteristic of the housing regime in Romania is the high density, in many situations up to three generations live in the same house (minors with parents and even grandparents). In this context, asymptomatic children or with mild symptoms of the disease were effective carriers of the virus to other family members who, due to their advanced age and possible comorbidities, could develop severe forms of the disease. This decision fueled the spread of the infection in the first month after the start of the school year.

III. The second wave of the pandemic

Generalization of the online education at national level by government decision (6 November 2020 – 7 February 2021)

The rapid increase in the number of infections in the context of the second wave of the pandemic again imposed, by government decision, the transition of all educational activities in Romania to the online

system. Applying this decision in a generalized way throughout the national territory, without taking into account the differences between large cities, there was an increased incidence of infections in conditions of overcrowded classes and rural areas with a smaller school population and with better physical distancing of students, created the conditions for widening social gaps between students, by limiting the access to educational resources of some students from disadvantaged areas and environments. In this context, the school dropout rate was clearly higher in such localities, where the education process could have continued in the classic system, with compliance with health protection norms. Despite all the efforts of local authorities to purchase devices for online education and to expand Internet networks, a large number of students from these areas and environments did not have access to online education (Figures 1-3).

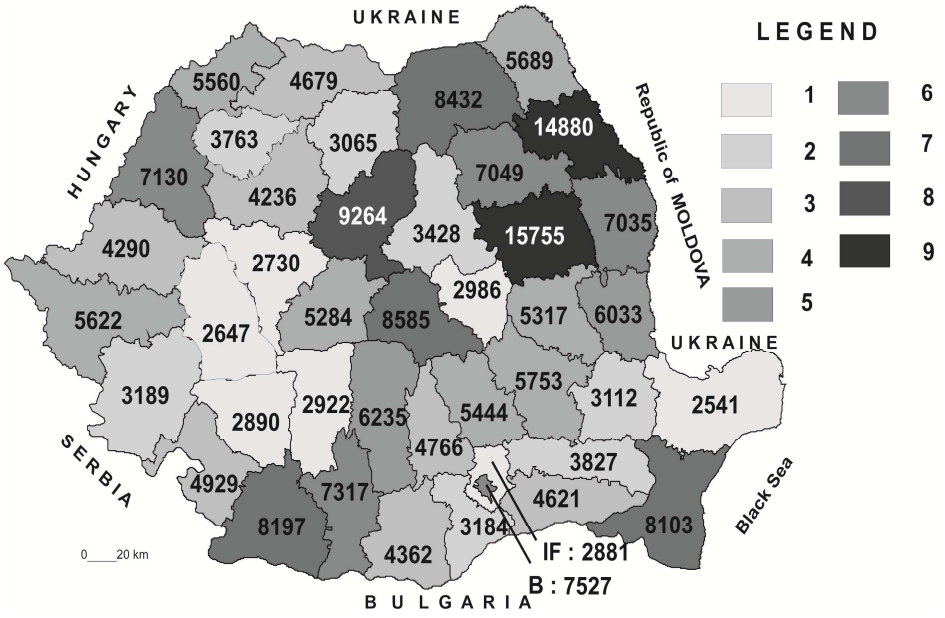

Figure 1. Students without online learning devices (December 15, 2020). **1.** 2001-3000, **2.** 3001-4000, **3.** 4001-5000, **4.** 5001-6000, **5.** 6001-7000, **6.** 7001-8000, **7.** 8001-9000, **8.** 9001-10000, **9.** over 10000

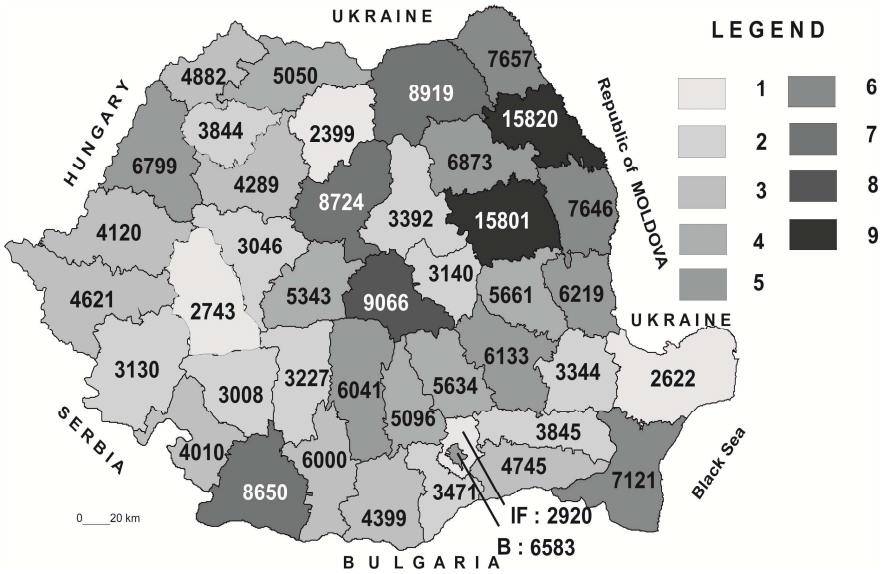

Figure 2. Students without internet access (December 15, 2020). **1.** 2001-3000, **2.** 3001-4000, **3.** 4001-5000, **4.** 5001-6000, **5.** 6001-7000, **6.** 7001-8000, **7.** 8001-9000, **8.** 9001-10000, **9.** over 10000

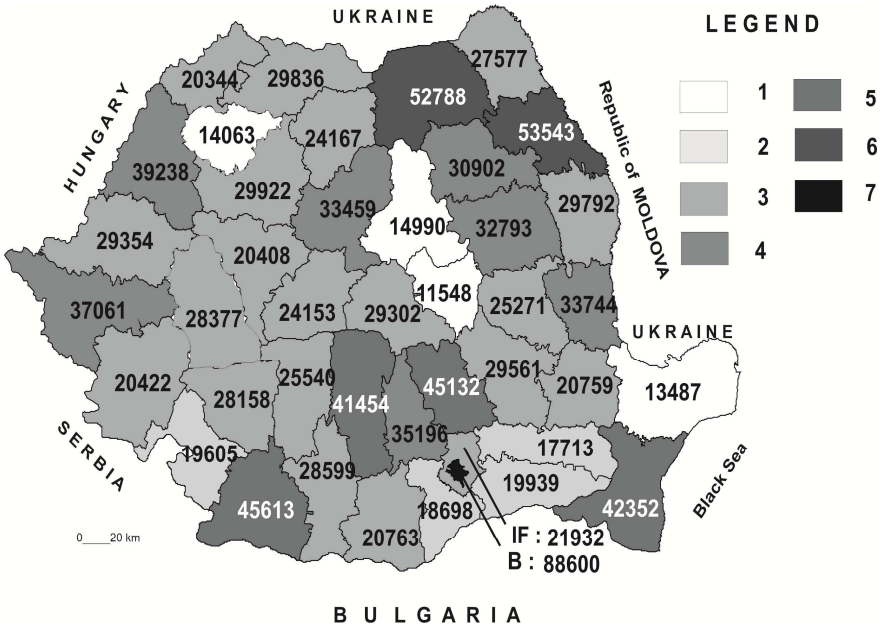

Figure 3. Students who only benefited of telephones for the educational process. **1.** 10000-15000, **2.** 15001-20000, **3.** 20001-30000, **4.** 30001-40000, **5.** 40001-50000, **6.** 50001-60000, **7.** over 80000

IV. Reducing the incidence and preparing for the reopening of schools

December 2020 – 7 February 2021

As a result of the restrictive measures enforced since October, the epidemiological trend had changed radically: official statistics showed a decrease in the daily number of infections and the rate per thousand inhabitants. Given the situation, the leadership of the Ministry of Education "still held major interest in opening schools", although experts estimated that in three months about 60% of new infections in Bucharest would be with the UK strain, and many parents did not want to send their children to school for fear of the new strain of coronavirus. In this context, three scenarios were (re)introduced: green – incidence below 1.5‰ inh., all schools are physically reopened; yellow – incidence between 1.5‰ and 3‰ inh. only kindergarten children, primary school students and students in the final grades (8th, 12th and 13th grade) start teaching activities in the traditional format) and red scenario – incidence between 3-6‰ inh. – only the kindergarten and primary school children start teaching activities in the traditional format. For an incidence of over 6‰, all students switch to online teaching activities. Just a few days before the reopening of schools, a complex set of measures regarding the organization of the activity in the educational institutions in conditions of epidemiological safety was communicated, by joint order of the Ministers of Education and Health.

V. The third wave of the pandemic

Vacation instead of online education (Mars – April 2021)

Starting from the second part of February 2021, but especially during the months of March and April 2021, there was a rapid increase in infections, corresponding to the third wave of the pandemic. Specific to this wave was the high incidence among young people and children, but also the high frequency of serious cases, which required hospitalization in intensive care units. Thus, just one month after the opening of schools, the number of infections among children had increased to over 150% compared to the moment of the resumption of face-to-face teaching activities.

In these conditions, despite the efforts to equip school units with online education devices, the new leadership of the Ministry of Education considered that online teaching generates structural losses that could only be recovered through physical presence education and, consequently, schools must be the last to be closed, exception if the epidemiological situation requires it. Thus, only one month after the re-establishment of educational scenarios (when the incidence threshold from which to switch to the online system had been increased from 3 to 6‰), this threshold was again modified by Order of the Minister, until the entry into quarantine of the locality, given the imminence of exceeding the incidence of 6‰ in the capital. In Romania, however, the declaration of quarantine in a locality was made by Order of the Department for Emergency Situations, the incidence of infections being only one of the criteria taken into account. A possible quarantine of a city of the size of Romania's capital (over 2 million inhabitants) would have imposed administrative measures difficult to manage efficiently. In addition, the application of this order generated strange situations: in Braşov, for example, after students had gone online at an incidence of 6‰, they returned to school at an incidence of over 7‰ because the city had not been quarantined, and in Timișoara once the quarantine was released, students returned to school at an incidence of 8.4‰ after entering at 6‰.

The trend of infections, continuously increasing, did not take into account the new demand of the leadership of the Ministry of Education to force education with physical presence regardless of the incidence of infections. Thus, it was forced to modify the structure of the school year by extending the Easter vacation and correspondingly the second semester courses, the argument being to avoid the peak of the pandemic, when schools will apply the online scenario anyway.

VI. The fourth wave of the pandemic

Online education according to the share of vaccinated staff in schools (15 September – 15 November 2021)

Despite the fact that in mid-July the lowest infection rate was registered since the beginning of the pandemic, the fourth wave of the pandemic had

become a certainty for Romania as well. Contrary to this epidemiological trend, the false confidence given to the population by the decrease in the incidence rate of infections and the lifting of most restrictions has caused the vaccination rate to decrease considerably. Two weeks after the start of the school year, there were already signs of an imminent crash of the healthcare system due to the large number of cases in this, the fourth wave of the pandemic.

In these conditions, of the rapid increase in the incidence of diseases and the exceeding of the critical threshold of 6‰ in Bucharest, at the level of the central authorities it was decided to decouple the functioning scenarios of schools from the incidence in the locality and to adopt decisions to suspend physical presence in relation to cases of illness confirmed at the level of the educational unit. The main arguments brought by the leadership of the Ministry of Education for avoiding the re-closing of educational units at the beginning of the school year were:

- lack of generalized connectivity (especially in rural areas and disadvantaged environments), an argument brought after almost three semesters in which online education was "experienced";
- lack of adequate connection speed (argument contested by the Romanian National Communications Authority, which claimed that the speeds required for the most popular online applications can be even 30 times lower);
- the lack of equipment available to connect to the Internet, despite the efforts made in this regard, as a result of their inequitable distribution;
- lack of digital content and digital catalog, insufficient training of teaching staff for online education (aspects highlighted after 18 months of the pandemic).

In the conditions in which the positive test rate had become enormous and the signals of an imminent blockage of the health system had already appeared due to the large number of serious cases in the fourth wave of the pandemic, at the level of the leadership of the Ministry of Education, it was decided, as in the third wave, to extend the holiday students to avoid the peak of the pandemic and the transition of educational activities online. The return of students to classes was to be done according to a criterion that was as original as it was arbitrary: the share of vaccinated staff in the educational unit. The students, who were the main vectors of transmission of the virus and were mostly unvaccinated,

were thus completely excluded from the authorities' calculations for establishing education scenarios. They wanted at any cost to stimulate the vaccination process in the context in which Romania had purchased a large amount of vaccine doses and the population's interest in vaccination had decreased considerably (Romania, along with Bulgaria, were the EU states with the lowest shares of the vaccinated population). This decision of the authorities contributed both to the intensification of the circulation of the virus, especially in schools in large cities, the most vulnerable from an epidemiological point of view, and to a widening of the gaps between students with access to technological resources and those from disadvantaged backgrounds, having exactly the opposite effect of what is declared at the governmental level.

VII. The fifth wave of the pandemic

Online education according to the occupancy rate of COVID-19 hospitals (January – February 2022)

After a considerable decrease in the incidence of infections in the months of November and December, Romania becoming one of the few "green areas" of the EU at the end of 2021, the fifth wave of the pandemic had begun to be felt strongly in this country as well, starting from the first days of 2022. The intensification of the circulation and the interactions between people as a result of the winter holidays considerably favored the circulation of the virus, in the conditions of a low vaccination rate and the challenge of the circulation restrictions imposed by the "green certificate".

The basic objectives set forth by the leadership of the Ministries of Health and Education were: 1) reducing the number of deaths, 2) avoiding the lockdown and 3) avoiding closing schools and moving educational activities in online. In this sense, a new decision of the National Committee for Emergency Situations was approved by which the suspension of educational activities with physical presence was conditioned by the degree of occupancy of the COVID hospitals. Thus, the transition to online courses at the level of pre-university education units was done when the occupancy rate of COVID beds at the county level reached 75% of the total, and the return to didactic activities with physical

presence was done when the occupancy rate of COVID hospitals was below 70%. Taking into account the lower degree of pathogenicity of the Omicron strain that generated the fifth wave of the pandemic, in no administrative unit were attained the conditions for moving educational activities in online, only isolated cases being registered, at class level, as a result of the illness teachers or a large number of students.

VIII. The repeal of the state of alert and the post-pandemic "new normality"

With the exit from the fifth wave of the pandemic and the decrease in the degree of pathogenicity of the virus and the intensification of anti-restriction protests, it was ordered, by government decision, the repeal of the state of alert and, implicitly, of all the restrictions adopted during the pandemic. These have taken on the character of recommendations, rarely respected at the level of society. Wearing a mask and quarantine in case of infection remained recommended in the classrooms.

The generalization of the presence of students in classes made that the tablets and laptops purchased for online teaching activity and which had reached the use of students exactly in the period when the decision-making trend became favorable to education with physical presence, no longer have users. In order to save this situation, the Ministry of Education has put into discussion a draft ordinance by which the devices purchased for online education can also be used in the context of the generalization of education with physical presence.

Conclusions

Centralized decisions alternated with decentralization at the local level, and the criteria in relation to which the transition was made from educational activities with physical presence to those in the online system varied according to the circumstances. If the first part of the pandemic period was characterized by the support of online education, efforts were made in this regard at the governmental level, in the last pandemic waves, after electronic devices for online education were

purchased, the ideological trend has changed radically, with attendance education being encouraged physical, even in the context of critical situations from a sanitary point of view.

The generalized implementation of online education, without taking into account the local peculiarities of the epidemic and the degree of equipment for online education and Internet connectivity, led to the accentuation of social gaps between students. On the other hand, however, in the disadvantaged environments where the local authorities have managed to successfully implement the online education system, it has contributed to reducing the school-home mobility of students. In Romania, at the beginning of the pandemic, on average, in each school, there were over 93 students and 8 teaching staff who commuted, the most critical situations from this point of view being registered at the level of poor communities in the east and south of the country, especially in the counties Botoşani and Vaslui, followed by Suceava, Neamț, Iasi, Bacău, Vrancea, Buzău, Dâmbovița and Mehedinți. In 6,713 schools in 2,600 localities (82% of the total), there were over 429,000 commuter students (World Bank, 2018).

The deficiencies of online education in the way it was implemented in Romania during the analysed period would be: 1) the lack of protocols, which allowed for an extremely permissive approach from both teachers and students, given that there was no coherent approach on the part of the authorities and minimal training; 2) relaxation of students and teachers, amid the lack of protocols, minimizing class duration and the amount of self, at-home study; 3) a poor/unstable internet connection; 4) the deficient provision of the necessary devices for the development of online learning; 5) the lacking training of teachers in the use of online devices and platforms; there was no unitary platform approved by the Ministry, everyone adapted as best they could, there were no courses for teachers to acquire the basic skills for using computer platforms; 6) the large number of students with whom a teacher is supposed to work; 7) the lack of an efficient and secure digital assessment platform (digital report); 8) the loss of interest of teachers in ensuring good quality education.

There is a need for a flexible, digitized, adaptable, quality education system and able to meet the challenges and generate change through: 1) Identifying mechanisms to reduce gap; 2) Equity in the use of digital

technologies; 3) Active involvement of all actors in the education process; and also avoidance of 4) Dysfunctions in the digitalized pre-university education in Romania; 5) Lack of predictability; 6) A heterogeneous school network, with a strong digital divide between schools; 7) Insufficiently developed digital skills for the efficient organization of the teaching process in the online environment; 8) Reduced access to technology and reduced internet connectivity; 9) The limited opportunities of families in providing support to the beneficiaries of education, children, to participate in online lessons.

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