

Outlining the Educational Achievement of a Greek Online School during the COVID-19 Pandemic

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Abstract — The suspension of schools' operation due to the COVID-19 pandemic in the 2020-2021 academic year led to the establishment of an Emergency "Online School" for students having serious illnesses, who were deemed to be vulnerable. In detail, vulnerable students were supported by teachers who were also facing serious health problems and were also deemed to be vulnerable. Innovative teaching methods such as blended learning and synchronous and asynchronous e-learning were implemented in the Online School. The Online School aimed at offering active learning experiences to students. This paper focuses on the operational and organizational characteristics of the Online School, directing attention into the implementation of Blended Online Learning and its reverberation at the students and teachers involved. Appropriate open-ended interviews were conducted to assess the success of the entire Online School expedient. It is important to underline that favorable comments were made by both students and teachers on the Online School Implementation.

Key words — Covid-19 pandemic, Online School, synchronous and asynchronous learning, vulnerable students and teachers.

I. INTRODUCTION

The coronavirus pandemic brought about a significant change in schools' operation [1]. According to UNESCO estimates, approximately one and a half (1.5) billion students were affected by the shutting down of educational institutions and participated in an unprecedented distance education, called "emergency remote teaching" [2]. It should be highlighted that both students and teachers were not trained to employ contemporary educational practices in order to meet the needs of distance education [3]. Additionally, the insufficient technological infrastructure could also threaten the success of the entire venture [4]–[6]. Despite the aforementioned difficulties, both students and teachers lived up to the expectations of distance education at an international level.

In Greece, [3], [7], distance learning was offered exclusively at schools. It is important to stress the fact that the shift from face-to face instruction to distance learning indicated digital inequities, deriving from the different extent of both students and teachers' familiarization with digital technology [8]. Nevertheless, teachers demonstrated professionalism and mutual support, leading to a digital leap [9], [10], paving the way for implementing blended Asynchronous and Synchronous Online Learning) [11], [12], by exploiting the existing infrastructure.

Under these circumstances, the Regional Directorate for Primary and Secondary Education of Attica (R.D.P.S.E.A.) established the "Online School" with a view to supporting vulnerable students to continue attending school without any disruption.

The respective research paper aims at highlighting the educational achievement of the Online School, focusing attention on the reverberation of this venture at the vulnerable students and teachers involved. It is important to underline that the paper stress out in the employment of Blended Online Learning as the key-factor to the success of this expedient. A qualitative research based on a proper analysis of data collected by open-ended interviews was carried out in order to assess the impact of the Blended Online Learning on the enhancement of the learning process. In that spirit, the research questions are shaped as follows:

- Which organizational, operational, and educational factors led to the success of the Online School?
- What was the contribution of the Blended Online Learning model to the amelioration of the Learning Process?

Given that Blended online learning was the central educational approach in the context of the online school, the paper emphasizes on the characteristics of this educational method.

II. BLENDED ONLINE LEARNING: SYNCHRONOUS AND ASYNCHRONOUS

The term "blended learning" refers to the employment of various teaching methods in the learning process. According to the European Commission, a blended learning approach can enhance broad competence development, due to the variety of learning tasks and tools it can encompass [15] (p. 11).

In most of cases, blended learning is implemented by the use of face-to face instruction combined with online learning. The importance of online learning in Primary and Secondary Education became evident during the COVID-19 pandemic while at the same time the potential of distance learning was revealed [16].

The combination of synchronous and asynchronous distance learning constitutes the blended Asynchronous and Synchronous Online Learning or Bichronous Online Learning model. Asynchronous distance learning denotes that students can access the learning material at their own time and can learn at their own pace [17].

Asynchronous distance learning combines self-teaching and asynchronous peer-to-peer interaction. Asynchronous distance Learning could be implemented through the use of Learning Management Systems. Learning Management

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Systems are not just repositories of learning content, but they store in their log files valuable data, which can be exploited with the help of learning analytics tools to monitor the progress of learners. In addition, these systems offer communication and collaboration between learners as well as between teachers and learners and can be used to deliver a fully online course, in the context of which students participate in interactive and non-interactive learning activities [18]–[20].

Synchronous distance learning takes place in real time denoting that teachers and students are physically separated only in terms of place but not in terms of time [18], [20]. Synchronous digital tools can enrich the meaningful interaction between student and teacher and among students. [21]. Synchronous online technologies provide instant feedback and enable multimodal communication [22].

It is also essential to point out that the Blended Online learning model is based on modern evaluation methods which could be employed to assess the students' academic achievement [23]–[28]. Online tests and individual and group assignments could be used to answer this purpose [29]. According to some studies, blended online learning appears to positively affect students' engagement and disposition towards the learning process [30]–[32].

The main characteristic of Blended Online Learning is centered on the creation of a community of inquiry, based on continuous communication, free open dialogue, and exchange of ideas.

III. ONLINE SCHOOL OPERATION

During the academic year 2020-21, the Online School "embraced" 1096 students from schools in Attica and other regions of Greece: 403 students were registered in Primary education while 693 were registered in Secondary. In particular, sixty vulnerable teachers were appointed at Primary Education and 400 at Secondary Education. Fifty-five (55) "online classes" were created and an average of 20 students attended each class.

It would be beneficial to lay emphasis on some principal organizational, operational and educational aspects that stand out in the Online School venture as depicted in Fig. 1. These are listed below:

1. Help-Desk Teams were providing the requisite technical support. Therefore, the entire learning process was not disrupted by technical problems. In that spirit, students and teachers could feel confident to use the respective digital tools.

2. Frequent educational meetings, pedagogical seminars and training days were organized by Educational Coordinators to support the teachers of the Online School. These seminars provided teachers with the requisite knowledge, helped teachers be familiarized with modern innovative teaching practices and also contributed to equipping teachers to applying modern educational techniques to their class with a view to stimulate students' interest. It is important to underline that these frequent educational meetings were taking place during the Online School operation in order to gradually upskilling teachers. A common managerial practice is to train teachers before the

operation of online educational ventures [33]. However, that practice was not followed in the respective online school. The first priority of the online school was to recruit vulnerable teachers to deliver the courses. Teachers' former experience didn't decisively determine their recruitment. Teachers were supported to fulfill their obligations by training during the online school operation because the online school endeavored to gradually familiarize teachers with up-to date practices. In that spirit, vulnerable teachers who were not initially positively disposed towards online learning could be given the opportunity to teach in the online school aiming at letting the new online environment change their mentality [34]. In this way, an important transformation in teachers' mentality was achieved contributing to the undisrupted operation of the online school. In parallel, the vulnerable teachers' transformation contributed to a liable vulnerable students' respective transformation.

3. Blended Online Learning was implemented by exploiting the capabilities of potent digital tools such as WebEx and E-class; WebEx was used for live lectures, while E-class offered the advantages of a competent Learning Management System. It is important to clarify that E-class worked complementary to the lectures delivered through WebEx. E-class also contributed to monitoring the entire learning process. Supportive learning material was mounted on E-class and students could get involved in individual and group activities. The use of E-class allowed for students and teachers' interaction and collaboration through an appropriate forum. In parallel, modern evaluation methods were used, suitable for assessing students' progress in online courses [23]–[28].

4. Communities of practice were developed inside and outside schools whereas informal school community groups were created on social media to exchange feedback on relevant practices; In combination to the training by coordinators, these groups aimed at helping teachers apply modern educational practices to their class in a more practical way, discussing challenges and liable difficulties in the implementation of new types of learning.

IV. RESEARCH METHODOLOGY

The research objective is centered on assessing the success of the Online School venture, identifying factors that contributed to students and teachers' achievement. In parallel, the research interest is directed into the effect of the Blended online Learning Model. In that spirit, a qualitative method was used based on open-ended questions that investigated the opinions of vulnerable teachers and vulnerable students participated in the Online School.

A. Participants

Fifty (50) vulnerable teachers and ten (10) vulnerable students participated in the research. The vulnerable teachers and students were selected out of all schools involved in the joint venture in order for the sample to be representative. Common characteristics such as gender and age did not decisively determine the selection. Though, both primary and secondary school students and teachers were selected to participate in the research,

B. Research Tool

The data collection tool, which was selected according to the research objectives, was the open interview given that it is a common practice in qualitative research. The open interviews with the teachers were conducted by the researcher through teleconferences. The interviews with the students were carried out by their teachers through teleconferences. The interviews were recorded and then the researcher deciphered the content of the interviews. It is important to clarify that pseudonyms were used instead of student names to ensure personal data privacy and protection.

C. Content Analysis

A flexible content analysis approach was used, in which coding categories were created by the researcher and derived directly from the open interview data.

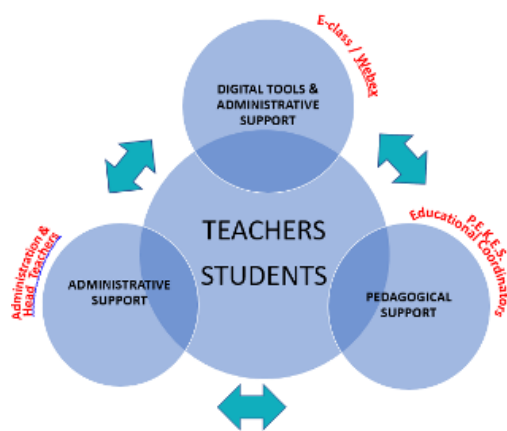


Fig. 1. Schematic representation of online school support.

V. RESEARCH RESULTS

The favorable comments of vulnerable teachers and students indicated the success of the entire Online School venture. These comments are listed below:

A. Students' Comments

- S1 (Primary School student): *"The lesson was restful and relaxed. [...] The lessons had photos, images and videos. It was easy."*
- S2 (High School student): *"The Online School was a school of necessity. Our teachers and we used Webex and E-Class."*
- S3 (Upper High School student): *"I completed digital assignments and submitted them to my teachers. The teachers would ask us to watch video lessons and answer questions."* (The specific student entered the University)
- S4 (Upper High School student): *"At first, we couldn't get along. Sometimes we were slow to connect to the Internet. But soon the situation improved."*

B. Teachers' Comments

- T1: *"My adaptation to distance education was excellent. I enjoyed the flexibility in planning the lessons."*
- T2: *"The combination of synchronous and asynchronous learning was excellent. [...] However, I*

believe that synchronous learning was more beneficial to students mainly because of the immediate interaction and immediate feedback".

- T3: *"I applied the flipped classroom method and it really worked motivating my students."*
- T4: *"In asynchronous distance learning, I used the E-class platform of the Panhellenic School Network every day. I was preparing the digital material that the students were studying"*.
- T5: *"All students were studying and I guess most of the students in the last grade of Senior High School will succeed in the Panhellenic Examinations and will enter the university"*.
- T6: *"The students were happy with distance learning, they welcomed WebEx and e-Class with great enthusiasm. They liked working in small groups and the process of problem-solving activities on their own"*.
- T7: *"There were difficulties in achieving substantial participation of all students in the course"*.
- T8: *"During the lessons I asked students by their name to answer questions at regular intervals"*.
- T9: *"I adapted the Curriculum to the specific conditions by creating my own teaching material according to the pedagogical instructions that were given by the Education Coordinators"*.
- T10: *"Distance education was very tiring. [...] Working with other colleagues of the Online School relieved me. [...] A good experience was the online mutual observation of our teaching with a colleague."*
- T11: *"In the Online School we would like to have a teachers' decision committee, as in all schools, but it was not foreseen. We were discussing informally with each other"*.
- T12: *"Sometimes I had to change the design of my teaching"*.

The indicative students' comments (responses) indicate that students welcomed the synchronous and asynchronous distance learning courses, feeling relief while achieving rich learning outcomes in all school subjects.

The indicative teachers' comments (responses) underline some important factors that led to the success of the Online School:

1. The employment of distance education offered flexibility in planning the lessons.
2. In synchronous learning students were provided with immediate interaction and feedback.
3. The Flipped classroom model, which is a central approach suggested for implementing Blended Learning, appeared to work well.
4. Educational coordinators' contribution was vital to helping teachers creating their own teaching material that could meet the pedagogical standards dictated by the curriculum
- 5 Teachers' peer-to peer collaboration appeared to be rejuvenating.

However, the aforementioned teachers' comments indicated some negative issues in regard to Online School implementation:

1. It was not easy for teachers to engage all students in the learning activities.

2. A teachers' decision Committee (not existing in the Online School) appeared to be necessary.

3. It was not easy for teachers to change their teaching approach.

VI. DISCUSSION OF THE RESULTS

The indicative favorable comments of both vulnerable students and teachers indicated that the Online School implementation appeared to be successful. In relation to the research questions, factors related to the blended learning implementation as long as factors related to organization aspects (for instance, training organized by coordinators) appeared to assume cardinal role in the successful implementation of the Online school. Nevertheless, the extent of each factor's contribution to the success of the entire Online School venture cannot be identified, given that these factors have derived from qualitative data (teachers and students' opinion).

In regard to the impact of Blended Learning on the amelioration of the learning process, teachers' comments indicate that the use of the Blended Learning appeared to increase students' interaction and feedback. However, more quantitative data could be needed in order to fully identify the ways the learning process was ameliorated by the use of Blended learning.

In terms of teachers' transformation in their disposition towards online educational practices, teachers' comments indicate that some teachers tried to adapt to the new educational environment although they were initially negatively disposed towards up-to date practices. The collaborative climate in the online school encouraged teachers to achieve the requisite transformation, a finding which is also underlined in a specific study [34].

Furthermore, although teachers were not hired on the basis of their former experience in online teaching and they were not trained before the online school operation, they didn't fail to achieve the online school's goals. This managerial practice yield fruits despite the fact that teachers' training is normally included in the initial phase in the design of online educational ventures [33].

It is also important to highlight that the Online School implementation was connected to a high academic performance given that some students entered University. This is in line with some studies which connect E-learning and Blended Learning to academic achievement [35], [27], [36]. Although, the success of the Online School is examined through a qualitative approach based on students and teachers' opinions, it is essential to underline that several studies refer to teachers' positive disposition towards distance learning during the pandemic [37], [38].

Additionally, the implementation of Online school resulted in greater teachers' collaboration which appeared to be important to the success of the entire expedient. This finding is in line with a specific study focusing on the implementation of distance learning during school closure [39].

The use of competent digital tools such as E-class and WebEx which stands out in the instruction delivered at the Online School, appeared to stimulate students' interest. A

finding which is also in accordance to some studies referring to the employment of digital technology during the pandemic [40]–[42].

Finally, the implementation of flipped classroom appeared to work well in the Online School. It is important to underline that a specific study also highlights the beneficial role of flipped classroom [43].

VII. CONCLUSION, LIMITATIONS, FUTURE RESEARCH

The first conclusion to be drawn is that the Online School did not neglect students with serious illnesses, ensuring the increase of equal opportunities and the full development of their abilities, putting into practice the vision of a high-quality inclusive education. It was an online pilot school that flourished and was crowned with success because of the hard work of everyone involved.

The second conclusion drawn from the previous discussion regarding the qualitative results is that the Blended Online Learning model was successfully implemented in the Online School. The teachers of the Online School used digital technology not only with a view to presenting new knowledge but mainly with a view to creating a safe and flexible pedagogical environment. Teachers were willing to apply modern teaching practices based on innovative approaches in order to fully exploit the capabilities of the digital tools, aiming at fostering communication and collaboration. In parallel, teachers favored the differentiation of teaching, through multifaceted inquiry in small groups offering rich opportunities for the development of experiential learning and provided continuous feedback to students. The role of vulnerable teachers in emergency school distance education was crucial. In the face of the pandemic, vulnerable teachers responded wholeheartedly to the needs of the Online School.

The present work investigated the opinions of vulnerable teachers of the Online School and reflects the views of a small sample of students who were enrolled in the Online School. Some organizational and educational factors appear to contribute to the success of the Online School (teachers training by coordinators, blended learning implementation and teachers' collaboration) but these factors derive from favorable comments (opinions) by vulnerable teachers and students. Thereby, there are not quantitative results to fully indicate the contribution of these factors. In that spirit, although through opinions, it appears that the employment of innovative teaching methods such as the blended learning approach ameliorated the entire learning process, promoting students' engagement, more quantitative results might be needed to indicate the contribution of the educational factors to the enhancement of the learning process. Based on these limitations, the results of this research are amenable to further scrutiny meaning that they are not suitable for generalization. However, the aforementioned findings could pave the way for future scientific research.

It is also essential to underline that the assessment of the Online School success was not implemented at any level of education (Primary and Secondary Education), but the venture was assessed as a whole. Though, given that primary and secondary education are different in terms of

many educational aspects, this research could be expanded to assess the online school achievement at any level of education.

In any case, the successful pilot Online school implementation indicates that similar projects could be developed to meet the needs of the vulnerable students. However, more scientific research is needed to identify the way an Online School could contribute to the well-being of vulnerable students and teachers.

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