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Implementation of Online Teaching in Primary Schools During the First Lockdown in Greece: Teachers' Views

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Abstract

The COVID-19 pandemic brought about significant changes in education, with online teaching emerging as the primary means of teaching. The rapid transition to the digital world has been a significant challenge for teachers and students. This research focuses on primary school teachers' views on online teaching in Greece during the first lockdown. The study examines student-student and student-teacher interaction during online teaching, along with the benefits, challenges, and suggestions for improvement. The research is based on interviews with 15 teachers. The survey findings indicate that there was interaction between teachers and students while there was no interaction between students. The advantages of online teaching were highlighted as continuity of the teaching process, psychological support for students, development of new skills and enhancement of students' autonomy. On the other hand, the disadvantages included technical issues, insufficient teacher training to reinforce existing social inequalities, and the emergence of new forms of inequalities. In order to improve online teaching, it is proposed that teachers and students be trained, the equipment and infrastructure of schools be improved, and online teaching platforms be upgraded.

Keywords:

Online Teaching; COVID-19; Primary School; Teachers; Education Policy

Introduction

The COVID-19 pandemic has brought about significant changes worldwide, posing new social, economic, medical and educational challenges (Nicolau et al., 2020). In education, COVID-19 has brought about drastic changes, with online teaching emerging as a critical factor in the continuity of the educational process (Masali & Kougiourouki, 2022; Thanos et al., 2023). The introduction of online teaching during the pandemic period, both in Greece and internationally (Doz & Doz, 2023; Evangelou, 2022), was an unprecedented challenge (Kim & Asbury, 2020), with teachers facing the need to adapt immediately to a new reality, where teaching moved from the classroom to the digital world (Thanos et al., 2023). The forced transition to online teaching has been accompanied by multiple challenges, including the lack of a carefully designed educational framework (Lansangan et al., 2022). However, despite these challenges, online teaching has established itself as a new reality (Masali & Kougiourouki, 2022), offering a promising future for education and inspiring hope among teachers, parents and students (Garbe et al., 2020; Hammerstein et al., 2021; Kim et al., 2021).

The purpose of this study is to examine the views of teachers of primary schools in Greece regarding implementing online teaching during the first lockdown imposed due to the COVID-19 pandemic. The research questions of the study are as follows:

1. How do primary school teachers perceive the level of student-student and student-teacher interaction during online teaching?
2. What advantages and disadvantages do primary school teachers identify in the online teaching approach implemented during the lockdown?
3. What suggestions do primary school teachers offer for improving online teaching in future implementations?

COVID-19

The COVID-19 pandemic, an unprecedented global health crisis that emerged in December 2019 in Wuhan, China (Wilder-Smith & Freedman, 2020), has become the largest of the 21st century (Chu et al., 2020). The novel SARS-CoV-2 coronavirus, the culprit behind this disease, has swiftly spread across the globe, sparking severe concerns in the international community. On 30 January 2020, the World Health Organization declared COVID-19 a public health emergency as infections and deaths surged worldwide. By January 2024, an estimated 770 million infections and over 7 million deaths have been reported (WHO, 2024).

The threat of this disease has led governments worldwide to take drastic measures to limit the spread of the virus. One of the measures several countries took, where cases were increasing rapidly, was the lockdown of citizens to reduce interaction between them (Davies et al., 2020). To achieve this, governments decided, among other things, to work from home, close territorial borders and some businesses that were not considered essential, and suspend schools at all levels (Wilder-Smith & Freedman, 2020). The decision to close schools was based on uncertainty about the risks of the virus to children and the assumption that children may act as significant vectors of the disease (Christakis et al., 2020). UNESCO reports that more than 1.5 billion students worldwide were affected by school closures (UNESCO, 2023).

In Greece, the response to the COVID-19 pandemic included significant adjustments to daily life and the educational process. On 23 March 2020, a curfew was decided for residents and was only allowed in exceptional cases (Government Gazette 986/B/22-3-2020). Prior to this, on 10 March 2020, the suspension of the face-to-face educational process had already been decided, which lasted until May 2020 (Government Gazette 783/B/10-3-2020; Government Gazette 2026/B/27-5-2020). During this period, with the school units closed, it was decided that online teaching would be provided synchronously and asynchronously (Thanos et al., 2023). Online teaching, which until then was mainly applied to adults (Kalogiannakis et al., 2009), was extended to all educational levels due to the pandemic (Giavrimis & Ferentinou, 2021). In primary education, face-to-face teaching was reintroduced on 1 June 2020 and completed on 26 June of the same year (Government Gazette 2026/B/27-5-2020; Government Gazette 111 A/12-6-2020).

Online teaching and its implementation during the COVID-19 period

Online teaching is a type of educational process that takes place without the physical presence of the learner (Gentes & Cambone, 2013; Lionarakis, 2001a) who self-regulates his/her learning, removing any spatio-temporal limitation (Sofos et al., 2015). The learner follows a heuristic path of self-education and is activated under the guidance of a teacher-counsellor. As a multimodal and flexible educational process, online teaching works autonomously or complementarily to meet the unique educational needs of students who cannot attend face-to-face classes and utilise readily available and accessible educational materials (Gentes & Cambone, 2013). It usually serves adults wishing to expand their knowledge, and minors are often absent from school for health reasons (Vassala, 2005).

When implementing online teaching, the student masters new knowledge by operating with more autonomy, experientially and through discovery. One of the main factors that contribute to the implementation of online teaching is the organisation of teaching and the selection of appropriately designed educational material (Lionarakis, 2001a), which is required to follow pedagogical standards and has a supportive role. Thus, the learner is guided in his/her study and his/her interaction with the educational material is enhanced. Through feedback processes on his/her learning path, the learner is assessed, reinforced and encouraged in his/her progress (Manousou, 2008).

According to Lionarakis (2001b), flexibility and interaction characterise all the stakeholders, processes, and means of online teaching (student, teacher, learning, teaching, communication, teaching materials, place, time, educational institution, and assessment), giving them versatility.

The first attempts to implement online teaching were made by universities in New Zealand and Australia, which, from 1890 onwards, provided online teaching curricula (Sofos et al., 2015). Therefore, it is not a modern educational method, but compared to the past, it is differentiated in how it is implemented, and in the practices applied. In the past, online teaching was carried out through mail, then it was based on audio and video tapes, and later on telephone communication, while today, it is mainly carried out through the Internet (Vassala, 2005). Thus, the distance is bridged thanks to modern technological means that offer two-way communication between the learner and the teacher (Gelameris, 2015; Moore & Kearsley, 2012).

Abroad, it is widespread, and the trend is permanently increasing in developed countries where it is utilised to enrich the educational opportunities of learners qualitatively and in developing countries where it is used to combat illiteracy more economically (Kokkali & Georgiadi, 2009). Virtual schools that operate provide autonomous online teaching and constitute a dynamic and evolving educational space, especially in sparsely populated areas where the geographical distribution of the population dictates similar practices. In these cases, the initial cost of equipment and access to the educational environments are entirely covered by state funding (Kokkali & Georgiadi, 2009; Miminou & Spanaka, 2013). When online teaching is used abroad in a complementary way, it is done selectively, even without special reasons to impose it, to increase the educational opportunities of learners, for example, for gifted students to acquire higher-level knowledge earlier or to acquire information and technological literacy and prepare them for lifelong learning (Gimisis & Apostolakis, 2011).

Only when the outbreak of the global coronavirus pandemic in Greece in March 2020 was no generalised online teaching offered, neither stand-alone nor complementary. In isolated cases by researchers or private schools, there was limited implementation of supplementary school online teaching programmes. Although the global data were excellent and the Greek experimental data were encouraging, the official state needed to be faster to promote institutionally similar practices, mainly for financial reasons (Koutzeklidou & Mavroeidis, 2017). It restricted innovative actions to asynchronous educational environments, which are learning environments where students and teachers are not required to be online at the same time, which enhanced educational opportunities but lacked flexibility and interactivity. The increased interest of teachers in similar distance collaboration programmes is evident from the enthusiastic support of the European community of schools through the secure pedagogical platform of 'eTwinning' (Paleodimou, 2017).

The situation changed radically with the health crisis that imposed online teaching to reduce the spread of the coronavirus and forced the educational community to adopt synchronous and asynchronous online teaching practices so as not to remove students from the learning processes. By registering in the Panhellenic School Network and obtaining personal passwords (Thanos et al., 2023), minors and adult students had access to digital environments created for educational purposes (e-me, e-class, Webex) (Masali & Kougiourouki, 2022).

During the three months of implementation of online teaching in Primary Education in Greece, many problems emerged, the main ones being the lack of available electronic media by a large number of teachers and students, lack of relevant training, various technical problems in connecting and participating in lessons, issues of personal data protection and privacy of teachers and especially of underage students (Thanos et al., 2023). The protests were constant, but at the same time, the diligent efforts made by most of the educational community, who, despite the surprise, worked tirelessly, paid off, and about 400,000 e-class courses were created, some of which were open and freely accessible, others required simple registration in the Panhellenic School Network. Others were closed and offered only to specific students (www.sch.gr).

The role of student interaction in online teaching

A key aspect of primary education is the interaction between students and teachers, which plays a crucial role in cognitive, social, and emotional development (Pianta, Hamre, & Allen, 2012). Through social interaction, students cultivate communication skills, collaboration, and self-regulation, while also constructing knowledge through dialogue and peer engagement (Vygotsky, 1978). In traditional classroom settings, learning is facilitated through structured discussions, group activities, and cooperative problem-solving (Wentzel & Miele, 2016).

However, the absence of direct interpersonal interaction in online learning environments poses significant challenges, particularly for young learners who are at a critical stage of their socio-emotional development (Moore, 1997). Studies indicate that reduced student interaction in virtual settings can lead to feelings of isolation, decreased engagement in the learning process, and lower academic performance (Borup et al., 2014). Furthermore, the lack of non-verbal cues and immediate feedback in digital instruction may hinder communication between teachers and students, negatively impacting the learning experience (Xie, Heddy, & Greene, 2019).

The COVID-19 pandemic exacerbated these challenges, as the abrupt transition to remote learning left students and educators unprepared to address the consequences of limited interaction (Moorhouse & Wong, 2021). Although digital platforms such as Webex and Zoom attempted to replicate face-

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to-face communication, their effectiveness varied among students, particularly in early childhood education (Reich et al., 2020). The inability to facilitate spontaneous discussions and peer-to-peer collaboration further intensified these difficulties, highlighting the critical role of interaction in fostering meaningful and effective learning experiences.

Digital divide for teachers

The potential of new technologies in education is immense, offering opportunities to build knowledge and cultivate skills. These dynamic and interactive audiovisual media provide engaging learning experiences based on personal exploration, collaboration, and interaction. Learners are exposed to new forms of literacy (technological, multimodal, and critical) that are powerful tools for meeting contemporary demands (Gelameris, 2015).

Online teaching is now feasible and accessible, thanks to new technologies provided by modern online and interactive multimedia. The increased possibilities of e-learning in modern pedagogical environments support the conventional educational system at all levels and, in addition, open up avenues for further education in many fields of knowledge (Manousou, 2008). The philosophy of online teaching is based on providing equal opportunities to all those interested in gaining flexible access to knowledge (Vassala, 2005), and by overcoming the constraints of formal education, it provides expanded opportunities for learning and democratisation of knowledge. At the same time, it enhances lifelong learning (Manousou, 2008). It professes to intensify knowledge and increase learning opportunities for those who seek it at every stage of their lives through open courses at every level provided free of charge online by accredited institutions. Thanks to direct, permanent and uninterrupted access to the educational material of online teaching, characterised by interactivity, versatility and pedagogical design, learning opportunities are multiplied (Vassala, 2005).

Integrating technologies in the educational process enhances the quality of learning (Camilleri et al., 2014; Kalogiannakis & Kalkanis, 2018). Many teachers adequately meet the increased demands (Kelpanidis, 2004) by adopting innovative practices and integrating technologies into their teaching (Lionarakis, 2017; Polydoros, 2017; Somekh & Lewin, 2005). However, a percentage of teachers face difficulties in adopting digital technologies due to a lack of training or technophobia (Tassie, 2014; Anastasiadis, 2020). In Greece, teacher training in new technologies remains fragmented (Anastasiadis, 2020).

During the COVID-19 pandemic, the digital divide among teachers became more pronounced, as online teaching requires specific skills and resources (Camacho et al., 2020; Reed, 2020). In Greece, inadequate training and underfunding of public education affected teachers' ability to adopt new technologies (Anastasiadis, 2020), reinforcing social inequalities among students (Sachinidis & Polychronakis, 2009). To address these challenges, it is necessary to strengthen teacher training and financial support for access to digital technologies (Anastasiadis, 2020).

Methodology

Research Design

This study adopts a qualitative research approach to explore the experiences of primary school teachers regarding online teaching during the COVID-19 pandemic. Specifically, a phenomenological research design was employed, as this method enables an in-depth understanding of participants' lived experiences (Creswell, 2013). The phenomenological approach was chosen because it allows for an exploration of teachers' perceptions, challenges, and strategies in adapting to online learning environments.

Instrument

Data collection was conducted using semi-structured interviews, which provided flexibility in exploring teachers' views while ensuring consistency across participants (Kvale & Brinkmann, 2009). The interview guide included open-ended questions designed to elicit detailed responses regarding the challenges, benefits, and interaction patterns in online learning. Some sample questions included:

1. How would you describe your experience with online teaching during the lockdown?
2. What were the main challenges you faced in ensuring student engagement and interaction?
3. What strategies did you use to maintain student-teacher and student-student interaction?

Participants

The study involved 15 primary school teachers from various schools across Greece, selected through purposive sampling to ensure a diverse range of perspectives. Participants had varying levels of experience with online teaching, allowing for a more comprehensive analysis of the challenges encountered. Informed consent was obtained prior to participation, and anonymity was ensured throughout the research process.

A summary of participants' demographic information is presented in Table 1:

Table 1:

Participants' Demographic Information

ID	Gender	Specialty	Years of Teaching Experience	School Location
P1	Female	Teacher	22	Semi-Urban
P2	Male	Teacher	5	Rural
P3	Female	Teachers of specialist subjects	7	Rural
P4	Female	Teacher	18	Urban
P5	Female	Teacher	20	Urban
P6	Female	Teacher	12	Rural
P7	Male	Teachers of specialist subjects	13	Semi-Urban
P8	Male	Teacher	10	Rural
P9	Female	Teacher	14	Semi-Urban
P10	Female	Teacher	13	Urban
P11	Female	Teachers of specialist subjects	16	Urban
P12	Male	Teacher	6	Rural
P13	Female	Teachers of specialist subjects	3	Urban
P14	Female	Teacher	11	Semi-Urban
P15	Male	Teachers of specialist subjects	9	Rural

Data Collection and Analysis

Data were collected between May and June 2020 through semi-structured interviews, which were conducted both in-person and remotely via Webex. The choice of format depended on participants' availability and accessibility.

Participants were asked to describe their experiences with online teaching, the challenges they encountered, and their strategies for maintaining student engagement and interaction. The interviews lasted between 45 to 60 minutes and were audio-recorded with participants' consent for accurate transcription and analysis.

The data were analyzed using thematic analysis (Braun & Clarke, 2006), following a systematic coding process:

1. Familiarization with data: Initial reading and re-reading of transcripts.
2. Generating initial codes: Identifying recurring concepts and categorizing key themes.
3. Searching for themes: Grouping related codes into broader themes.
4. Reviewing themes: Refining themes based on relevance and frequency.
5. Defining and naming themes: Establishing clear thematic categories to present findings.

Reliability and Validity Considerations

To ensure credibility, the study employed triangulation by comparing teacher responses across different school settings. Member checking was also conducted, allowing participants to review and confirm the accuracy of their responses. Additionally, peer debriefing was used to enhance the reliability of data analysis, ensuring that findings were not influenced by researcher bias (Lincoln & Guba, 1985). Finally, a rich, thick description of findings was provided to enhance transferability and contextual understanding.

Results

This section presents the findings of the study, reflecting the perspectives of the participating teachers. The results are categorized into key thematic areas:

a. the level of student-student and student-teacher interaction during online teaching,

b. the advantages and disadvantages of online teaching, and

c. teachers' suggestions for improving online teaching.

Table 2:

Thematic Categorization of Teachers' Perspectives on Online Teaching

Thematic Category	Subthemes
Interaction in Online Teaching	• Limited student-student interaction due to restricted two-way communication. • Student-teacher interaction mainly through digital platforms
Advantages of Online Teaching	• Ensuring continuity and maintaining communication. • Psychological support and sense of belonging. • Development of IT skills and student autonomy.
Disadvantages of Online Teaching	• Lack of personal interaction and pedagogical climate. • Technical difficulties and lack of training. • Absence of a unified policy and delayed guidelines. • Reinforcement of social inequalities.
Teachers' Suggestions for Improving Online Teaching	• Teacher training on online teaching and technical skills. • Student training to develop digital literacy. • Upgrading school infrastructure and online platforms. • Ensuring equal access to technological equipment and internet.

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To provide a structured overview of the findings, Table 2 provides a summary of the key thematic categories and subcategories identified through the analysis.

Student-Student and Student-Teacher Interaction during Online Teaching

Regarding student-student interaction during online teaching, some teachers reported that 'it does not exist', primarily due to the limited possibility of 'two-way communication' through 'digital platforms'.

> *I have not found this to be the case. I do not believe it exists (P-1).*

> *Not among the students. I even built a wall in the e-class but did not see any interaction between them. I need to find out between them, of course, with messages if they communicate. However, from the beginning, when I had talked to some of them and I was looking for some others to find them to put them on the platform, I asked them if they had talked to these students, and they told me they had not talked at all (P-2).*

> *No, there is not (P-6).*

> *The interaction between my students during online teaching is much less than in formal teaching. Opportunities for two-way communication are reduced, and communication is often limited to more structured and formal forms through digital platforms (P-13).*

However, some teachers observed some degree of student-student interaction during online teaching.

> *Of course, there is. I see that the children are having some conversations through chat, which Webex enables them to do. When I see that they are misbehaving, I close the chat completely. They interact, but I do not want the children to talk to each other in the delivery because the essence is lost... (P-7).*

> *In the comments, they often respond to each other, i.e. there is interaction between them (P-5).*

Regarding student-teacher interaction, several teachers stated that they maintained communication with students primarily through 'digital platforms'.

> *There is interaction. I do not ask them to send me the papers so I can correct them. I do not get into that part because I see it more as a review, and I do not want to stress them out. There is interaction mainly through e-class, where they send me messages and say sir, we liked this; we did that exercise... Some also sent me corrected assignments in Email (P-1).*

> *It exists with 70% of the students (P-15).*

> *Yes, on Webex, it did not exist before (P-4).*

> *Yes. We have the messages that we communicate within the platform. Because the answers uploaded on the platform are often given in the comments, there is also interaction (P-5).*

> *Of course, there is, especially in modern education (P-9).*

On the other hand, some teachers did not observe any student-teacher interaction during online teaching.

No, there is no interaction. In the e-class, I did some exercises, and once the student completed them, he got direct feedback on whether he had done well. However, basically, there is no interaction between the children and me, although I am open and tell the parents that whatever they need, I am here (P-7).

Advantages and disadvantages of online teaching

According to the participants' responses, online teaching, as an emergency response to the challenges of the first lockdown due to the COVID-19 pandemic, presented both advantages and disadvantages during its implementation in primary schools in Greece.

Advantages

Some teachers highlighted the benefits of online teaching, emphasizing its role as a 'safe' means of ensuring continuity in the teaching process while also allowing for the maintenance of communication between students and teachers. Additionally, online teaching was perceived as offering psychological support to students and reinforcing their sense of 'belonging to a group'.

> *I believe that it is a way to protect ourselves from the pandemic and maintain communication with our students. It provides health security and maintains communication (P-1).*

> *Children's contact and their psychology (P-3).*

> *The students keep in touch with their teacher. They may feel that they belong to a group. Let me tell you I made sure to make them feel that way through some pictures that I would send them that we had taken in the classroom and tell them we continue to be a team (P-15).*

> *The children are in contact with us; they feel close to us, that we are here, we exist, and we try to reach them somehow. Since Wednesday, we have been instructed that we have the right to move on to the curriculum. That is, there is more focus on the subject matter, which interests them and piques their interest more because the character before was more repetitive (P-13).*

> *The first advantage of online teaching is that it keeps the student in touch and communication with the learning teacher. This is the most important thing; this is what we are interested in (P-10).*

Another significant advantage of online teaching, according to some teachers, was that it enhanced students' IT skills and encouraged greater autonomy in their learning, as they had to adapt to a new digital learning environment.

> *The children were forced, I do not know how much*

> *help the parents were, to read the pronouncements of the exercises. Even what they write in Word sometimes builds computer skills. However, I must tell you that they read the pronunciation. In the past, for example, I used to give them an exercise, and they would ask me directly what to do in the exercise without reading the pronunciation. They are slowly being forced to read the pronunciation themselves because they do not have me around. For example, in one exercise I had them do for writing production, I told them to write a fictional story without anyone asking me what story. Whatever story they wanted, as long as it was fictional... At first, they asked me what we should do here and there... I told them to try more independently, and they had to think further. I think online teaching has excellent benefits but is complementary (P-2).*

> *The advantages of the whole process for me are that I feel that I learned some things more that I wouldn't have learned if I didn't need to. I also feel that the kids are starting to gain other skills that I didn't expect from second graders. That is the responsibility and responsiveness that they showed (P-4).*

> *The whole process has the advantage that we would only be learning some of these platforms like E-class if this was happening. Why do we have to get to all of this and be forced to find out on our own what we can do? (P-5).*

> *Children are getting more into the e-learning process because, slowly, both in high school and at university, everything will be done by computers. They are getting into a typing process of dealing with the computer, not just for play. Children are being forced to see the computer as a learning tool in addition to play. In order to learn, I can use new technologies (P-7).*

Disadvantages

Despite its benefits, teachers identified several disadvantages of online teaching. Many reported that online teaching is 'impersonal' and lacks direct human 'contact', making it difficult to establish a 'pedagogical climate', which they considered essential for effective learning. Consequently, they argued that online teaching 'cannot replace face-to-face teaching'.

> *The disadvantage is that it is impersonal; there is no physical presence, no physical contact, and no pedagogical climate, which is very important. There is no immediacy (P-1).*

> *There is no immediacy in the classroom. There is no exchange of thoughts and feelings, sharing, bonding, or pleasant classroom atmosphere with jokes and all that comes with everyday contact with students. That element is missing, which is very important. It keeps us at a distance. Bridging that gap is different from our face-to-face teaching with the kids. Online teaching cannot replace face-to-face teaching (P-10).*

> *There needs to be contact and interaction in the classroom. You can use humour and talk about a topic in general. It is different in the classroom (P-14).*

Other teachers highlighted technical issues as a major drawback, emphasizing that the digital 'platforms' did not function properly, and both teachers and students lacked adequate training to navigate online learning environments. This problem was especially challenging for 'weaker students' and 'students with special educational needs', who faced increased difficulties in engaging with online learning.

> *Teachers needed to be adequately trained in distance teaching (P-13).*

> *Apart from the fact that the platforms were not working, the students were not familiar with using the platform, so they definitely had to have help from parents. Those who could not get help from parents could not get in (P-6).*

> *There are disadvantages. Mostly for, weaker students who cannot use the new technologies on their own, they also need the help of someone older. Moreover, for some pupils, for example, with learning difficulties or special educational needs, you need help to reach them well at a distance. Children with autism who do not have much verbal skills see you on camera, you ask them questions, and they do not answer you. In-person, it would be easier (P-7).*

> *The teachers needed to be adequately trained, the online platforms did not support such many users, and the children needed to be more familiar with such platforms. There were many difficulties (P-8).*

Additionally, teachers criticized the 'absence of a unified policy' and the delayed guidance from the Ministry of Education, which created 'confusion' and 'stress' and hindered the effective implementation of online teaching.

> *Another disadvantage of online teaching is that the Ministry did not provide a formal policy for us. Clarifications took a long time to come, making the whole process even more difficult (P-6).*

> *Direction and guidance were needed to conduct our Webex lesson (P-4).*

> *Too many. First, they must tell us the existing legal framework because we do not know it. Does it exist? If there is no legal framework, what are we talking about? They should tell us what is pedagogically correct. Tell us what is being done at each level. Are all levels the same? Shouldn't someone from the Ministry tell us what we should do responsibly? So all of this should have a legislative framework, goals, objectives... So that we know how to operate it (P-13).*

> *It was sudden, and it made us nervous, and the most damaging thing I think is that there was no standard line for all schools and as a result parents were calling and saying in this school they are doing a modern one, are you going to do it? In that classroom, they put this up. Are you going to do it? One school started the whole process earlier than the other. So there had to be a standard line for all schools so that we all work the same way and everything was clear (P-15).*

Another disadvantage of online teaching, according to some teachers' views, was 'reinforcing existing social inequalities' and 'creating new forms of inequalities'. In particular, it was pointed out by the teachers that 'the lack of appropriate logistical infrastructure' led to reduced access to educational materials and difficulties in communicating online, negatively affecting learning for some, while other students with better 'access to technological resources' had a relative 'advantage'. In addition, the situation was highlighted as being aggravated for students from vulnerable social groups, non-speakers of Greek or families with a low level of education, presenting specific difficulties in accessing and participating in online teaching.

> *I think that online teaching has contributed to the reproduction of social inequalities to a very large extent-much more than any other form of education—because there are parents and children in particular who are de facto excluded, and this has been shown in practice (P-1).*

> *To a certain extent, it contributes to the reproduction of social inequalities. For example, I told you that one student didn't have a computer, and another student told me his mother didn't have a camera. (P-2).*

> *Existing inequalities were undoubtedly reinforced. The refugee, for example, that I have in my class is already a vulnerable group in itself. They are the people who live over here in a house on the school site. This child has a big problem with language; we could not even communicate on the phone. When we were face-to-face, it was easier. With the signs he was showing you. Now, with the phone? The other kid has no computer or internet. How could he do anything? Of course, it reinforced the already existing inequalities (P-5).*

> *Students who previously had difficulties because of language or the educational level of their families... At the moment, they have absolutely no access to education. They cannot reach the teacher and communicate in any way, like the Roma or children whose parents are illiterate or do not speak Greek (P-6).*

> *Not all parents have tablets and computers, and there is no internet. There were many difficulties (P-8).*

> *There are inequalities. Some of the foreign students we have in the school don't have the means. Yes, we are talking about disparities (P-9).*

> *Since some children do not have a computer at home, they do not have the opportunity to get in touch with the whole educational process, even if it is at a distance. The children with the advantage of having a computer have the help of their parents, and indeed, the inequality among the students grows (P-10).*

> *It reinforced the existing social inequalities because those students who were thrown off continued to be the most thrown off. The ones who were previously excellent students, the ones who were taken care of at home, were also the ones whose parents provided them with infinite help in familiarizing them with the platform and the appropriate technological tools. They had computers, tablets, and their room (P-11).*

> *Not all students have the means (P-13).*

> *They contribute significantly to the reproduction of social inequalities. For example, a child with neither a computer nor anything at home is excluded. He has no contact with anyone. Others needed headphones, microphones, or an excellent mobile phone. They were asking parents how to get in. Many kids must get in (P-14).*

> *Online teaching has created new forms of inequalities. While all children used to come to school, now some can attend, and some cannot. Some children do not have access to online teaching, so inequalities are created (P-15).*

Teachers' suggestions for improving online teaching

To enhance the effectiveness of online teaching, the participating teachers proposed several measures. A key recommendation was the 'training of teachers', focusing on both pedagogical methods for online instruction and technical aspects of digital platforms. Additionally, teachers emphasized the need to 'train students' in navigating online teaching to help them develop the necessary digital literacy and learning culture.

> *Indeed, there should be training for teachers first and procedures for children. Not training, procedures in the school. Some communication with other schools, such as teleconferencing with students in other schools, could help them understand the culture of modern online teaching. However, training is needed for teachers because all of this was done very sloppily because of the extraordinary circumstances (P-1).*

> *For all this to happen, the children would have had to already have computer skills. I think that one hour of computer classes is not enough for the kids to gain skills (P-4).*

> *There should also be a training for all teachers. B2, for example, cannot have teachers participating by lottery due to a limited number of participants. There should be an opportunity for all teachers to be trained. There should be training beyond technical issues. There should be training on teaching, such as online teaching, if needed. To know how to behave! The IT lesson should have a module on how children can work on some platforms (P-8).*

> *It would work much better if students were already trained in such programmes in school in their IT lessons or if we were working on such platforms from September. Now, suddenly, telling students to go in and write... For some students, it was too difficult (P-10).*

> *Teachers should be provided with training (P-13).*

> *Teachers should have been trained in new technologies so that they avoid facing the problems that I faced, for example, due to unfamiliarity (P-15).*

In addition to training, several teachers proposed upgrading school infrastructure to support online teaching more effectively. This includes improving online teaching platforms, enhancing digital infrastructure, and ensuring that all students have access to the necessary technological equipment, such as computers, tablets, and stable internet connections. These improvements are seen as essential to ensuring equitable participation in online teaching and preventing educational inequalities.

> *Schools must have other equipment. That is, we can have lessons in the classroom, but new technologies must be part of the teaching so that children are already familiar with this way of teaching. Because*

now we would do something the kids were not ready for. Just because you can play with a mouse does not mean you can follow all that. Schools, in general, need to have other infrastructure to support this way (P-5).

First and foremost, the teachers stress the importance of 'guaranteeing access' to all students by providing them with laptops or tablets where none existed. They advocate for free Internet access and good lines to ensure effective communication, thereby promoting inclusivity in online education (P-6).

Equipment should have been given to all students earlier (P-11).

The Ministry's platforms need to be significantly upgraded. The platform that my school has chosen still doesn't work. I also think that the state should give students some financial tablet as soon as they come to school so that there are no financial disparities (P-14).

Discussion

The COVID-19 pandemic, a global crisis (Chu et al., 2020), has led to profound changes in the education sector, forcing a rapid transition to online teaching (Masali & Kougiourouki, 2022; Thanos et al., 2023). This transition from the traditional to the digital classroom has been an unprecedented challenge for all members of the school community (Thanos et al., 2023), sparking significant concern (Garbe et al., 2020; Hammerstein et al., 2021; Kim et al., 2021). However, it's important to note the remarkable resilience and adaptability demonstrated by teachers and students as they navigated this uncharted territory, often without adequate preparation (Thanos et al., 2023).

When implementing online teaching, flexibility and interaction characterize all the people involved, all the processes and all the means (Lionarakis, 2001b). The interaction between teachers and students, especially in times of crisis and emergency, is significant as it plays a crucial role in improving teaching quality and acquiring new knowledge (Sason & Kellerman, 2021; Zhang, 2023; Zhang, 2022). The teachers in the study reported interaction with their students during online teaching, mainly through the digital platforms they used. This view of the teachers is confirmed by the findings of related research (Kritikos et al., 2021; Nikolaou, 2023; Sfantou, 2020). However, regarding the interaction between students during online teaching, the teachers in the study reported that it was much lower than in the classroom, which aligns with the findings of a recent study (Malisiova, 2021).

The implementation of online teaching during this period had some advantages and disadvantages (Decarli et al., 2022; Zhang, 2023). According to the participants' opinions, the main advantages of online teaching during COVID-19 are that it served as a safe means to ensure continuity in the teaching process, allowing the maintenance of communication between students and teachers. At the same time, it contributed significantly to the development of new IT skills for teachers and students and to the enhancement of students' autonomy. These findings are in line with the findings of related studies (Cardullo et al., 2021; Decarli et al., 2022; Malisiova, 2021; Mouzakis et al., 2021; Nikolaou, 2023; Soutopoulos & Georgitsis, 2021; Zhang, 2023). Another advantage of online teaching, according to the participants, is that it contributes to the psychological support of the students and the strengthening of the feeling of belonging to a group. One teacher says: 'Students feel that there is this feeling of belonging to a group. It helps them psychologically' (P-15). Indeed, providing psychological support to students is particularly important, as they are psychologically affected by extraordinary circumstances, such as the pandemic period (Marques de Miranda et al., 2020; Mouzakis et al., 2021).

On the other hand, significant problems emerged during the implementation of online teaching, which influenced its effectiveness. According to recent research studies, one of the disadvantages was related to the impersonal nature of online teaching, as there was no direct human contact between teachers and students. In addition, technical issues with online teaching platforms emerged, including malfunctions and access problems, making it challenging to manage the teaching process smoothly (Soutopoulos & Georgitsis, 2021). At the same time, the informative instructions from the Ministry of Education were not timely and adequate, adding additional difficulties to implementing and realizing online teaching (Thanos et al., 2023). The participants also pointed out these drawbacks.

The participants also reported facing challenges during online teaching due to their general lack of training in new technologies and online teaching. Other related studies also highlight this view of teachers (Cardullo et al., 2021; Mouzakis et al., 2021; Thanos et al., 2023). Furthermore, teachers reported that students' insufficient familiarity with new technologies and using online teaching platforms was an additional barrier, especially for the weaker students and students with special educational needs, who faced increased difficulties approaching online teaching. One teacher says: 'A portion of students, for example, with learning difficulties or special educational needs, you cannot reach them well at a distance. Children with autism, who do not have much verbal skills, see you on the camera; you ask them questions, and they do not answer. Whereas in person it would be easier' (P-7). These findings are in line with the findings of recent related research (Cardullo et al., 2021; Decarli et al., 2022; Di Pietro et al., 2020; Malisiova, 2021; Mouzakis et al., 2021; Soutopoulos & Georgitsis, 2021).

Another disadvantage that emerged during online teaching, according to the responses of the participants, is the reinforcement of existing social inequalities and the emergence of new forms of inequalities. In particular, teachers reported that some students' need for more logistical infrastructure affected their learning, unlike other classmates who had the necessary resources. In addition, the situation of students from vulnerable social groups, non-speaking Greeks, or families with a low education level presenting difficulties in accessing and participating in online teaching was highlighted. Indeed, as reported in several studies, online teaching implemented during the COVID-19 period contributed to the increase of social inequalities, having a particular impact on students from economically, socially and culturally vulnerable groups (Cardullo et al., 2021; Carretero Gomez et al., 2021; Mouzakis et al., 2021; Nikolaou, 2023; Thanos et al., 2023).

Addressing and reducing social inequalities should be a top priority for all countries, especially in times of crisis such as the COVID-19 pandemic. At the national level, equity-based interventions are crucial to mitigate socioeconomic inequalities (Chu et al., 2020) and ensure that all students have equal learning opportunities (Nikolaou, 2023). This suggestion is also echoed by the participants. To improve online teaching, they propose that all students should be provided with the necessary equipment, such as computers and tablets, to ensure everyone can participate in online teaching and prevent inequalities. Additionally, at the state level, teachers recommend upgrading schools' equipment, infrastructure, and online teaching platforms to further bridge the digital divide.

Furthermore, the participants suggest training students on how online teaching works in order to acquire the necessary culture and cultivate the corresponding skills since, as mentioned above, students' familiarity with new technologies and the use of online teaching platforms was insufficient (Cardullo et al., 2021; Decarli et al., 2022; Mouzakis et al., 2021). To improve online teaching, the research participants also suggest training teachers on online teaching, both on teaching and technical issues, a suggestion that is also highlighted in other related studies (Nikolaou, 2023; Soutopoulos & Georgitsis, 2021). Indeed, in order to improve distance teaching, training of all teachers is necessary (Anastasiadis, 2020).

Conclusions-Limitations of the Research

The COVID-19 pandemic brought major changes in various sectors worldwide, highlighting significant social, economic, medical and educational challenges (Nicolau et al., 2020). In education, the changes were rapid, with online teaching emerging as a central factor for continuing the teaching process (Masali & Kougiourouki, 2022; Thanos et al., 2023). The adoption of online teaching, both nationally and internationally (Doz & Doz, 2023; Evangelou, 2022), has been an unprecedented challenge (Kim & Asbury, 2020), forcing teachers to quickly adapt to a new reality where teaching is moving to the digital space (Thanos et al., 2023).

This study contributes to understanding the challenges and opportunities that emerged from implementing online teaching in Greece during the COVID-19 pandemic, providing valuable insights for improving the quality and effectiveness of online teaching. According to the opinions of the teachers who participated in this research, it is concluded that:

- Interaction between students during online teaching was much less than in the classroom, which is consistent with the findings of a recent study (Malisiova, 2021).
- There was interaction between teachers and students during online teaching, mainly through their digital platforms, as found in another bulk of research (Kritikos et al., 2021; Nikolaou, 2023; Sfantou, 2020).
- The advantages of online teaching are that it acts as a secure means to ensure the continuity of the teaching process, allowing the maintenance of communication between students. At the same time, it contributed to the students' psychological support and reinforced their sense of belonging to a group. It also contributed significantly both to the development of new IT skills for teachers and pupils and to the enhancement of pupils' autonomy. These advantages are also highlighted in the literature (Cardullo et al., 2021; Decarli et al., 2022; Malisiova, 2021; Mouzakis et al., 2021; Nikolaou, 2023; Soutopoulos & Georgitsis, 2021; Zhang, 2023).
- The disadvantages of online teaching include the impersonal nature and lack of direct human contact between teachers and students, technical issues and malfunctions of online teaching platforms, insufficient training of teachers in new technologies and online teaching, insufficient and untimely information instructions from the Ministry of Education. Furthermore, the insufficient familiarity of students with new technologies and online teaching platforms was an additional obstacle, especially for the weaker students and students with special educational needs, who faced increased difficulties in approaching online teaching. Online teaching also reinforced existing social inequalities and created new forms of inequalities. These findings are in line with the findings of recent related research (Cardullo et al., 2021; Carretero Gomez et al., 2021; Decarli et al., 2022; Di Pietro et al., 2020; Malisiova, 2021; Mouzakis et al., 2021; Thanos et al., 2023; Soutopoulos & Georgitsis, 2021).
- To improve online teaching, they suggest the training of teachers on teaching and technical issues, the training of students

to acquire the necessary culture and cultivate the corresponding skills, the upgrading of equipment and infrastructure of school units, the upgrading of online teaching platforms and the coverage of all students with the necessary technological equipment and internet access, to ensure the participation of all and to avoid inequalities. Other studies also highlight these suggestions (Chu et al., 2020; Nikolaou, 2023; Soutopoulos & Georgitsis, 2021).

In this study, certain limitations should be mentioned and taken into account. Firstly, the research sample is not representative and the results and conclusions of the research cannot be generalized. Also, the use of a single research instrument does not allow for the triangulation of the findings, which limits the validity of the testing of the resulting data. Another limitation is the need for similar studies in Greece and internationally focusing on teachers' views on implementing online teaching during the COVID-19 pandemic. This lack limits the discussion of the results and their comparison with those of other studies.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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