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Unveiling COVID- 19: Dualistic Exploration of Digital Challenges and Opportunities Teachers Faced

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Abstract: The aim of this study is to understand how distance education is experienced from the perspective of teachers during the COVID-19 pandemic. This study is a part of a comprehensive grounded theory research, and data were obtained from semi-structured interviews with 23 teachers. Data were analyzed using Charmaz's two-stage coding process. As a result of the analysis of the data, the challenges experienced by teachers were examined under three themes: student and teacher-related and systemic challenges. Student-related challenges included lack of access to technology, reluctance to attend classes, poor communication, privacy issues, parents' lack of involvement, and health concerns. Teacher-related difficulties involved unfamiliarity with distance education, digital platforms, and materials, inadequate digital skills, lack of technological equipment, and working from home. Systemic issues included internet infrastructure problems, difficulties with assessment and class participation, teacher workload imbalances, and platform security concerns. Teachers highlighted several benefits of distance education during the pandemic, categorized as contributions to teachers, students, and the system. These included the development of digital skills, increased cooperation in digital contexts, the ability to create distance education materials, enhanced content on education platforms, improved school digital infrastructures, and better access to technological tools. The findings emphasize the need to support teachers' digital skills, improve school infrastructure, and implement training programs. The COVID-19 pandemic presented challenges but accelerated distance learning and digital transformation in education. This study fills the gap in literature on the impact of digital skills and distance education on teachers' experiences, revealing the COVID-19 education transformation from their perspective. Unlike previous studies, it provides a holistic view of how teachers experience challenges and opportunities.

Keywords: COVID-19 education, distance education, remote learning, emergency remote education, ERT, digital competencies, digital transformation, higher education, pandemic.

Highlights

What is already known about this topic:

- During the COVID-19 pandemic, teachers and students faced challenges such as poor digital infrastructure, low digital skills, lack of motivation, and communication issues, along with difficulties in online teaching, digital pedagogy, and maintaining student engagement.
- Limited digital resources, gaps in school infrastructure, and restricted evaluation methods were significant obstacles to effective learning.

What this paper contributes:

- Key focus areas include teachers' experiences, educators' digital skills, student engagement, and the impact of technology on distance education effectiveness.
- A more holistic perspective will be presented by examining not only the challenges but also the strengths of distance education especially from the perspectives of teachers.

Implications for theory, practice and/or policy:

- The findings will help education stakeholders design training programs to enhance teachers' professional development, distance education skills, and pedagogical methods.
- The findings will guide the development of strategies to improve teaching effectiveness, integrate digital tools, and create student support programs.

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Introduction

The Covid-19 pandemic, which has caused an unprecedented crisis on a global scale, has caused changes in many areas and created numerous challenges. The Covid-19 pandemic, which was reported to have emerged in 2019 and quickly affected the entire world in 2020, has had a particularly negative impact on the education sector, in addition to the healthcare sector. To reduce the impact of the pandemic and slow its spread, practices such as flexible working, working from home, and rotating shifts were implemented, leading to the closure of schools and universities, places where human-to-human contact may occur (Bozkurt et al., 2020; Bozkurt and Sharma, 2020; Doghonadze et al., 2020). With the closure of educational institutions and the suspension of face-to-face education, the education of 1.6 billion students, roughly half of the world's student population, was disrupted (UNESCO, 2020a; UNICEF, 2020). In Turkey, approximately 25 million students had to suspend face-to-face education (UNESCO, 2020b).

During the COVID-19 pandemic, both teachers and students encountered significant challenges in the transition to distance learning. Students struggled to adapt to e-learning platforms, and their social interactions with teachers and peers decreased (Bordeos, 2021). Moreover, they had to cope with the absence of traditional classroom teaching and adapt to online learning, which was the closest alternative during the pandemic (Ismail et al., 2021). Despite these challenges, some students have shown positive attitudes toward distance learning and have expressed satisfaction with its outcomes (Bargi et al., 2022).

However, less attention has been paid to the experiences of teachers, who faced the dual challenge of rapidly transitioning to remote teaching while managing the emotional and pedagogical implications of this shift. Teachers' preparedness for this transition, the challenges they faced, and the opportunities that emerged in the process are critical aspects to understand. Previous studies have highlighted the importance of teacher preparedness and the challenges faced during the transition to distance education (Bozkurt et al., 2020; Johnson, 2021). Understanding teachers' experiences during this period is crucial to evaluating the effectiveness of distance education and informing future educational strategies. As noted by researchers such as Robinson et al. (2022) and Almendingen et al (2021), understanding teacher experiences is essential to assess the effectiveness of remote education and guide future strategies. Therefore, this study aims to explore the specific challenges and opportunities that teachers encountered in the shift to distance education during the COVID-19 pandemic. The findings will provide a deeper understanding of teachers' readiness for digital education and offer valuable insights into better managing future educational disruptions.

Literature

The COVID-19 pandemic forced schools worldwide to close, leading to a rapid shift to remote education. This transition to digital learning brought significant challenges for students, teachers, parents, educational institutions, and administrators. The pandemic created a unique and complex context for education, highlighting the urgent need for adaptation to online learning environments.

A review of the literature reveals a wealth of studies focusing on the historical development of distance education, particularly during the COVID-19 period. For instance, Kırık (2014) explored the historical evolution of distance education and its state in Turkey, while Telli and Altun (2020) examined the role of the Coronavirus in accelerating the adoption of online education. Sezgin (2021) analyzed emergency distance education processes and highlighted key lessons and challenges that emerged during the pandemic. Several studies also explored teachers' perspectives on distance education during the COVID-19 period (Baloğlu & Fırat, 2022; Cantürk & Cantürk, 2021; Karakuş & Erşen, 2021). Additionally, Battal and Koşar (2021) addressed the psychological difficulties teachers faced in the transition to distance learning.

There is a substantial body of literature on the difficulties faced by teachers in distance education. These challenges are primarily related to issues such as lack of communication (Daşdemir & Cengiz, 2022), motivation problems (Keşkek & Yüksel, 2022), and technological infrastructure deficiencies (Battal & Koşar, 2021). For example, Taş et al. (2021) found that teachers struggled to maintain student motivation and engagement, with factors like the absence of face-to-face interaction, difficulty in creating interactive lessons, and students' comfort in their home environments contributing to these issues. Additionally, Akçuru (2023) highlighted that a lack of access to necessary technology, software problems, and the instability of the distance education system significantly hindered the teaching and learning process. Addressing these technological barriers and ensuring the reliability of online education systems is essential for improving the overall learning experience. Moreover, the sudden shift to remote learning exacerbated existing inequalities, with marginalized communities facing even greater barriers to accessing quality education (Aguliera & Nightengale-Lee, 2020).

While much attention has been given to these challenges, less focus has been placed on the adaptive responses and positive changes in teachers' practices. Despite initial resistance, many teachers demonstrated significant growth in their digital skills, redesigned their teaching practices, and enriched their educational materials. Although the acquisition of digital skills and the adoption of innovative teaching strategies have been noted in the literature, these aspects are often discussed only briefly (Arslan, 2021; Sevim & Akın, 2021). However, the pandemic also created unique opportunities for teachers to develop their digital competencies. Teachers gained increased training and experience in using various digital tools and platforms for teaching, communication, and professional development. This led to greater confidence and enhanced adaptation to the online teaching environment (Albó et al., 2020; González et al., 2023).

This study, therefore, aims to explore how teachers experienced distance education during the COVID-19 pandemic, focusing not only on the difficulties they faced but also on the opportunities and positive developments, such as the evolution of their digital skills and teaching practices.

The unique contribution of this study lies in its holistic perspective, addressing both the difficulties frequently emphasized in the literature and the opportunities and positive transformations experienced by teachers in the distance education process. By focusing on teachers' experiences, this study aims to contribute to making distance education more effective in the future and to the development of educational policies.

This research was initiated to explore teachers' experiences in the digital context during the COVID-19 pandemic. While the challenges faced by teachers during this period were evident, it became clear that they also experienced certain gains by the end of the process. Therefore, this study seeks to answer the following research questions to better understand both the difficulties and the benefits:

- What are the difficulties experienced by teachers in the digital context during the COVID-19 pandemic?
- What are the gains of teachers in this context?

By framing the study around these questions, it connects the identified gaps in the literature with a focused investigation into both the challenges and the positive outcomes for teachers. Thus, this research contributes to the literature by not only examining the challenges faced by teachers but also by emphasizing the positive aspects of their adaptation to distance education. In doing so, it highlights the transformation of teachers' digital competencies and the opportunities for digital leadership that emerged during the pandemic, filling a significant gap in current research.

Methodology

Research Model/Design

This study stems from research conducted during my doctoral thesis, where digital inequalities in the context of teaching were explored. However, the unexpected contributions of the COVID-19 pandemic to teachers, particularly the positive aspects of digital inequality, were not included in the original research questions or findings of the thesis. These contributions emerged as significant topics during interviews, with all participants discussing them in detail. This emphasized the importance of these findings and pointed to the need for a more in-depth examination, leading to the decision to present this study as a separate work.

The grounded theory approach was chosen because it allows for a comprehensive exploration of complex phenomena. It enabled an in-depth investigation into the causes and consequences of digital inequalities from the teachers' perspectives, drawing on data derived from their experiences and observations. The unexpected insights related to the positive aspects of digital inequality during the pandemic further justified the use of grounded theory. This methodology facilitated the uncovering of new insights that had not been explored in the original thesis, thus contributing valuable knowledge to the field of digital inequalities in education.

Grounded theory aims to uncover the reasons behind complex phenomena or provide new insights into relatively underexplored issues (Glaser & Strauss, 1967). In this study, the causes of digital inequalities in the context of teachers were explored, with a specific focus on the impact of the COVID-19 pandemic. The study aimed to develop a deeper understanding of how teachers perceived and experienced this process. By utilizing grounded theory, the research enabled a comprehensive analysis of digital inequalities based on data from participants' experiences and observations.

Data Collecting Tools

Grounded theory starts with inductive data, uses comparative methods by going back and forth between data and analysis with repeated strategies, and engages you in developing analyzes and data in constant interaction with the data (Charmaz, 2006). In this study, a semi-structured interview form designed by the researchers was used as the main data collection tool. The content validity of the preliminary questions was examined by five experts specialized in educational sciences, open and distance education, educational technologies, computer and instructional technologies, and teacher education programs.

The questions focus on exploring teachers' interactions with digital platforms and technologies, the challenges they faced, and the skills they developed during this process.For example, a question such as "What did you experience during the remote education process in the pandemic?" aims to understand how teachers adapted to the transformation in education caused by the pandemic, the difficulties they encountered, and the solutions they developed. Responses to this question were further supported by follow-up questions to explore the technical, pedagogical, or psychological barriers teachers faced while using digital platforms. The questions were shaped according to the participants' responses, and new questions were added based on each teacher's unique circumstances. For instance, a teacher who mentioned facing difficulties due to students during the pandemic was asked to provide more details about the specific challenges experienced because of the students. A teacher who mentioned developing digitally during the pandemic was asked which areas or skills he had developed. This flexible question design allowed for deeper insights by tailoring questions to the participants' personal experiences, thus enabling the generation of new concepts from teachers' perspectives

Additionally, the researcher took notes before and after interviews, recording relevant information, feelings, and thoughts, as well as observations about the interview locations and schools, without prejudice. While collecting data, in the first stage, expert opinions were obtained for the questions prepared within the scope of the study and pilot interviews were conducted with two participant teachers using the prepared interview questions. This process was carried out in order to evaluate the suitability and content validity of the interview questions.

During the research process, 29 interviews were conducted with a total of 23 participants, both face-to-face and/or online. For some participants, additional questions were sent via email to obtain further in-depth information. These email-based follow-up sessions were not used with all participants, but only with a select few, while the remaining participants were engaged in face-to-face or online interviews. It is important to note that all interviews and additional interactions were based on the principle of voluntary participation. Participants were free to decide whether they wanted to engage in follow-up discussions, whether online or through email, and their involvement in second interviews or providing additional responses was entirely at their discretion.

Immediately after the interviews, interview transcripts were prepared, and the researcher wrote reminder notes during the coding phase, both before and/or after the interviews. Over time, these notes developed into key findings. In addition to the interviews, the researcher observed the physical environments, facilities, school culture, and relationships between teachers at the schools visited, and included these observations in the reminder notes. The researcher also compared the findings with her 18 years of teaching experience, noting similarities and differences with her own teachers' room, school environment, and relationships with colleagues. These detailed reminder notes enriched the cognitive depth of the research (Birk & Mills, 2015).

The use of email for additional questions was beneficial in obtaining more detailed responses from certain participants. However, it is important to acknowledge the limitations of this method. Email-based follow-up does not allow for the same depth of interaction and immediate clarification that face-to-face or online interviews provide. These limitations should be considered when interpreting the findings from these particular participants. The researcher, therefore, employed a combination of face-to-face, online, and email-based methods to collect data, which allowed for a more comprehensive exploration of the participants' experiences.

Sampling and Study Group

This study employed a combination of sampling methods, with theoretical sampling as the primary method. Theoretical sampling is a method based on concepts or themes derived from data, and data collection continues until the categories reach a saturation point (Corbin & Strauss, 2008). In this study, the goal was to explore teachers' experiences related to digital inequalities. Theoretical sampling was used to select participants who could provide rich insights into the theory. During the sampling process, specific criteria were established, drawing on the literature and expert opinions. Teachers who met one or more of these criteria were included in the study.

In addition to theoretical sampling, the snowball sampling method was also employed. Snowball sampling was used to identify new participants who could provide rich data, based on referrals from initial participants. As the study progressed, teachers were encouraged to suggest other participants who might provide valuable insights. While snowball sampling was particularly effective during the later stages of the research, the established criteria for selecting participants continued to be applied throughout the process, ensuring that the participants met the necessary qualifications related to digital competence and experience.

To address the goal of reaching teachers with lower digital competence, digital literacy was assessed through participants' responses to questions regarding their use of digital tools and online education platforms. Teachers' participation in technology-related training and their experiences with digital tools during the pandemic were also considered in evaluating their digital competence. Teachers who demonstrated limited experience or knowledge in these areas were categorized as having "lower digital competence."

The inclusion of multiple sampling methods helped achieve a comprehensive understanding of the phenomenon of digital inequalities in education. However, each method has its limitations. While theoretical sampling ensured a focused and targeted approach to data collection, snowball sampling introduced potential biases by relying on participants' networks. The use of specific criteria in participant selection may have limited the diversity of the sample, which is an important consideration for the generalizability of the findings.

Information about the participants interviewed within the scope of the study is shown in Table 1.

Table 1: *Characterisctics of the participants*

Participants	**Professional seniority (year)**	**Educational status**	**School level**	**Subject branch**
Aynur	11-20	Bachelor	Middle School High School	IT
Meltem	21-30	Bachelor	High School	English
Zehra	21-30	MA	High School	German
Hakan	21-30	Bachelor	High School	Geography
Kerem	0-10	Bachelor	Middle School	Social Science
Selim	0-10	Bachelor	Middle School	Science
Ali	21-30	Bachelor	High School	English
Kıvanç	21-30	Bachelor	High School	Art
Mustafa	21-30	Phd	High School	PE
Melek	21-30	Bachelor	Middle School	Primary School Mathematics
Merve	11-20	MA	Middle School	Turkish
Semra	30+	Bachelor	Primary School	Classroom Teacher
Hilmi	30+	Bachelor	Vocational High School	Motor vehicles
Zeynep	11-20	MA	Middle School	Science
Pınar	11-20	Bachelor	High School	Counseling
Feyza	0-10	MA	Middle School	IT
İbrahim	30+	MA	High School	History
Beyza	11-20	Bachelor	Middle School	Primary School Mathematics.
Duygu	0-10	Bachelor	Primary School	Kindergarden
Özlem	21-30	Bachelor	Primary School	Classroom Teacher
Fahriye	11-20	Bachelor	Primary School	Kindergarden
Melike	21-30	MA	Middle School	Primary School Mathematics.
Nazan	11-20	MA	High School	Turkish Literature

The courses were specifically chosen to reach teachers with low digital competence, as defined by the DigComp Framework (European Commission, 2016), which includes a wide range of skills from basic technical abilities to advanced problem-solving in digital contexts. Participants were selected based on these criteria, ensuring they met at least one component of digital competence. Although snowball

sampling became more effective later in the study, the specified criteria were consistently applied throughout.

Data Analysis

In this study, Charmaz's two-stage coding process, namely initial coding and focused coding methods, was adopted. In-depth interviews with participants were recorded with a voice recorder after obtaining their consent. Later, these voice recordings were listened to carefully and transcribed word for word and transcribed into writing. Using the constant comparative analysis method, the data analysis process was started immediately after the initial data collection process was completed.

The initial coding of the data was carried out by the researchers in a Word document after the transcriptions were completed. This type of coding involves a careful review to reveal the data (Bazeley, 2013). In the initial coding, the first impressions the researcher made from the data were recorded without bias. Then, the data were transferred to the MAXQDA program in order to create a more organized document system. After the initial coding, themes were reached through focused coding, and these themes were transformed into categories, taking into account their similarities (Miles & Huberman, 1994). The resulting categories and themes were created according to the coding frequency. During the research process, two researchers worked together in the stages of data collection, analysis and interpretation of the findings.

Validity and Reliability

Credibility is related to how accurately the results obtained from the analysis of the data reflect the data collected from the participants. In order to ensure this credibility, strategies such as long-term observations, diversification, in-depth data collection, expert evaluation and participant confirmation are recommended (Creswell, 2013; Lincoln & Guba, 1985). In this study, multiple interactions were made with the participants in order to ensure credibility. After the interviews, confirmation was obtained from the participants, and explanations were requested by asking more detailed questions in light of the data obtained in the previous interviews. With this method, the accuracy of the data was confirmed many times. In addition, the reminder notes written before, after and during the interviews played an important role in explaining the data and establishing the relationships between the categories. Another important step in ensuring credibility is expert review. In this context, the opinions of five expert lecturers were consulted in the creation of the interview questions and the accuracy of the coding was checked with expert confirmation in the interpretation of the findings.

In qualitative research, reliability means that all processes are carried out consistently. In this context, the concepts of consistency and confirmability are used instead of internal reliability and external reliability (Lincoln & Guba, 1985). In order to ensure consistency in the research, the data obtained from the participants were recorded with a voice recorder, then coded consistently and these codings were associated with the determined concepts and categories. In addition, expert evaluation was also used to ensure consistency in the processes of data collection, analysis, conceptualization and integration of the emerging categories into the data.

Ethical considerations

It is of great importance to observe certain ethical principles before, during and after the research (Glesne, 2013; Yıldırım & Şimşek, 2013). In this study, the necessary ethics committee permissions were obtained and consent forms were obtained from the participants in order to ensure ethical standards. As part of our commitment to protecting participants' identities, pseudonyms were used instead of real names. In line with ethical practices, participants were invited to choose their own pseudonyms, allowing them to engage in the research process more personally. This approach, as

suggested by Allen and Wiles (2015), emphasizes that pseudonym selection is not just a technical procedure for anonymity but also an act of personal expression that carries psychological and cultural significance. By allowing participants to choose their pseudonyms, we acknowledged their agency and ensured that they felt valued and respected.

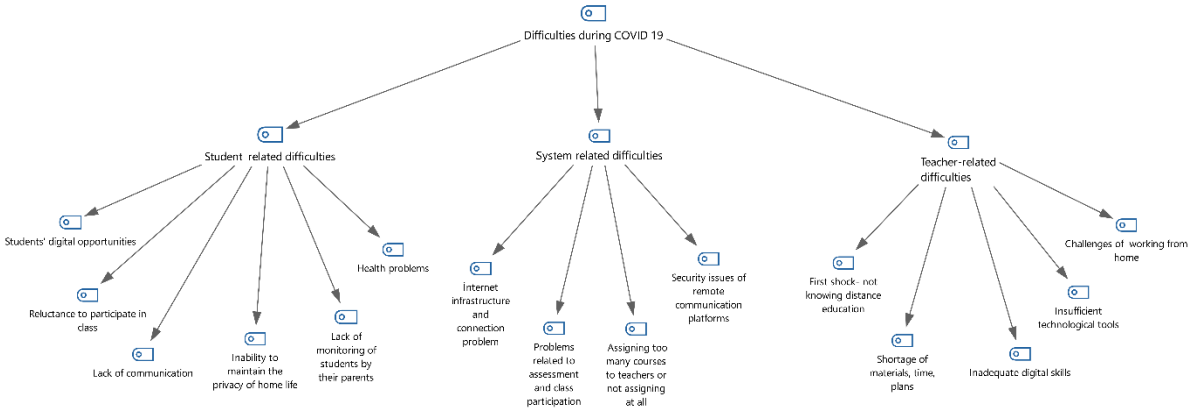
Furthermore, all participant data was secured, and audio recordings were encrypted and made accessible only to the researchers. Original recordings were backed up to minimize the risk of data loss or damage. In addition, participants were informed about their rights, and their participation was voluntary, with the freedom to withdraw at any stage without any consequence. The informed consent process ensured transparency, and a trusting, sensitive relationship was established to foster open and honest communication.

Findings

The COVID-19 pandemic caused schools to close, education and training activities to be carried out remotely around the world, and therefore, the transition to digital education. Many teachers have stated that this process deepened digital inequalities. Within the scope of this research, which is part of a comprehensive grounded theory study examining digital inequalities in the context of teachers, 23 participating teachers were interviewed and the difficulties they experienced during the epidemic were revealed.Within the scope of the first question of this research, the difficulties experienced by teachers in the digital context during the COVID-19 outbreak are shown in Figure 1.

Difficulties faced by teachers during COVID-19 distance education process

Figure 1: Difficulties faced by teachers during COVID-19



As seen in the Figure1, digital difficulties experienced due to the pandemic are discussed under three themes. Teacher-related difficulties (33 codings), student-related difficulties (74 codings) and systemic difficulties experienced with the transition to the distance education system (35 codings) were found as a result of the interviews.

1. Student-related difficulties

According to the teachers who participated in the study, students also experienced digital inequality in distance education during the pandemic, the gap between students who had and did not have access to digital tools and the internet increased, and therefore learning losses occurred. Teachers stated that most of the digital inequalities they experienced during the pandemic were caused by students (74 coding). According to them, student-related difficulties were; students' digital opportunities, reluctance

to participate in class, lack of communication, students' inability to protect the privacy of their home life, students not being followed by their parents, and health problems.

Students' digital opportunities

According to teachers, the students' lack of digital opportunities emerged as the most important challenge affecting the distance education process. Melek, Merve, Fahriye and Kerem Teachers stated that their students did not have technological devices and internet access. Counselor Teacher Pınar explained that students had problems accessing the internet as follows (25.09.2023):

> Especially students with less financial means had problems with the internet package. For example, the internet wasn't enough because even if you attend all classes via ZOOM until the evening, there is something serious. Later, support was provided to the students, the internet package was provided. But this time, the child is trying to log in from his phone, for example. It's not like you log in from a computer.

Pınar Teacher emphasized that students needed significant internet access to attend all classes, but not every student had this opportunity. She also stated that students living in villages faced difficulties accessing the internet due to a lack of infrastructure. She mentioned that if there were more than one child in the family, the cost of accessing technology would increase. Zeynep Teacher explained that students lacked digital opportunities and that students with many siblings participated in distance education under difficult conditions, as follows: (03.10.2023):

> Students have little internet access, little internet access, and little equipment… Classes normally change between 28-30, but fathers are at work. There are a lot of children in a house. Therefore, there is one phone and therefore no computer… Our children cannot connect to work very much anyway. Even if they connect, fifty percent of them cannot do anything, so we normally made the course programs 4 hours for a semester, for example, 4 hours for a science class, we really made them 4 hours. But this time, parents complained. There were problems such as the number of children is too many, your classes are too many, this one is always connected, the others cannot connect. Their quotas were finished immediately. There were such problems. Then they increased the internet, but there are 3-4 children. There are those with 5 siblings. How long will this take for which one? We had a hard time with that.

Reluctance to participate in class

Teachers stated that some students did not attend classes despite having access to digital tools and the internet. They stated that the interest shown by students at the beginning of the pandemic decreased as the distance education process was prolonged. They also emphasized that attending too many online classes could create "digital blindness" in students. The removal of attendance requirements and the voluntary nature of class participation were among the factors that increased this reluctance. İbrahim Teacher explained the decrease in students' interest in distance classes over time as follows (10/17/2023):

> Now, since many lessons are taught remotely, they probably get tired of watching. I mean, it seems very appealing at first. Look, you listen to a lesson remotely, we will see the teacher. He asks questions etc. Then, the amount of follow-up on the lesson decreases, he moves on to the other lesson, which he deems more important or avoids the attention of his family, he does not do it, he does not follow it.

Hakan Teacher explained that students' interest decreased and they were experiencing 'digital blindness' as follows (25.04.2023):

> Standing in front of that monitor for eight hours creates a banality and in this sense, it loses its appeal, it no longer attracts attention. Since it does not attract attention, students later refrain from attending classes for example… The fact that it does not attract their attention makes it very banality, and even makes them bored in some cases. Therefore, blindness occurs towards that monitor and computer screen.

As can be understood from Hakan Teacher's statements, the constant use of technology for education had become a factor that decreased students' interest and caused reluctance rather than attracting attention.

Lack of communication

One of the biggest challenges teachers experienced during the pandemic was the lack of communication. Students not turning on their cameras during class made the teacher unsure whether there was an audience in front of them, which made the teacher feel alone. The decision made by the Ministry of National Education to have students enter the class with their videos turned off for security reasons further deepened communication problems in online classes. Merve Teacher explained this situation as follows (08.09.2023): “Their cameras were off. I was explaining to the screen, but I don’t know who was listening to me. Because they usually live in one-room houses with stoves. Because they all live together. Not being able to reach so many children caused problems.”

Student's inability to maintain privacy of home life

Teachers stated that students, especially those with low socioeconomic status, were unable to have a suitable educational environment for their lessons due to their unsuitable and/or crowded home environments. Family environments had a negative effect on the learning process. A child who did not have his/her own room had to take lessons with others, which affected his/her concentration and also had a negative impact on the teacher's ability to teach. For example, Fahriye Teacher explained how the students' home environment affected the lesson as follows (11.11.2023):

> You are teaching here now, while your grandparents are watching in the background. Let me see how you were going to explain. I mean, I had trouble with these. I have children, my teacher is explaining, do you know, etc. I can't give a damn, you will continue, the other children lose interest.

It can be observed that the failure to provide students with a suitable learning environment due to socioeconomic challenges, as well as the lack of digital skills among students and parents, negatively impact the teacher’s distance education process.

Lack of monitoring of students by their parents

Primary and secondary school teachers, in particular, complained about the lack of adequate supervision of students by their parents. They stated that students in this age group have more difficulty in the digital environment and need help. Teachers emphasized that parents should provide appropriate digital education environments for their children, as well as check whether students are actually following the lessons. They stated that the responsibility of parents has increased in this context, as students are outside the school environment during the pandemic. Semra Teacher, a classroom teacher, explained the difficulty she experienced in this regard as follows (19.09.2023):

> When the child is at home, if the parent is not interested, for example if he is working, he comes in and goes out as he wants. He says he has work to do and goes out. After all, he is a child. He comes in late. They know the time, for example, I come in regularly, you know. I go in regularly, right down to the minute, you know, to get used to it. They say you go in, I'm here, for example, in the middle of the lesson, I explain it there. There, he says I come

Health problems

It was found that there was anxiety due to health problems during the pandemic. For example, Özlem Teacher stated that she was worried about her students experiencing health problems during the pandemic, and that she was concerned not only about catching the virus but also about the potential discomforts students could experience due to digital tools. She explained the risks of students spending long periods of time in front of screens as follows (06.11.2023):

> My kids were really young. I mean, 7 years old, 6 years old. It was the age when my child had never used a mobile phone. My students had to use it. So, no matter what he taught us, when you look at the profit and loss, we were at a loss. For our age group.

Özlem Teacher emphasized that digital tools and the internet caused addiction in students, and that this situation was harmful to both muscle and eye health. She stated that excessive use of technology in lessons has negative effects on both the learning process and the health of students. (Researcher notes, 06.11.2023).

2. System-related difficulties

In the study, teachers stated that they carried out distance education during the pandemic through the EIN (Education Information Network) platform. However, there were connection problems on this digital platform from time to time, which negatively affected both students and teachers. In addition, the lack of measurement and evaluation in the distance education process and the decisions taken by the ministry regarding students' attendance in class brought about various difficulties.

Internet infrastructure and connection problems

At the beginning of the pandemic, when distance education was introduced, teachers were assigned lessons and classes to teach via EIN. Thus, teachers and students met on the EIN platform and began teaching lessons. However, in the early days, there were many connection problems, as well as issues with internet infrastructure and speed. Sometimes, teachers could not connect to the lesson, and at other times, students could not log in to the lesson. Regarding this, Merve Teacher said, “Our students came to the schools for lessons, but frankly, the Zoom and internet infrastructure at that time was not very developed and we always had problems with the connections.” (08.09.2023).

Kerem Teacher also said that there were connection problems and that these problems were all over the country. Ali Teacher explained that this problem was more common in the villages as follows (12.06.2023):

> Our problem was, there is no problem mostly in city centers and places with good internet. There were many connection problems in these villages. There is no infrastructure, now there is no internet infrastructure… For example, I asked Türk Telekom about the lack of infrastructure, cable, the husband of our friend here was also a manager there. He said there was nothing, there was not enough cable, it was laid underground. These works are done in city centers first. Then he said it will go there. The guy takes here as a priority. Those fiber cables and such exist in these city centers, they do not exist there. That was our problem.

It is understood that the EIN system did not have the infrastructure to support the simultaneous teaching of all courses across the country, especially at the beginning of the pandemic, and that efforts were made to address connection and internet infrastructure problems later.

Problems related to assessment, evaluation and class participation

The removal of exams during the distance education process and the use of first-term grades in the second term made it difficult for teachers to conduct measurement and evaluation. This situation negatively affected students' attendance and interest in classes. Zeynep Teacher stated that there was no evaluation dimension as follows (03.10.2023):

> Evaluation is a completely separate dimension, we consider that we could not evaluate it. Unfortunately, it did not seem like we evaluated it very much. To be honest, we thought we were evaluating ourselves, but unfortunately we could not evaluate it.

The absence of assessment and evaluation greatly affected class participation. Teachers stated that only very interested students attended class continuously.

Assigning too many courses to teachers or not assigning any at all

During the distance education process, teachers and their classes were defined on the EIN platform, and weekly lesson hours were assigned to the teachers. However, there were problems with this at the

beginning of the process. Guidance Teacher Pınar explained the difficulty she experienced regarding this issue as follows (25.09.2023):

> Now, first of all, since our branch is guidance, we were not assigned a guidance class. So, first we had a period when we did not know what to do. Then, during that process, I informed the parents, students, teachers via ZOOM about the process and psychological resilience.

Guidance counselors do not attend certain classes and lesson hours because they have individual meetings with students. This situation caused difficulties for school administrators in assigning lessons to guidance counselors on EIN. Pınar Teacher tried to overcome this situation through her own efforts; she preferred to reach students and parents via ZOOM instead of EIN. Later, she stated that she had one-on-one meetings with students who wanted to do so remotely. Hilmi Teacher, a Motor Vehicle Technology teacher at a vocational high school, stated that it was not possible to conduct workshop lessons remotely and that the number of assigned lessons was too high for his branch, as follows (20.09.2023):

> There are some lessons that are ten hours a day, for example. They wanted us to teach for ten hours. Of course, what can you teach in ten hours? First, we prepared for it from morning to night in front of the computer. We have books, we downloaded them as pdfs to our computer. Then, of course, we found the necessary videos etc. to complete this time. We started somehow.

Hilmi Teacher emphasized that he had difficulty teaching the same lesson for ten hours. He said that most of these ten hours of lessons were workshop lessons, and that students normally had to do practical work. Feyza Teacher, an ICT teacher, also stated that they taught the same class for long periods and evaluated the lessons in different ways. She tried to enrich the lesson with videos and aimed to provide students with different digital skills in connection with the content of the lesson. They began carrying out the activities for the projects they were working on during this process.

Security issues of remote communication platforms

Many teachers stated that they did not know about ZOOM when they first started distance education. Not knowing all the features of ZOOM brought about many security problems. Pınar Teacher gave the following example of the situations experienced (25.09.2023):

> ……While one of our teachers was teaching a lesson, a connection was suddenly established. I don't know how it happened, maybe while the students were playing a game on a game called Discord, for example, the teacher suddenly heard a swear word. Imagine a class of 20 people and he couldn't stop it at that moment, for example. He had to turn off the computer immediately. He didn't know what to do, I mean, if this had been done in a physical face-to-face education under normal conditions, a different solution could have been found for this...

This process was a negative experience for both teachers and students. The teacher had to end her lesson because she had difficulty dealing with emergencies. Due to security concerns, students did not turn on their cameras and mostly kept their voices off. Pınar Teacher also drew attention to the importance of this situation and emphasized the necessity of cybersecurity.

3. Teacher-related difficulties

Some of the digital inequalities experienced during the pandemic stemmed from teachers, as they were inadequate in digital skills and did not fully understand how distance education would work. In addition, teachers' inability to access the necessary digital tools and the lack of suitable materials for distance education were identified as some of the difficulties experienced by teachers.

First shock: not knowing about distance education

In the interviews, all teachers stated that they did not know exactly what to do at the beginning or which features they should use in EIN and ZOOM. Due to these uncertainties, they had to cope with feelings of confusion, anxiety, and inadequacy at first. Melek Teacher stated that she panicked because she did not know how to provide distance education (07.09.2023):

> Now, at first, I was very scared, of course, about how I would give it, how I would prepare. Because you are scared because you don't know computers very well. After that, I talked to a few teacher friends and we downloaded ZOOM to the computer at home. After that, I downloaded the ZOOM program, but I don't know how to use it. Then, one day, I called our younger neighbors, teacher friends. How are we going to do it? Come and tell me, that kind of learning.

Melek Teacher stated that she was afraid of providing distance education because her computer skills were not sufficient. However, since she had to learn, she got help from others and tried to learn what to do by downloading the necessary program. Teacher Nazan also explained the process of starting distance education as follows (24.11.2023):

> Frankly, I learned that there was something called ZOOM when we started remote lessons. When I was told that we would be doing lessons on such a platform, I did some research. As I said, my own children were useful in this area. Because yes, how do I start a lesson from ZOOM, I watched a video on YouTube to be honest. Here is how it is done, what is done. I downloaded the application to my phone. I downloaded the program to my computer in the same way. I worked a little, but when I first started lessons, I didn't know all the details. Students would join under different names. Or sometimes they would sabotage my lesson. They would draw or write things on the screen. Then I did some research on it, it turns out that we can authorize. We can get their authorization from there, etc..

Selim Teacher explained that especially those in the numerical fields had difficulty using the application (26.05.2023):

> So when we talked, I think the most difficult part was the numerical courses because it is very difficult to progress without writing or creating a diagram. Especially in mathematics, for example, I can somehow progress more easily with videos and slides, but it is more difficult to progress without doing a calculation or writing and drawing the steps required for that calculation. When we talked, the ones who had the most difficulty were Mathematics and Science.

When the distance education process started, teachers experienced difficulties due to the necessity of explaining by drawing figures or solving questions in numerical branches, as well as a lack of sufficient information and tools. During the interviews, Selim Teacher stated that some teachers found alternative methods at the beginning of the process. For example, he mentioned teachers who used the refrigerator door as a board or who took a whiteboard and solved problems in front of the camera. Over time, teachers tried to compensate for these deficiencies by acquiring the necessary digital tools (Researcher notes, 20.09.2023).

Shortage of materials, time and plans

Teachers stated that they could not find suitable materials during the distance education process. In addition, some teachers mentioned that they could not plan the lesson time well and had difficulty filling the time. Some teachers emphasized that they experienced these problems due to their branches. Since the narrative technique was used more in distance education, communication with students was not as effective as face-to-face, and the lesson durations were long; this caused difficulty in managing the remaining time. Hilmi Teacher had the problem of not being able to effectively evaluate the ten-hour lesson period, which also included workshop lessons. Feyza Teacher stated that more preliminary preparation and planning were required in distance education, otherwise gaps would occur during the lesson.

Teachers in branches such as Physical Education, Music, and Visual Arts had difficulty filling the lesson times. In these courses, which are focused on practice, distance education created problems. Visual Arts teacher Kıvanç expressed this situation as follows (08.06.2023): “We cannot have children draw pictures or anything like that on the screen anyway. I worked on it theoretically, gave theoretical information, and gave research assignments. We went through these. We did not really get into drawing, in fact.”. They taught the course, which should have been focused on practice, by watching informative videos or showing presentations. There was a deficiency in terms of the course outcomes.

Inadequate digital skills

The difficulties experienced during the pandemic, especially in finding materials, making plans, and not knowing or not immediately understanding the features of applications such as ZOOM and EIN, were due to the fact that teachers did not have sufficient digital skills. There were statements regarding this in the interviews conducted with teachers. Pınar Teacher gave an example of what teachers with inadequate digital skills experienced during this process (25.09.2023):

> For example, I remember, my neighbor's child was going to primary school. His teacher never knew how to open ZOOM. For example, that child did not have a third grade while other children were having lessons. This self-development period may have been one year, and he may not have been able to develop even now. Then they changed classes anyway. He could not learn. For example, I remember that the child was not attending the lessons while other students were attending. I think it was because of the teacher's skill, there is a lot of inequality like this.

The teacher's inability to use ZOOM and overcome this problem caused her to be unable to teach the lesson, resulting in a loss of education for her students. The fact that one class did not attend the lesson while the other students did resulted in inequality for the students. Beyza Teacher (31.10.2023) also described the situation of her colleagues as "Of course, some teachers could not use it much, they could not master it, they could not write, maybe because it was almost like an empty lesson." Beyza Teacher also added in her statements that especially teachers who were a little older could not progress digitally.

Insufficient technological tools

During the distance education process, not only students but also some teachers had difficulty accessing digital tools. Especially when other family members were also providing or receiving distance education, the digital tools at home were inadequate. Melike Teacher described her situation as follows (08.11.2023):

> My son and daughter are at home, they are university students, they use the internet as two people, they took remote lessons. My husband, I; my husband is also a teacher, and I am four people. We had a structural problem for a few days. But, let me say we got along, I mean we called right away during that time. Right away, there are four of us at home, teachers and students. Our problem was solved right then, because we absolutely had to solve this structural problem. …Then we need to write. I forgot the name of that thing, but what was it, a digital pen. We got that later. But first we found a board, we put a board to teach lessons at home. So, some things entered our lives. We learned it out of necessity. We tried to adapt. Of course, in the meantime. You had problems until you learned.

Melike Teacher experienced problems with both the internet infrastructure and the lack of sufficient computers and tablets due to everyone in the house being in distance education during the distance education process. As a Math teacher, she also needed a digital pen or a graphic tablet.

Challenges of working from home

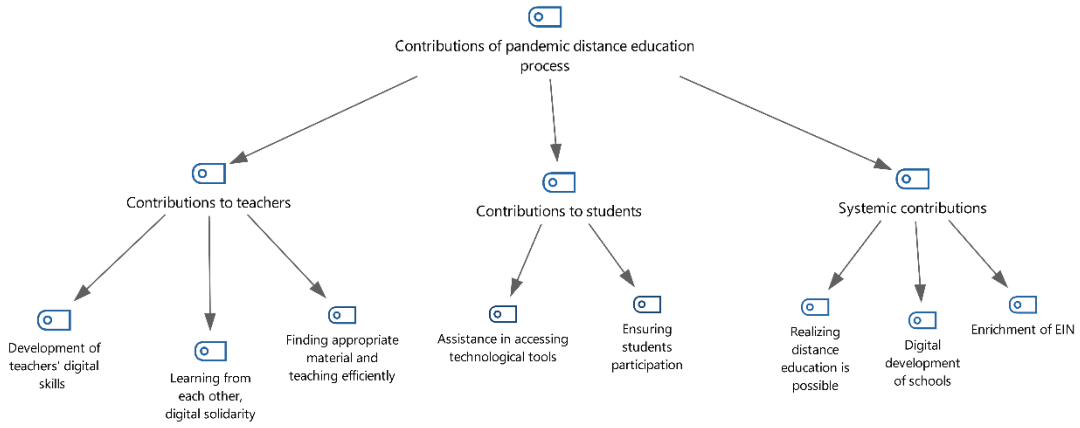
Most teachers faced multiple responsibilities because they also assumed the role of parents at home. While they had to attend classes assigned by the school, they also had to take care of their children and fulfill other responsibilities at home. This situation caused their workload to increase. Pınar Teacher explained some of the problems teachers experienced as follows (25.09.2023):

> So, I think for teachers, being able to work from home because normally we come and go from school routinely and all our plans are like this. For example, a babysitter could not be arranged for those who have children. Because the pandemic, because the disease can be transmitted. This time, the teacher tried to attend the lesson with her child at home. I think she had to do these or the responsibilities she had to do online, but since not everyone's computer skills are that good, I think it's both working from home and fighting the disease at that job.

Contributions of the pandemic process in the digital context

Within the scope of the second research question, it was also discovered what the digital gains of teacherwere during the COVID-19 process, and it was revealed that distance education had many benefits. The digital contributions expressed by the teachers are shown in Figure 2:

Figure 2. *Contributions of the pandemic in the digital context*



The contributions of distance education were discussed from the perspective of teachers (66 codings), systemic perspective (7 codings) and students (6 codings).

1. Contributions to teachers

Although they stated that they had a lot of difficulty in digital terms during the pandemic process, they also mentioned that they learned a lot by the end of the process and that this experience contributed to them. The contributions of this process, as experienced by the teachers, included the development of their digital skills, learning from each other, being able to find appropriate materials, and teaching more efficiently.

Development of teachers' digital skills

Many teachers stated that their digital skills had improved during the pandemic. They mentioned that they had learned to use the EIN and ZOOM platforms during the distance education process and that they no longer faced any difficulties in this regard. Regarding this issue, Melek Teacher said (07.09.2023): "At least I learned how to use ZOOM. After that, I learned how to choose the duration, how to do things, all of them one by one." She stated that she had progressed digitally. Similarly, Nazan Teacher stated that she had learned ZOOM thanks to distance education (24.11.2023):

> As I said in the digital sense, if there was no pandemic and I would not be doing remote lessons, I would not have tried to learn ZOOM. You know, that comes to mind and of course ZOOM is just an example here, but I would not sit and think about how this content would be shared online, what needs to be done.

Kerem Teacher, who has good digital skills, stated that he learned ZOOM better as follows (16.05.2023):

> Maybe ninety percent of our teachers had not used a platform called EIN or ZOOM, some were new to ZOOM. I won't lie, I had used it a few times but I had never used it this actively. I didn't know it had many different features. We were usually always participants. This was the first time we were in the position of administrator. Of course, this gave us a different experience.

Hakan Teacher (02.05.2023) also emphasized that distance education during the pandemic was beneficial for teachers by saying, "Teachers learned how to use computers, programs, and screen sharing." Selim Teacher also stated that teachers' digital skills improved and they gained experience on how to provide distance education (26.05.2023):

> If we think differently. In other words, our lesson was a bit like a television program. Maybe the ability to broadcast according to a certain plan has developed. We had never tried something like this. Here is the introduction, development, conclusion, in between, he transferred the activities we do in the normal lesson to the digital… We also wrote about the mouse, or I don't know, it had been a subject of much interest on television. We started with the refrigerator door on a white surface like that, then when we got some more equipment, it started to look better, we made the cameras better. I don't know, we made the lighting better. It somehow developed in the process.

Teachers stated that they turned to digital environments more frequently to find materials or participate in other training sessions and meetings during the distance education process. In this way, they developed a more active and inquisitive attitude in the digital context. Kerem Teacher stated that he became particularly aware of EIN's resources (09.05.2023):

> We always provided face-to-face education. We were a little bit outside of this digital education, how can I say it, we didn't know it could happen this much. It was like we were in a bit of a pickle. When we were in a pickle, we started to log in to EIN more. We started to log in to the site 10 times a day, which we normally log in to maybe 10 times a year. You either have to look at some parts of it and learn something. Sometimes you learn with questions, that's how it is now.

Similar to what Kerem Teacher said, Meltem Teacher stated that this change in teachers was inevitable (14.03.2024):

> I can only say this on behalf of the education community, teachers. I am sure that many people did not use technology in this way. They could not use it, they did not intend to use it, but we were forced to do so that many people learned many things with it.

Selim Teacher also stated that they had to use different technological tools during this process and gained the ability to teach remotely as follows (26.05.2023):

> We can now do something that we normally never experience and don't need to do, at least we can use a graphic tablet, that is, at least we can use a computer, tablet, phone, many things together at the same time for a purpose. If we think differently. In other words, our lesson became a bit like a television program. Maybe the ability to make a broadcast according to a certain plan has developed. We have never tried something like this. Here is the introduction, development, conclusion, in between, we transferred the activities we do in normal lessons to digital. We watched the videos from there. We transferred all the audio, writing, you know, to this process. Many of the things we do in class.

Zeynep Teacher stated that teachers renewed themselves digitally and their digital awareness increased with the following words (03.10.2023):

> As I said on my behalf earlier, when you work in rural areas, you inevitably become dull. Actually, I can say that its only benefit was to shake off the dust on us. Maybe it didn't work for everyone, but it really did help teachers in terms of bringing digital awareness, reflecting it on life, into the lesson.

Teachers stated that they added situations such as teaching lessons or attending meetings via online platforms to their lives after the pandemic. For example, Meltem Teacher said (14.03.2023): “Then what happened, now we see that many educations can be done online. Many seminars. Right? It actually caused a great comfort in our lives.”

Teachers stated that they turned to digital environments more frequently to find materials or participate in other training sessions and meetings during the distance education process. In this way, they developed a more active and inquisitive attitude in the digital context. Kerem Teacher stated that he became particularly aware of EIN's resources.

Learning from each other, digital solidarity

Teachers learned a lot from each other and their students during the pandemic. They overcame many problems thanks to cooperation, which was very important in the development of digital skills. İbrahim Teacher stated that he used materials developed by a colleague from his branch, who was in another city, during distance education. Meltem Teacher stated that she received a lot of help from her students, saying that there was no age for learning. Especially during lessons, she tried to solve problems by

asking her students about ZOOM-related issues immediately and learned many features of ZOOM. Feyza Teacher, who is a computer teacher, was the person who solved the problems of her colleagues and helped them. Feyza Teacher explained the method they followed in this process (10.10.2023):

> When there was a problem, we had tables like this. Everyone would write down the problems they were experiencing there. For example, when I saw them, we could see who was experiencing what problem…… I had prepared the infrastructure for that. Teachers would log in. When there was a problem, they would contact me directly. When there was a deficiency or technical problem in teachers, I would provide them with support anyway. Wherever and however they were experiencing problems, we would establish remote desktop connections or solve them with live support in any case. Suggestions were made about what they could use. We had friends who used it. For example, we would share our experiences with each other by saying, "I used this in my class, I did this". In some jobs, this is antropy, this is starboard, that is writing related, in some jobs, we would buy a graphic tablet and do something with it and provide support.

Feyza Teacher prepared a table to show the problems experienced by her teacher friends in distance education and made a kind of needs analysis. In this way, she became aware of the problems of both students and teachers, solved them or produced alternatives for the solution.

Finding appropriate materials and teaching efficiently

While some teachers stated that they had difficulty finding or preparing course materials for distance education, others stated that they did not have any problems in this regard. For example, Zehra Teacher found a computer-compatible version of the textbook and taught her lessons in this way. In addition, some teachers stated that distance education saved them time. Nazan Teacher explained that she saved time as follows (24.11.2023):

> …for those who manage to lead their lives in a planned and programmed manner. Because we heard criticisms like, teacher, the lessons were remote anyway, we never got up. We were sleeping until the evening. There were also those who said I didn't do anything, but one of them, especially the one I saw in my own children, complained like this when school started after the pandemic, how nice it was that I was both listening to my lessons during the coronavirus and also taking time for myself at work, I don't know, doing sports, I had time to rest, etc., but I don't think it's valid for everyone.

Nazan Teacher stated that distance education is beneficial for students and teachers who work in a planned and organized manner, and that it provides extra time for those who work in this way.

2. Contributions to students

During the pandemic, many students needed digital tools. Some schools attempted to provide digital tools to students who could not access them due to economic reasons. In this way, efforts were made to reduce the digital inequality experienced by students.

Assistance in accessing technological tools

Feyza Teacher stated that they created a spreadsheet at her school and recorded the digital problems experienced by teachers. They also indicated in this table the students who could not attend the lesson in their classes or who had a lack of computers and tablets. In this way, the school helped students who were not in good financial situations and provided them with access to digital tools. Feyza Teacher expressed this situation (10.10.2023): "We were providing the necessary support, for example, when there was a student who did not have a computer, the school could provide support in this sense. Or when there was such a thing as tablet computer support from the district, we would go and install them."

Ensuring student participation

Although it was stated that student participation decreased as the pandemic period progressed, there were also teachers who stated that they achieved student participation, especially in younger age groups. Özlem Teacher explained the process she experienced as follows (06.11.2023) :

> We always worked with parents. If the mother and child entered together, because there was no possibility of the child doing it. I mean, he opened and joined, his mother went and came but the mothers were always there or when I said show or the sound was going in and out, we worked with adults. Otherwise, when we started the lesson, closed it, and entered, our time would be 30 minutes, so we couldn't use it. That's why, during the time we were teaching the lesson, our children participated under the supervision of their parents.

These statements also highlight the importance of following up with parents and supporting students during the pandemic. Supporting students at the kindergarten and primary school levels, particularly in terms of technology, was seen as very effective for ensuring class attendance. In this way, teachers were able to manage the distance education process effectively and deliver their lessons.

3. Systemic contributions

During the pandemic, there were many issues with EIN, leading to disruptions in lessons due to disconnections. However, these problems were largely resolved over time, and several systemic improvements were made in terms of digital infrastructure. Key contributions included realizing that distance education is possible, strengthening the digital infrastructure of schools, and enhancing learning management systems.

Realizing that distance education is possible

During the pandemic process, it was realized that distance education could be used in emergency situations. Kerem Teacher made the following statements regarding this situation (09.05.2023):

> Teachers, all of our friends who are teachers right now during the pandemic, I think they have seen what distance education is and how it can be made more efficient, and from now on, even if we don't have a problem, they have seen that education can be done remotely and can be made efficient remotely... We were a little bit outside of this digital education, how can I say it, we didn't know it could happen this much. It was like we were in a bit of a difficult situation. When we were in a difficult situation, we started to enter EIN more.

Digital Development of Schools

In addition to the digital development of teachers during the pandemic, it was also emphasized that schools had digital infrastructure developments. School administrators worked to improve the digital infrastructure of their schools. Feyza Teacher explained that there were changes in her school that were like a digital revolution with the pandemic (10.10.2023):

> Our school was not a school that had any digital competence before. Even when something was being done, it was done using the old paperwork method. In other words, we had transferred these to the digital environment. I don't know, we were all using the exam paper padlet account. The school had a separate account, a classroom account. All document transcripts were published there. Everyone's board meetings were published there. Course schedules, everything was transparently published on the common class account or on this digital board account, and the projects to be done, the outputs related to the projects, what are the social activities held at the school? We were publishing e-magazines for these on a semester basis. Our students were taking part in the online magazine. Their content was published. In this sense, it was a period of firsts for the school. In this sense, the administration had great support and contribution. Because, as you know, our administration supports whatever is best for the student. We support everything that will be good for the student. As long as the teacher does it. They had this understanding. In that sense, they contributed a lot to us.

Feyza Teacher stated that her school had the goal of becoming a digital school with the pandemic process. She said that the school administrators had a great influence on setting this goal. Feyza Teacher stated that projects requiring digital skills increased during this process with the following words (10.10.2023):

> For example, three eTwinning projects were carried out at the school during that period when these eTwinning projects were started. Coding activities, codebit activities, etc. were done, two different things were done. We published two school magazines, in this sense, it was something that was published for the first time in the district. In this sense, we did all of our social activities for us. We did them for digital. Our students took part in every social activity. These were also shared in the school's digital archive. We created a digital archive for the school to show the digital potential of the school again.

Distance education during the pandemic emerged as a driving force that increased the digital opportunities of schools and created a more digital learning environment. The attitude of school administrators was also crucial in this process. The active participation of both students and teachers in school activities was seen as a key contribution of distance education during the pandemic. It was observed that digital inequalities were reduced by strengthening the school's digital infrastructure and addressing systemic issues.

Enrichment of EIN (Education Information Network)

EIN was enriched in terms of materials. Everyone realized that distance education could be used in emergencies. Kerem Teacher stated that distance education is possible with the following sentences (16.05.2023):

> In my opinion, we have achieved very good results in this process. Because before, we thought that traditional face-to-face education was a useful education and maybe the only education system. We were not even aware of another alternative.

Kerem Teacher also emphasized that EIN was enriched in terms of materials in this process (09.05.2023):

> Here it is in terms of content. Because, as I said, we had teachers who were perhaps well versed in technology but did not use EIN much. When they saw EIN, they said that we can contribute here, and they added content.

Discussions and Conclusions

During the COVID-19 pandemic, teachers encountered various challenges in the digital context they experienced. As a result of the interviews conducted with teachers within the scope of this study, the challenges experienced by teachers during the COVID-19 process were grouped under three main categories: Student-related, system-related, and teacher-related challenges.

Student-related problems included limited access to technology, lack of student engagement, communication barriers, privacy concerns, parental involvement, and health concerns. Research in the literature also supports these findings. Studies have shown that students experience difficulties related to not being able to access technological tools for online learning (Qutishat et al., 2022), reluctance to attend classes (Hussain & Nauman, 2023), lack of communication (Zarei & Fooladvand, 2022), problems such as not being able to protect the privacy of students' home life (Majeed & Hwang, 2021), parents not being able to adequately monitor their children's educational process (Bahiroh & Madjid, 2022), and concerns about health problems (Buffel et al., 2022). Akyıldız and Yurtbakan (2021) state that communication barriers both between students and teachers and among students themselves hinder the learning process and social development. In addition, health concerns, including concerns about the impact of the pandemic on physical and mental health, have added an extra layer of stress and anxiety to students' lives (Kaplan et al., 2021). Kazak and Karaahmetoğlu (2023) discussed health problems that occurred during the distance education process, stating that being inactive for long periods of time and constantly being in front of a screen caused both physical and psychological problems. As a result, the COVID-19 pandemic has presented students with numerous challenges that affect their mental health, educational experiences, and overall well-being. Overcoming these challenges requires a multifaceted approach that takes into account technological access, communication, privacy protection, parental involvement, and health concerns to effectively support students during these unprecedented times. The importance of the student's environment, which is specific to the student and the classroom, has also been supported by research for distance education to be effective. Mohan et al. (2020) concluded in their study that problems arising from the home environment prevent a quiet environment in the home environment, thus emphasizing that it is difficult to create a quiet environment in distance education. In addition, Kurt, Kandemir, and Çelik (2020) stated in their study that problems arising from the home environment make online education challenging.

Therefore, for the distance education process to be effective in the context of students, it has become necessary to provide equal access to technology, take the necessary e-security measures, assist parents in providing their children with the necessary educational environment, and develop a plan considering potential health-related damages..

In this study, the difficulties related to teachers included not being accustomed to the distance education process, not knowing digital platforms and applications, not being able to provide appropriate materials, not being able to adjust lesson duration and planning, insufficient digital skills, limited access to technological tools, and the limitations of working from home. Studies conducted during this period have shown that these obstacles were widely observed during the COVID-19 pandemic not only in Türkiye but also in many countries (Perry et al., 2021; Ulla & Perales, 2021; Yong et al., 2021). The transition to distance education has underlined the importance of support structures for teachers. Studies have emphasized the importance of collaboration between colleagues, professional learning communities, and online communities of practice in providing emotional, pedagogical, and technical support to educators (Artacho et al., 2020; Atkins & Danley, 2020). In addition, teacher training programs have been determined to be very important in developing digital competence and encouraging teaching innovation, especially in the context of lifelong learning (Guo, 2022). In the context of teachers, it has been determined that the training needs of teachers regarding distance education should be met as a priority within the framework of the difficulties that have emerged during the pandemic. Moreover, it has been understood that providing continuous support services regarding distance education is important for the development of teachers. Teachers should also be supported in terms of technological tools and materials.

There have also been difficulties classified as system-related problems during the pandemic. These difficulties have been determined as internet infrastructure and connection, measurement and evaluation, class participation, problems assigning lessons to teachers, and security problems on distance learning platforms. The negative impact of poor internet connection and infrastructure on online lessons during the pandemic has also been found in other studies (Zainal and Yunus, 2022). In addition, the lack of sufficient internet access and infrastructure has been considered a significant obstacle affecting the effectiveness of online learning for both educators and students (Ghafar et al., 2021; Nasution and Ramazan, 2021). Regarding educational difficulties, difficulties have been observed in assigning lessons to teachers and ensuring active participation in the lesson (Virgin et al., 2021; Widaningsih et al., 2022). Teachers in remote areas have faced difficulties due to inadequate infrastructure, student readiness, and students' fluctuating motivation levels during online teaching (Virgin et al., 2021). At the beginning of the pandemic, these problems can be considered inevitable. However, the long duration of the process has left the expectation and desire to solve the problems related to the system. Based on the research in the literature and the findings of this research, it has been understood that a strong system infrastructure is needed for the distance education process to be effective in emergencies such as epidemics. In this process, it is necessary to determine in advance which online tools will be used in the country and to make regular updates. Otherwise, no matter how good the skills of the teachers and the readiness of the students are, an efficient education and training will not be provided.

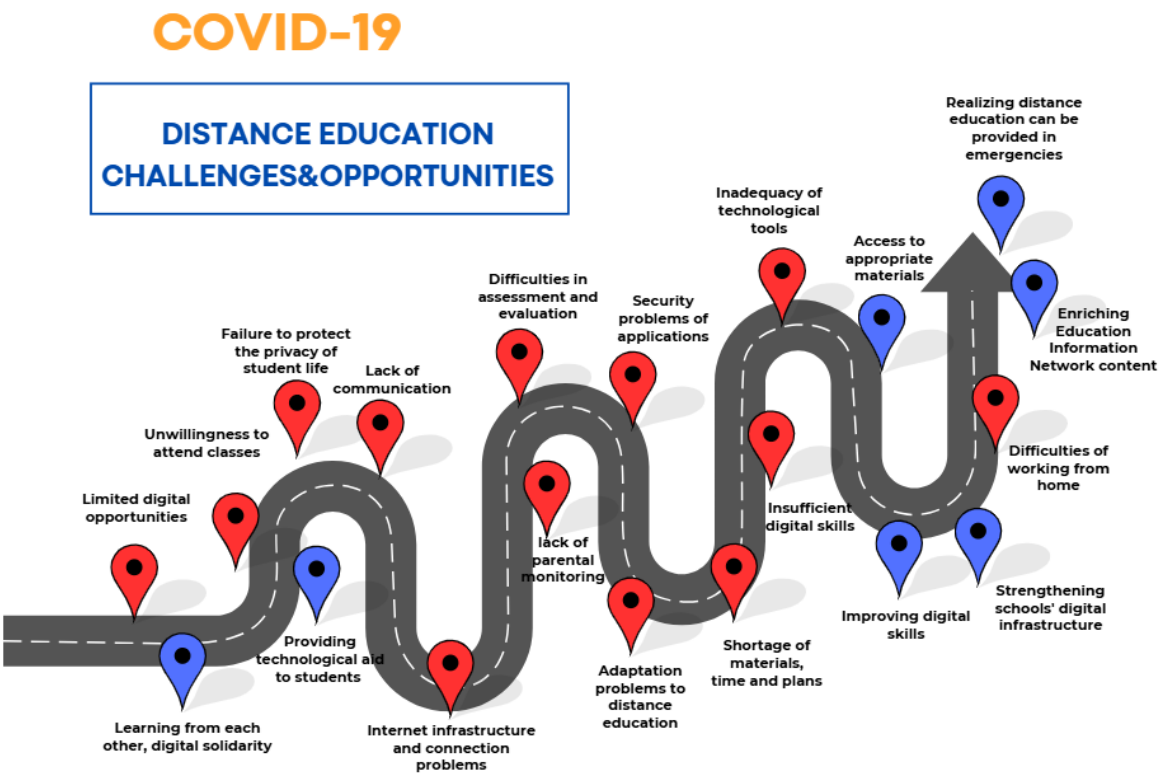
Teachers also stated that distance education had many benefits during the pandemic. These benefits were classified into three categories: contributions to teachers, contributions to students, and systemic contributions. The development of digital skills, learning from each other, the development of digital solidarity, finding appropriate materials for lessons, and saving time were identified as the contributions of this process to teachers. Consistent with these findings, research has shown that emergency distance education during the pandemic positively affected teachers' ability to design online lessons and support remote classes. The open, self-organizing, and collaborative nature of online lessons was effective in improving teachers' ability to adapt to the new teaching environment (Jimoyiannis et al., 2021). Daniel (2020) also supported these findings by underlining the importance of distance learning and stating that EIN led to the development of platforms. This shift toward digital education has been an important

response to the challenges posed by the pandemic, highlighting the need for solid digital infrastructures in schools.

It has also been found that education during the pandemic has had systemic contributions. The fact that teachers used EIN very frequently during online education has enriched EIN in terms of materials. Everyone has realized that distance education can be conducted in emergencies. In addition to these, efforts have been made to improve the digital infrastructure of schools. İskenderoğlu and Konyalıhatipoğlu (2021) also stated that teachers benefited more from EIN during online education, which led to the enrichment of the platform's resources. It has been emphasized that it is widely accepted that distance education is possible and useful in emergencies (Aydın, 2021). Research has also stated that efforts are underway to improve the digital infrastructure of schools (Yakut & İçbay, 2021). The pandemic has enabled the challenges of internet connection problems, hardware limitations, and teachers' lack of experience in using the system effectively to be addressed, and has significantly increased the integration of technology into education (Türker & Dündar, 2020).

In summary, research shows that the COVID-19 pandemic has accelerated the adoption of technology in education. This highlights the importance of distance learning tools such as EIN, the need for infrastructure improvements, and the necessity of evaluating and improving the distance education process. The challenges and benefits of the pandemic are shown in Figure 3. The red signs represent challenges, while the blue signs represent the opportunities of the COVID-19 distance education process:

Figure 3. *Challenges and opportunities of COVID-19 distance education process*



The distance education carried out during the COVID-19 pandemic presented numerous challenges, but over time, these challenges have led to positive contributions for teachers, students, and the education system. One of the most significant outcomes was the emphasis on the importance of teachers' digital leadership, which highlighted the necessity of technological integration in education. Additionally, the critical role of platforms such as EIN accelerated the adoption of technology in education. However, this process also exposed the need for improvements in the digital infrastructure of schools and the ongoing evaluation and development of distance education processes.

To address these challenges and improve the efficiency of distance education, several measures must be implemented. First, schools' digital infrastructures must be strengthened by ensuring fast internet access and updating necessary software. Training programs on digital literacy and technology integration should be incorporated into educational curricula to enhance the digital skills of both teachers and students. Furthermore, special training programs to develop teachers' digital leadership skills should be organized, with experienced teachers serving as mentors. By developing comprehensive and accessible course materials for distance education, the teaching process can be facilitated, and student participation can be increased. Establishing continuous feedback mechanisms to regularly gather insights from teachers, students, and parents will contribute to the ongoing improvement of the system. Additionally, special programs and resources should be made available for disadvantaged groups to reduce digital inequalities and ensure equal access to distance education opportunities for all students.

While studies on teachers' digital competencies and the challenges faced during the pandemic align with the findings of this research, our study offers some notable differences and contributions. Specifically, we emphasize the potential of increasing teachers' digital competencies to reduce digital inequalities in education, with a particular focus on the concept of digital leadership. Although existing research suggests that improving teachers' digital skills can enhance educational success (Dhawan, 2020; König et al., 2020; Sorokolit, 2024), one of the unique contributions of our study is its stronger focus on addressing the inequalities exacerbated by COVID-19.

In line with other studies that identify systemic challenges such as internet infrastructure and limitations on online platforms (Almaiah et al., 2020; Sahu, 2020), our research also stresses the importance of teacher collaboration and continuous professional development in digital education (Adarkwah, 2020). This unique contribution emphasizes the need for ongoing efforts to permanently increase teachers' digital competencies, especially in the post-pandemic era.

In conclusion, the findings of this study suggest that the challenges faced in digital education during the COVID-19 pandemic should not be seen merely as a short-term crisis but as long-term opportunities for digital transformation in education. Strengthening teachers' digital skills, enhancing digital education infrastructure, and providing continuous support for educators are essential steps in ensuring that the lessons learned during the pandemic lead to meaningful, lasting improvements in education.

References

Adarkwah, M. (2020). "I'm not against online teaching, but what about us?": ICT in Ghana post-COVID-19. *Education and Information Technologies, 26*(2), 1665-1685. https://doi.org/10.1007/s10639-020-10331-z

Aguliera, E., & Nightengale-Lee, B. (2020). Emergency remote teaching across urban and rural contexts: Perspectives on educational equity. *Information and Learning Sciences, 121*(5/6), 471-478. https://doi.org/10.1108/ils-04-2020-0100

Akçuru, S. (2023). Comparison of instructors' experiences in distance education and face-to-face education processes. *Kastamonu Eğitim Dergisi, 31*(2), 543-554. https://doi.org/10.24106/kefdergi-2023-0054

Akyıldız, S., & Yurtbakan, E. (2021). The views of school administrators and teachers about the coronavirus outbreak, the effects of the process on attitudes and behaviors, and investigation of distance education perceptions. *Manas Sosyal Araştırmalar Dergisi, 10*(4), 2191-2203. https://doi.org/10.33206/mjss.848566

Albó, L., Beardsley, M., Martínez-Moreno, J., Santos, P., & Hernández-Leo, D. (2020, September). Emergency remote teaching: Capturing teacher experiences in Spain with SELFIE. In *European Conference on Technology Enhanced Learning* (pp. 318-331). Cham: Springer International Publishing.

Allen, R. E. S., & Wiles, J. L. (2015). A rose by any other name: Participants choosing research pseudonyms. *Qualitative Research in Psychology*, 12(1), 11-27. https://doi.org/10.1080/14780887.2015.1133746

Almaiah, M., Al-Khasawneh, A., & Althunibat, A. (2020). Exploring the critical challenges and factors influencing the e-learning system usage during COVID-19 pandemic. *Education and Information Technologies, 25*(6), 5261-5280. https://doi.org/10.1007/s10639-020-10219-y

Almendingen, K., Morseth, M., Gjølstad, E., Brevik, A., & Tørris, C. (2021). Student's experiences with online teaching following COVID-19 lockdown: A mixed methods explorative study. *PLOS ONE, 16*(8), e0250378. https://doi.org/10.1371/journal.pone.0250378

Artacho, E., Martínez, T., Martín, J., Marín-Marín, J., & García, G. (2020). Teacher training in lifelong learning—the importance of digital competence in the encouragement of teaching innovation. *Sustainability, 12*(7), 2852. https://doi.org/10.3390/su12072852

Arslan, M. (2021). COVID-19 salgını sürecinde hizmet içi eğitim etkinliklerine ilişkin öğretmen görüşlerinin incelenmesi. *Nevşehir Hacı Bektaş Veli Üniversitesi SBE Dergisi, 11*(3), 1601-1619.

Atkins, C., & Danley, A. (2020). Supporting teacher candidates during COVID-19. *Educational Renaissance, 9*(1), 31-40. https://doi.org/10.33499/edren.v9i1.153

Aydın, E. (2021). COVID-19 döneminde EBA ile yapılan uzaktan eğitim sürecinde canlı Türkçe derslerinin değerlendirilmesi. *Journal of History School, L*(L), 512-540. https://doi.org/10.29228/joh.46444

Baloğlu, E., & Fırat, M. (2022). İlkokul öğretmenleri COVID-19 pandemi deneyimlerine dayalı olarak uzaktan eğitim ve yüz yüze eğitimi nasıl karşılaştırıyorlar?. *Açıköğretim Uygulamaları ve Araştırmaları Dergisi, 8*(2), 1-35. https://doi.org/10.51948/auad.1069056

Bargi, G., Akkaya, M., & Güney, Y. (2022). Investigation of university students' attitudes toward web-based distance education in terms of theoretical and applied courses during the COVID-19 pandemic period. *Journal of Experimental and Clinical Medicine, 39*(1), 110-116. https://doi.org/10.52142/omujecm.39.1.22

Battal, B., & Koşar, D. (2021). COVID-19 dönemi acil uzaktan eğitim faaliyetlerinin öğretmenlerde yarattığı psikolojik güçlükler. *Nevşehir Hacı Bektaş Veli Üniversitesi SBE Dergisi, 11*(3), 1366-1384. https://doi.org/10.30783/nevsosbilen.988780

Bahiroh, S., & Madjid, A. (2022). Management of student life skills and their impact on learning outcomes of madrasah students during the COVID-19 pandemic period. *Al-Tanzim Jurnal Manajemen Pendidikan Islam, 6*(3), 746-762. https://doi.org/10.33650/al-tanzim.v6i3.3632

Bazeley, P. (2013). *Qualitative data analysis: Practical strategies*. Sage.

Birks, M., & Mills, J. (2015). *Grounded theory: A practical guide* (2nd ed.). Sage.

Bordeos, M. (2021). Learning goes on: Students' attitudes and perceptions in the implementation of the modular distance learning during COVID-19 pandemic. *Instabright International Journal of Multidisciplinary Research, 3*(1), 07-16. https://doi.org/10.52877/instabright.003.01.0043

Bozkurt, A., & Sharma, R. C. (2020). Emergency remote teaching in a time of global crisis due to coronavirus pandemic. *Asian Journal of Distance Education, 15*(1), i-vi. https://doi.org/10.5281/zenodo.3778083

Bozkurt, A., Jung, I., Xiao, J., Vladimirschi, V., Schuwer, R., Egorov, G., … & Paskevicius, M. (2020). A global outlook to the interruption of education due to COVID-19 pandemic: Navigating in a time of uncertainty and crisis. *Asian Journal of Distance Education, 15*(1), 1-126. https://doi.org/10.5281/zenodo.3878572

Buffel, V., Velde, S., Akvardar, Y., Bask, M., Brault, M., Busse, H., … & Wouters, E. (2022). Depressive symptoms in higher education students during the COVID-19 pandemic: The role of containment measures. *European Journal of Public Health, 32*(3), 481-487. https://doi.org/10.1093/eurpub/ckac026

Cantürk, G., & Cantürk, A. (2021). İngilizce öğretmenlerinin COVID-19 küresel salgını sürecinde gerçekleştirdikleri uzaktan eğitim deneyimleriyle ilgili görüşlerinin metaforlar yoluyla belirlenmesi. *International Journal of Current Approaches in Language Education and Social Sciences, 1*, 1-37. https://doi.org/10.35452/caless.2021.1

Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis*. Sage.

Corbin, J. M., & Strauss, A. L. (2008). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (3rd ed.). Sage.

Creswell, J. W. (2013). *Qualitative inquiry and research design: Choosing among five approaches* (3rd ed.). Sage.

Daniel, S. (2020). Education and the COVID-19 pandemic. *Prospects, 49*(1-2), 91-96. https://doi.org/10.1007/s11125-020-09464-3

Daşdemir, İ., & Cengiz, E. (2022). Ortaokul öğretmenlerinin Türkiye'de salgın sürecinde yapılan uzaktan eğitime ilişkin görüşleri. *Milli Eğitim Dergisi, 51*(233), 327-351. https://doi.org/10.37669/milliegitim.787563

Dhawan, S. (2020). Online learning: A panacea in the time of COVID-19 crisis. *Journal of Educational Technology Systems, 49*(1), 5-22. https://doi.org/10.1177/0047239520934018

Doghonadze, N., Aliyev, A., Halawachy, H., Knodel, L., & Adedoyin, A. S. (2020). The degree of readiness to total distance learning in the face of COVID-19—Teachers' view (Case of Azerbaijan). *International Journal of Advanced Research in Education & Technology, 7*(4), 48-56. https://doi.org/10.26803/ijaret.7.4.498

European Commission, (2016). *DigComp 2.0: The digital competence framework for citizens with eight proficiency levels and examples of use*. Publications Office of the European Union

Ghafar, N., Jamal, N., & Hasan, N. (2021). Perceived stress among UiTM students during open and distance learning (ODL) *International Journal of Academic Research in Business and Social Sciences*. https://doi.org/10.6007/ijarbss/v11-i8/10893

Glaser, B. & Strauss, A.L. (1967). *The discovery of grounded theory: Strategies for qualitative research*. Aldine Publishing Company

Glesne, C. E. (2013). Ethnography with a biographic eye. In *Writing educational biography* (pp. 33-43). Routledge

González, C., Ponce D., & Fernández, V. (2023). Teachers' experiences of teaching online during COVID-19: Implications for postpandemic professional development *Educational Technology Research and Development*. https://doi.org/10.1007/s11423-023-10200-9

Guo, S. (2022). Remote co-teaching in rural classroom: Current practices, impacts, and challenges. https://doi.org/10.48550/arxiv.2203.16042

Hussain,R. & Nauman, S. (2023). Continuing education during COVID-19: Difficulties faced by the underprivileged university students *International Journal of Innovation in Teaching and Learning (IJITL)*, 8(2), 90-106. https://doi.org/10.35993/ijitl.v8i2.2495

İskenderoğlu, T. & Konyalıhatipoğlu, M. (2021). Matematik öğretmenlerinin bakış açısıyla COVID-19 salgını sürecinde uzaktan canlı dersler *Dokuz Eylül Üniversitesi Buca Eğitim Fakültesi Dergisi*, (52), 235-262. https://doi.org/10.53444/deubefd.895682

Ismail, W., Latif, R., & Othman, M. (2021). Students' perception towards online distance learning (ODL) during COVID-19 pandemic in undergraduate students of Faculty of Health Science *International Journal of Academic Research in Business and Social Sciences*, 11(9). https://doi.org/10.6007/ijarbss/v11-i9/11081

Jimoyiannis, A., Koukis, N., & Tsiotakis, P. (2021). Rapid design and implementation of a teacher development MOOC about emergency remote teaching during the pandemic *Communications in Computer and Information Science*, 330-339. https://doi.org/10.1007/978-3-030-73988-1_26

Johnson, M. (2021). Challenges faced by teachers during the shift to remote education in the COVID-19 pandemic *Journal of Educational Technology and Online Learning*, 8(4), 234-245.

Kaplan, E., Aktaş, M., & Kaya, H. (2021). The relationship between fear of the COVID-19 pandemic and nurses' attitudes to the caregiver role *Sağlık Bilimleri Üniversitesi Hemşirelik Dergisi*, 3(3), 135-140. https://doi.org/10.48071/sbuhemsirelik.997960

Karakuş, G. & Erşen, Z. (2021). Öğretmenlerin uzaktan eğitime yönelik tutumları ve COVID-19 korkularının farklı değişkenler açısından incelenmesi *Manisa Celal Bayar Üniversitesi Eğitim Fakültesi Dergisi*, 9(2), 66-85. https://doi.org/10.52826/mcbuefd.954341

Kazak, E. & Karaahmetoğlu, H. (2023). Uzaktan eğitim sürecinde karşılaşılan sorunlara ilişkin öğretmen görüşleri *Nevşehir Hacı Bektaş Veli Üniversitesi SBE Dergisi*, 13(1), 385-401. https://doi.org/10.30783/nevsosbilen.1213000

Keşkek, M. & Kayahan Yüksel, D. (2022). Öğretmenlerin COVID-19 pandemi sürecinde uzaktan eğitime ilişkin algıları: Bir metafor analizi çalışması *Sinop Üniversitesi Sosyal Bilimler Dergisi*, 6(2), 354-376. https://doi.org/10.30561/sinopusd.1173292

Kırık, A. (2014). Uzaktan eğitimin tarihsel gelişimi ve Türkiye'deki durumu *Türkiye İletişim Araştırmaları Dergisi*, (21), 73-73. https://doi.org/10.17829/midr.20142110299

König, J., Jäger-Biela, D., & Glutsch, N. (2020). Adapting to online teaching during COVID-19 school closure: Teacher education and teacher competence effects among early career teachers in Germany *European Journal of Teacher Education*, 43(4), 608-622. https://doi.org/10.1080/02619768.2020.1809650

Kurt, K., Kandemir, M.A., & Çelik, Y. (2020). Covid-19 pandemi sürecinde uzaktan eğitime ilişkin sınıf öğretmenlerinin görüşleri *Türkiye Bilimsel Araştırmalar Dergisi*, 6(1), 89-103

Lincoln, Y.S. & Guba, E.G. (1985). *Naturalistic inquiry*. Newbury Park, London: SAGE Publications Inc.

Majeed, A. & Hwang, S. (2021). A comprehensive analysis of privacy protection techniques developed for Covid-19 pandemic *IEEE Access*, 9, 164159-164187. https://doi.org/10.1109/access.2021.3130610

Miles, M.B. & Huberman, A. M. (1994). *Qualitative data analysis* (2nd Ed.). Thousand Oaks, CA: Sage Publications.

Mohan, G., McCoy, S., Carroll, E., Mihut, G., Lyons, S., & Domhnaill, C.M. (2020). Learning for all? Second-level education in Ireland during COVID-19. COVID-19. ESRI Survey and Statistical Report Series.

Nasution, S. & Ramadan, Z. (2021). Primary school teacher performance during the Covid-19 pandemic *Jurnal Ilmiah Sekolah Dasar*, 5(4), 639. https://doi.org/10.23887/jisd.v5i4.40237

Perry, T., Findon, M., & Cordingley, P. (2021). Remote and blended teacher education: A rapid review *Education Sciences*, 11(8), 453. https://doi.org/10.3390/educsci11080453

Qutishat, D., Obeidallah, R., & Qawasmeh, Y. (2022). An overview of attendance and participation in online class during the Covid pandemic: A case study *International Journal of Interactive Mobile Technologies (IJIM)*, 16(04), 103-115. https://doi.org/10.3991/ijim.v16i04.27103

Robinson, L., Valido, A., Drescher, A., Woolweaver, A., Espelage, D., LoMurray, S., … & Dailey, M. (2022). Teachers, stress, and the Covid-19 pandemic: A qualitative analysis *School Mental Health*, 15(1), 78-89. https://doi.org/10.1007/s12310-022-09533-2

Sahu, P. (2020). Closure of universities due to coronavirus disease 2019 (Covid-19): Impact on education and mental health of students and academic staff *Cureus*. https://doi.org/10.7759/cureus.7541

Sevim, F. & Akın, U. (2021). The role of graduate education in professional development of teachers: Is graduation enough? *Ted Eğitim ve Bilim*. https://doi.org/10.15390/eb.2021.9593

Sezgin, S. (2021). Acil uzaktan eğitim sürecinin analizi: Öne çıkan kavramlar, sorunlar ve çıkarılan dersler *Anadolu Üniversitesi Sosyal Bilimler Dergisi*, 21(1), 273-296. https://doi.org/10.18037/ausbd.902616

Sorokolit, N. (2024). Multimedia technologies as tools for fostering digital literacy in education *Environment Technology Resources Proceedings of the International Scientific and Practical Conference*, 2, 493-498. https://doi.org/10.17770/etr2024vol2.8077

Taş, Y., Eminoğlu, S., Atila, G., Yıldız, Y., & Bozkurt, U. (2021). Teachers' self-efficacy beliefs and opinions about distance education during the Covid-19 pandemic *Turkish Online Journal of Distance Education*, 229-253. https://doi.org/10.17718/tojde.1002868

Telli, S. & Altun, D. (2020). The coronavirus and the rising of online education *Üniversite Araştırmaları Dergisi*, 3(1), 25-34. https://doi.org/10.32329/uad.711110

Türker, A. & Dündar, E. (2020). Covid-19 pandemi sürecinde Eğitim Bilişim Ağı (EBA) üzerinden yürütülen uzaktan eğitimlerle ilgili lise öğretmenlerinin görüşleri *Milli Eğitim Dergisi*, 49(1), 323-342. https://doi.org/10.37669/milliegitim.738702

Ulla, M. & Perales, W. (2021). Emergency remote teaching during Covid-19: The role of teachers' online community of practice (COP) in times of crisis *Journal of Interactive Media in Education*, 2021(1). https://doi.org/10.5334/jime.617

UNESCO, (2020a). School closures caused by Coronavirus (Covid-19). UNESCO. https://en.unesco.org/covid19/educationresponse

UNESCO, (2020b). Startling digital divides in distance learning emerge. UNESCO. https://en.unesco.org/news/startling-digital-divides-distance-learning-emerge

UNICEF, (2020). UNICEF and Microsoft launch global learning platform to help address COVID-19 education crisis. UNICEF. https://www.unicef.org/press-releases/unicefand-microsoft-launch-global-learning-platform-help-address-covid-19-education

Virgin, N., Qalyubi, I., & Qamariah, Z. (2021). The challenges of English teachers in remote areas toward online learning during Covid-19 pandemic *Project (Professional Journal of English Education)*, 4(4), 728. https://doi.org/10.22460/project.v4i4.p728-737

Widaningsih, M., Mediawati, E., Ali, N., Majid, R., & Abdullah, S. (2022) Problems and challenges of the internship program during the pandemic Covid-19: The perspective of accounting students in Indonesia *Jurnal Aset (Akuntansi Riset)*, 14(1), 125-134. https://doi.org/10.17509/jaset.v14i1.44483

Yakut, S. & İçbay, M. (2021). Okul yöneticilerinin salgın sürecindeki yönetim deneyimleri ve çözüm önerileri *Uluslararası Bilim ve Eğitim Dergisi*, 4(3), 128-156. https://doi.org/10.47477/ubed.892129

Yıldırım, A. & Şimşek, H. (2013). *Sosyal bilimlerde nitel araştırma yöntemleri* (9. Baskı). Ankara: Seçkin Yayıncılık.

Yong, K., Zaid, N., Wahid, N., Ashari, Z., Suhairom, N., & Said, M. (2021). Challenges in emergency remote teaching among Malaysian public elementary school teachers *International Journal of Emerging Technologies in Learning (IJET)*, 16(24), 74-90. https://doi.org/10.3991/ijet.v16i24.27453

Zainal, N. & Yunus, M. (2022). Asian university students' perspectives on online English courses during Covid-19: A systematic review *International Journal of Evaluation and Research in Education (IJERE)*, 11(2), 888. https://doi.org/10.11591/ijere.v11i2.22420

Zarei, S. & Fooladvand, K. (2022). Family functioning and life satisfaction among female university students during COVID-19 outbreak: The mediating role of hope and resilience *BMC Women's Health*, 22(1). https://doi.org/10.1186/s12905-022-02103-3

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Author's Contributions (CRediT)

Tuğba Akar: Conceptualization, methodology, formal analysis, investigation, data curation, visualization, writing—original draft preparation. Dilruba Kürüm Yapıcıoğlu: Supervision, conceptualization, methodology, formal analysis, writing—review and editing. All authors have read and agreed to the published version of the manuscript.

Data Accessibility Statement

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Ethics and Consent

In this study, the necessary ethics committee permissions were obtained and consent forms were obtained from the participants in order to ensure ethical standards. The identities of the participants were protected; pseudonyms were used.

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