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Elementary School Teachers' Experiences of Distance Education during the COVID-19 Pandemic in Turkey

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Abstract

In this qualitative case study, we investigated teachers' experiences of distance education during the COVID-19 pandemic in Turkey. The participants comprised 69 elementary school teachers at varying levels of experience. The purpose of the study was to explore elementary school teachers' experiences regarding advantages and challenges of distance education and the deficiencies in learning outcomes that they observed in their students during the instructional processes. To explore the teachers' experiences, we conducted semi-structured interviews with them. We analyzed the data obtained from the interviews using the coding analysis method. The results show that participants quickly learned how to use technological platforms, improved their technological literacy skills, and ensured the continuity of education for students through online learning opportunities. Participants also addressed the challenges they were confronted with in the process of adjustment. Most challenges included inequality of opportunities, problems with technology, insufficient socialization, amotivation, low involvement and poor preparation for online education, as well as non-authentic interaction. Participants stated that they observed a decrease in students' reading comprehension and writing skills, an increase in mathematical operation errors, the inability to achieve high-level goals, and a decrease in their motivation to learn during distance education. For this reason, they did not believe that distance education adequately met students' needs or educational and pedagogical standards.

Keywords: COVID-19 pandemic, distance education, case study

Introduction

Along with significant changes and effects in the global education system, the COVID-19 pandemic has highlighted the need to benefit from distance education (Global Education Cluster, 2020). The pandemic has necessitated a remarkable digital leap in students' background education and distance education practices. The education of students has suddenly changed from face-to-face education to online education (Iivari et al., 2020). This has also had a significant impact on teachers' digital literacy skills and their readiness for online teaching. Indeed, teachers are one of the groups most affected by the pandemic. With the emergence of the pandemic, millions of teachers around the world began to teach students via distance education and were expected to act competently in the digital environment (Papagiannidis et al., 2020). Teachers have had to cope with this sudden, unexpected digital transformation of children's school education without receiving sufficient preparation (Iivari et al., 2020). Therefore, the COVID-19 pandemic has had a great impact on teachers' teaching skills and their readiness to teach online. The pandemic has important pedagogical repercussions for distance education. The purpose of this study was to explore the impact of distance education on educational processes from a holistic perspective by identifying advantages, challenges, and potential disadvantages of distance education in terms of students' learning outcomes during the COVID-19 pandemic. The following research questions guided this study:

1. What were the advantages of distance education at the elementary school level during the COVID-19 pandemic in Turkey?
2. What challenges did elementary school teachers experience during the COVID-19 pandemic?
3. What were the disadvantages of distance education in terms of learning outcomes during the COVID-19 pandemic?

Background of the Study

In Turkey, the COVID-19 pandemic emerged in March 2020, and it adversely affected various domains of public life including the industrial, health, and education sectors (Turkish Ministry of Health, 2020). When the first case emerged in Turkey and COVID-19 pandemic then spread rapidly, the Turkish Ministry of National Education (MoNE, 2020a) took urgent actions with a risk-based approach to prevent the spread of the COVID-19 virus in schools and society. In this context, in order to ensure the continuity of institutional education and training activities and to increase the quality of education, teaching was delivered over distance education and a pandemic education policy was developed. The MoNE announced that as of March 12, 2020, education had been suspended for three weeks at all education levels in order to control the pandemic. Later, upon the growth of the pandemic, it extended the break given to face-to-face education and announced that schools would be completed through distance education until the end of the 2020–2021 academic year. This transition was accomplished very quickly. During the pandemic response process, infrastructure arrangements and capacity increases were made in the system within a short time in order to provide school-age children with equal opportunities for online learning to save their right of education and to carry out distance education without any problems (MoNE, 2020a).

In pedagogical preparation, teachers tried to design, facilitate, and conduct online learning. However, several disruptions and problems were observed in the distance education process. It is important to carry out comprehensive studies to determine the experiences of teachers in order to provide effective solutions to the disruptions and problems that have occurred. For this reason, in this study, we aimed to investigate the advantages of distance education, the challenges teachers experienced in distance education, and the disadvantages of distance education in terms of learning outcomes they observed in their students during the instructional processes. We thought that COVID-19 pandemic could have led to deficiencies in the learning outcomes of students. Therefore, in our study we conceptualized this case as a disadvantage of distance education in students' learning outcomes. We aimed to investigate whether these possible disadvantages could cause reductions in students' acquisition of knowledge and skills.

The reason for our attention to this phenomenon is that the world's education systems could likely experience disruptions as a result of the COVID-19 pandemic (Ardington et al., 2021;

Azevedo et al., 2021; Pier et al., 2021). School closures and the transition to distance education due to the pandemic may have led to progress or deficiencies in students' learning outcomes (Donnelly & Patrinos, 2021). Previous studies indicate that evidence on lack of learning outcomes due to the COVID-19 pandemic is only starting to emerge (Engzell et al., 2021; Schult et al., 2021). The closure of schools and the urgent shift to distance education due to the COVID-19 pandemic may have had adverse effects on students' learning outcomes. Identifying these possible effects can provide evidence to the relevant literature. Therefore, in this study, we aimed to explore elementary school teachers' experiences regarding advantages and challenges of distance education and the deficiencies in the learning outcomes that they observed in their students during the instructional processes.

Literature Review

Effect of the COVID-19 Pandemic on Distance Education

In the fight against the COVID-19 pandemic, many countries in the world had to replace traditional face-to-face education with distance education technology as a defense tool. Although many countries have been exposed to natural and man-made disasters before, distance education had not been used as a solution as during the COVID-19 pandemic. Researchers argue that the best aspect of COVID-19 is that it led to the development of distance education and that post-pandemic school education is an important part of new learning and teaching processes (Li & Lalani, 2020; Roache et al., 2020). A study conducted by UNESCO covering 61 countries showed that distance education in schools was not used systematically worldwide before the COVID-19 pandemic (UNESCO, 2020). A small percentage of countries have a longer tradition of education using various digital tools as part of the teaching and learning process. Some researchers argue that the COVID-19 pandemic has become a catalyst for educational institutions around the world to find innovative solutions that accelerate innovation in teaching and learning and are directly linked to the growth of public-private partnerships in education (Tam & El-Azar, 2020). Merfeldaitė et al. (2020) state that traditional face-to-face instruction will take place with new ways of learning, from live broadcasts to virtual reality experiences, and thus the concept of digital education will be applied anywhere, anytime.

The COVID-19 pandemic is unique as it initiated procedures for distance education being fundamentally different from typical distance education in several ways (Al Lily et al., 2020). First, the COVID-19 pandemic generated distance education that is fast, impromptu, and urgent. This form of education has been put into practice in schools and educational institutions due to an unforeseen need without prearrangement or preparation. It has been pushed into society without the necessary knowledge and skills to save classroom learning and restore educational institutions (Simati-Kumar & Rangiwai, 2020) but is likely to become a norm in education (Taylor et al., 2020). The second peculiarity is its internationalization. Distance education has been implemented worldwide as a nonpharmaceutical intervention (Centers for Disease Control & Prevention, 2020) and has become a global reality, turning it into a world-class spectacle and a general universal solution (Al Lily et al., 2020). Efforts have been made before to institutionalize distance education, but with COVID-19, efforts now further focus on internationalization. Third, distance education is popular today in many countries (Schunk, 2012).

Distance education has gained new breath worldwide with the onset of the COVID-19 pandemic and has become a general area of interest for societies and countries. Distance education, which has been a part of the education system but not the focal point, has become the center of the education system due to COVID-19. During the pandemic, distance education has taken its place in education with the opportunities provided by information technology to teachers, students, and even parents, and it has become a source of internal motivation for countries. The fourth specific quality of distance education is expansion, as it now crosses the borders and regions of schools and offers access to large masses regardless of time and place. Distance education is not a new phenomenon in higher education and mostly focuses on adults and higher education students (Rice, 2006). Furthermore, it is remarkable that distance education took its place in schools, especially in primary schools, due to COVID-19. During this time, distance education has become a teaching tool for all age groups and learning levels, from preschool education to postgraduate levels. Researchers have pointed out that distance education plays an active role as a primary resource for students to continue their educational journeys or complete their education (Al Lily et al., 2020).

Distance Education: Definition and Overview

Distance learning (distance education) occurs when teaching that originates in one location is transmitted to students at one or more remote sites. Distance learning saves time, effort, and money because instructors and students do not have to make long journeys to classes (Schunk, 2012). In recent years, as online learning materials and technological classroom applications have been developed and applied to learning and teaching, the interest in online education has increased as well (Arnesen et al., 2019). While distance education was generally launched for reasons such as geographical isolation, disability, wars, and disasters, it is used today as an effective tool to deal with a medical tragedy (Al Lily et al., 2020). Distance education has been portrayed as almost the only way for young people to continue their education during the COVID-19 pandemic. Distance education and information and communication technologies (ICT) have been actively used for the last 20 years, and as technological tools and online applications have been developed, the importance of distance education has increased (Arnesen et al., 2019).

Distance education can be defined in the sense of distance and independence of time and place, as major online courses and open educational resources. It is an educational experience in which instructors and students are separated in time and space (Keegan, 1994). Distance education is a form of education based on the effective use of information technologies in an academic institution for the purpose of teaching distance lessons and facilitating learning (Valentine, 2002). Distance education is a form of education in which the learner and the teacher are separate and distant from each other in a large part of the teaching-learning process, where information technologies are actively used, more space is given to materials or online applications suitable for the content of the course, and the learner is more independent (Uşun, 2006). According to Schunk (2012, p. 328), distance education takes place when instruction originating from a location is transmitted to one or more distant students. Distance education saves time, effort, and cost, as it does not require instructors and students to travel long distances to attend classes. Distance education provided the opportunity to transmit the curriculum from a central location to all of the schools during the COVID-19 pandemic. Distance learning sacrifices face-to-face contact with instructors but allows real-time (synchronous) interaction when two-way interactive videos are used (Schunk, 2012, p. 328).

There are many variants and definitions of distance education, such as “distance teaching,” “distance learning,” “open learning,” or “online learning.” Distance teaching describes the course development process of a remote institution that prepares learning processes for learners (Keegan, 1994). Distance learning is the evaluation of this process from the learner’s point of view (Kaya, 2002). Distance education is an individualized education that can benefit from a wide range of kits in different conditions and leaves the responsibility of learning to the individual to a large extent (Hızal, 1983). Distance learning, on the other hand, emphasizes the learner’s self-study with any media use and shows more diversity than distance education in terms of learning situations (Verduin & Clark, 1994). The quality of distance education largely depends on the level of digital access, the quality of applications, and the digital literacy of all participants, such as teachers, students, and parents, in the learning process (Giovannella et al., 2020; König et al., 2020; McKenney et al., 2015).

Distance education emphasizes the facilitating role of the teacher in designing classroom activities (Kebritchi et al., 2017; Keengwe & Kidd, 2010) and creates prerequisites and opportunities to strengthen students’ self-learning using technology and parental support (Li & Lalani, 2020). According to Bernard et al. (2004), distance education that incorporates interactions including student-student, student-teacher, and student-content helps to increase student learning and technological experiences. Incorporating online learning opportunities and multimedia presentations into distance education increases personalization and, thus, brings it closer to face-to-face learning (Larreamendy-Joerns & Leinhardt, 2006); in this way, student motivation and learning can be promoted. Researchers have suggested that as the convenience of technology continues to evolve, we will gradually move away from traditional education toward a model that includes fewer classroom meetings and more digital learning and communication (Schunk, 2012). Indeed, the COVID-19 pandemic has made online learning, easy information access, and distribution available to a large proportion of the world’s population, and it helped move traditional educational content to digital platforms and reach large intended audiences (Fidalgo et al., 2020).

During the COVID-19 pandemic, Turkey provided distance education first through television in order to ensure continuity in education. The Ministry of National Education (MoNE) prepared

online lesson videos for students at all educational levels and provided these videos to students via television. In the second phase of the process, the MoNE provided tablets, internet, and infrastructures to support students in need and continued distance education applications regularly with the Education Information Network internet platform (MoNE, 2020b).

Research Design

To address the purposes of our study, we employed a qualitative case study approach. A case study allows researchers to collect and investigate data on a specific topic or phenomenon. The most basic feature of a qualitative case study is an in-depth investigation of one or more cases (Creswell, 2007). According to Yin (2013), a case study is an in-depth description of a real-life case. Therefore, in our study, we chose a case study to examine the experiences of elementary school teachers on distance education.

Participants

The participants comprised 69 elementary school teachers, of which 37 were females and 32 were males, working in different provinces of Turkey. We employed a purposeful sampling strategy to select participants who were interested in participating in the study. This method allowed us to gain a deeper understanding of the findings gleaned from the online interviews, while also allowing for different perspectives and probing for rich and clear descriptions of the case that guided this research (Creswell, 2012). By using this approach, we focused on the selection of elementary school teachers who we believed would provide rich insights and experience in distance education. Thus, we included female and male elementary school teachers with varying levels of teaching experience and located in different cities. The ages of the participants ranged from 27 to 56. Their teaching experience ranged from 4 to 32 years. We conducted the research in the spring semester of the 2020–2021 academic year.

Data Collection

We conducted semi-structured interviews with the participants. Interviews are a powerful strategy for collecting important information and rich details about the perspectives and personal experiences of participants in relation to the topic of study (Teddie & Tashakkori, 2009; Cardenas-Lopez, 2015). Also, interviews are the most commonly used source of data in case studies (Sharan, 1998). Participants were asked about their personal experiences with distance education during the COVID-19 pandemic. For this purpose, we prepared a semi-structured interview guide with a variety of questions that allowed us to collect rich data. Due to the lack of face-to-face meeting opportunities during the COVID-19 pandemic, we used Zoom to conduct and record interviews according to ethical standards of conducting research with human subjects.

Data Analysis

Data analysis went through several coding cycles. The goal of the coding process, according to Creswell (2007), is to make sense of text data by dividing it into text or image segments, labeling segments with codes, examining codes for overlap and redundancy, and collapsing these codes into broad categories. We read each transcript several times after the interviews were transcribed, each time seeking a better understanding of each participant's gained experiences as a preparation for the thematic analysis the coding process was based on (Saldaña, 2013).

Coding is an effective method of organizing and grouping similarly coded data into categories that share features (Saldaña, 2013). Coding analysis is defined as a way of condensing comprehensive data into smaller analyzable units by creating categories and concepts from the data (Mayring, 2004). We used coding analysis to develop a more detailed understanding of the participants' experiences; this provided us with important insights. We developed a set of codes based on the interview data, focusing line by line on the expressions, main ideas, and salient, catchy, and/or evocative words that the participants emphasized in their answers to the research questions. Coding helped us to pinpoint and define key components of interview data (Merriam & Tisdell, 2015). Following this approach, we read each statement multiple times, carefully comparing data with codes and codes with codes and combining them into overarching categories derived from the codes in the interview data (Spencer et al., 2014). To

compare the created categories, we created a thematic map displaying the dominant themes that recurred throughout the dataset.

We employed several criteria to validate our findings: credibility, transferability, confirmability, and consistency (Lincoln & Guba, 2013; Merriam & Tisdell, 2015). In order to ensure credibility in the study, we provided detailed information about each stage of the research and the participants, and participant confirmation was obtained. According to Creswell (2007), providing detailed information in research increases the credibility of the research. In order to ensure transferability in this study, we presented each stage of this study in detail to the reader, and direct quotations from the participants' views were included in the findings section (Merriam & Tisdell, 2015). These practices within the scope of credibility increase the internal validity of the study (Lincoln & Guba, 2013).

Consistency in qualitative research is the consistency between research data and research results (Merriam & Tisdell, 2015). Creswell (2007) suggests that the compatibility between codes and categories should be checked by more than one researcher to ensure reliability in qualitative research. To ensure consistency in this research, we sent the transcripts to an independent coder and then compared the independent coder's findings with the baseline codes and categories we identified. A consensus was established by two independent coders on the emerged categories. The categories created were then checked by some participants as an additional data validation method (Creswell, 2007). In order to ensure the confirmability of this study, the study data, the coding, and other studies made in the computer environment were filed with the name of the study and made auditable when necessary. In the confirmation review, the researchers are required to keep all the data collection tools and all the study elements on hand for the review of the relevant parties when necessary (Creswell, 2007). We also used member checks with participants to confirm accuracy of the transcripts and partial findings. To protect participants' identities, we assigned pseudonyms to them, such as "T-1, T-2," etc. when presenting direct quotes.

Results

Advantages of Distance Education

With regard to the advantages of distance education during the COVID-19 pandemic, we identified several interrelated components that reflect the participants' experiences, and among them is the development of technology-related skills.

Development of technology-related skills

The majority of teachers cited increased technological literacy as a significant benefit of distance education. Many teachers stated that they benefited more from technological opportunities in distance education. Some teachers also pointed out that they could quickly integrate technology into their educational settings thanks to distance education. However, a few teachers stated that they learned how to conduct research online as a result of distance education practices and methods. Figure 1 presents the codes for this category.

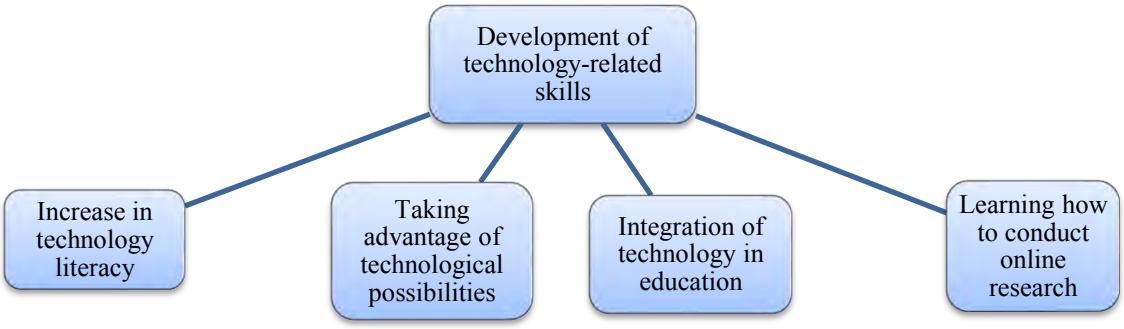

Figure 1: Codes referring to development of technology-related skills

Some teachers described their experiences in the category of developing technology-related skills as follows:

> *The digital literacy skills of teachers and students are a plus. Educational technologies provided great benefits in this process (T-9).*
>
> *We were able to make the most of technology (T-37).*

We were able to use technology for learning and teaching purposes. We mostly used Web2 tools (T-56).

Distance education provided the opportunity to teach with technological tools. Information could be accessed quickly and easily (T-59).

Contribution to educational services

The majority of teachers pointed to the fact that education can be carried out independently of time and place as the best aspect of distance education. Again, many teachers stated that they were able to use different instructional materials in their lessons thanks to distance education. Some teachers stated that through distance education, continuity in education was ensured during the COVID-19 pandemic. Fewer teachers reported that there was an overall increase in parental support at home through distance education, that they could communicate easily with the students, that they could manage the classroom more effectively, and that they could increase student motivation and engagement. Figure 2 shows the codes for this category.

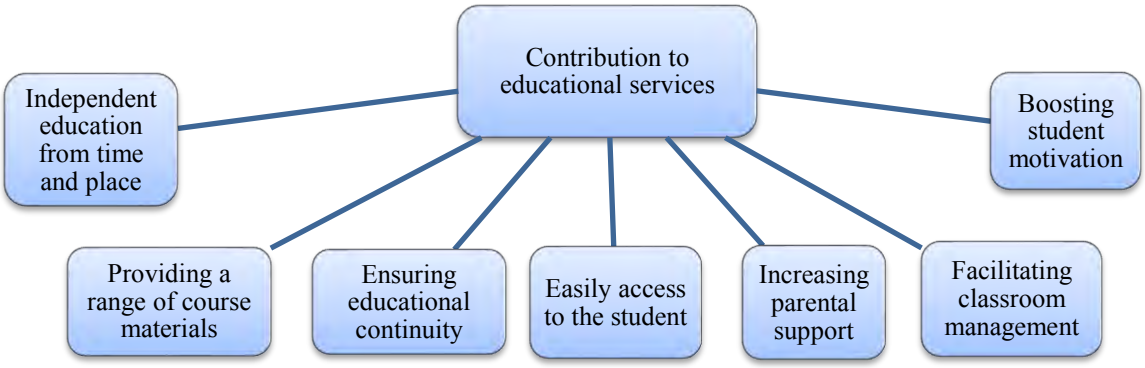

Figure 2: Codes referring to contribution to teaching services

The following excerpts document some teachers' experiences categorized as contribution to teaching services:

We used a lot of web or home materials for students during distance lessons (T-15).

We continued the training of our students (T-29).

Distance education schools ceased to be four walls. We reached the students more quickly. Parents became more conscious about the school and their child (T-51).

It is easy to deal with students on a one-to-one basis, and there can be more sharing (T-33).

Distance education provides educational services to a wide student population. I can teach more quickly by using technology. There is no need for classroom management such as shutting up, sitting down, and speaking (T-21).

Savings

Some teachers stated that the best advantage of distance education is that it saves time. Fewer teachers stated that education services are provided with lower costs in terms of physical elements, transportation, heating, and course equipment. Figure 3 displays the codes for this category.

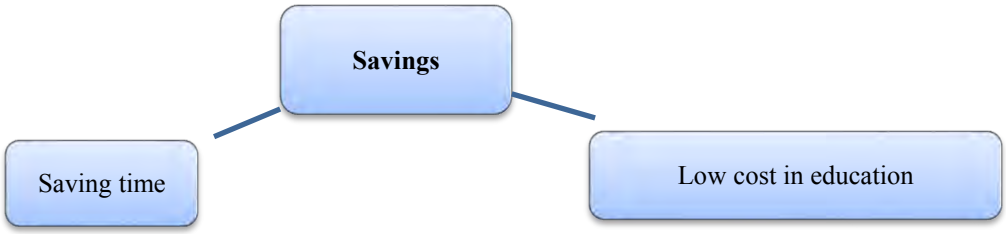

Figure 3: Codes referring to savings

In the category of savings, the following teachers shared their personal experiences:

Distance education has made it easier to use written and visual resources on the internet. Lessons were attended without the problem of transportation to school (T-5).

Distance education saved time (T-24).

It prevented a waste of time. For a longer time, we teach our lessons (T-49).

The best aspect of distance education is that it is more economical (T-14).

Challenges of Distance Education

Participants identified several challenges with regard to distance education during the COVID-19 pandemic: (a) technology-based problems; (b) problems in educational services; and (c) health problems.

Technology-based problems

The majority of the teachers pointed out that the most important problem in distance education is the increase in the inequality of opportunity (problem of access to education). Figure 4 shows the codes for this category.

Some teachers described their experiences as follows:

It is a difficult process, especially for my students who do not have technological opportunities and do not even watch lectures on television (T-4).

Some of my students could not attend the classes. Some of my students could not attend classes because they did not have a personal computer or phone. Internet problems, errors in the system, learning anxiety, and low motivation decreased the interest in the lessons (T-9).

Some of my students were not able to participate actively unless they had an internet connection, smartphone, tablet, or computer. There are hundreds of students like this. Many of my students could not actively participate in distance education (T-11).

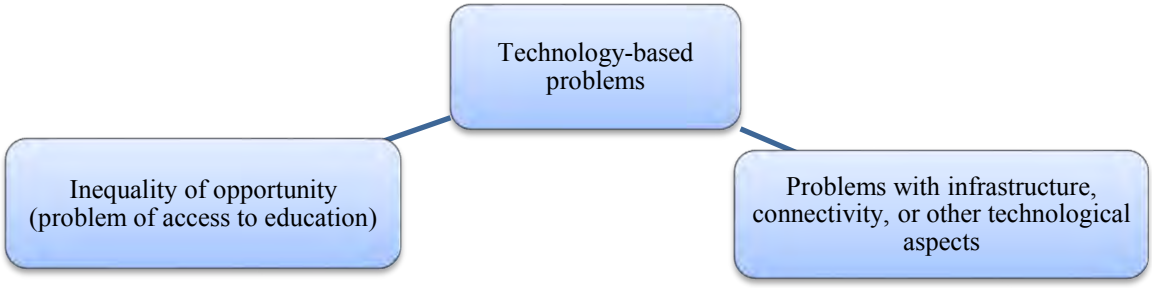

Figure 4: Codes referring to technology-based problems

Many teachers stated that problems with infrastructure, connectivity, or other technological aspects were major challenges in distance education. Two teachers explained their experiences on this subject as follows:

> *Some of my students had internet problems and could not attend the class. Since the interaction was low, permanent learning did not occur (T-28).*

> *In my lessons, we had connection and sound problems caused by the power of the internet, and a loss of time in parallel. I could not connect to the class, I could not enter, my battery ran out etc. Due to such problems, my students could not adapt to online courses (T-15).*

Problems in educational services

Many teachers stated that the most important challenges in distance education were insufficient socialization (lack of social contact), amotivation (an absence of motivation), low involvement in education, poor preparation for online education, and non-authentic interaction. Figure 5 shows the codes for this category. Below are some of the experiences teachers shared on this subject:

> *Students could not pay much attention to the lesson. I could not fully achieve class dominance (T-18).*

> *Creating a friendly atmosphere is difficult. I had difficulty motivating the students for the lesson (T-19).*

Student-teacher interaction in distance education is limited and weak (T-23).

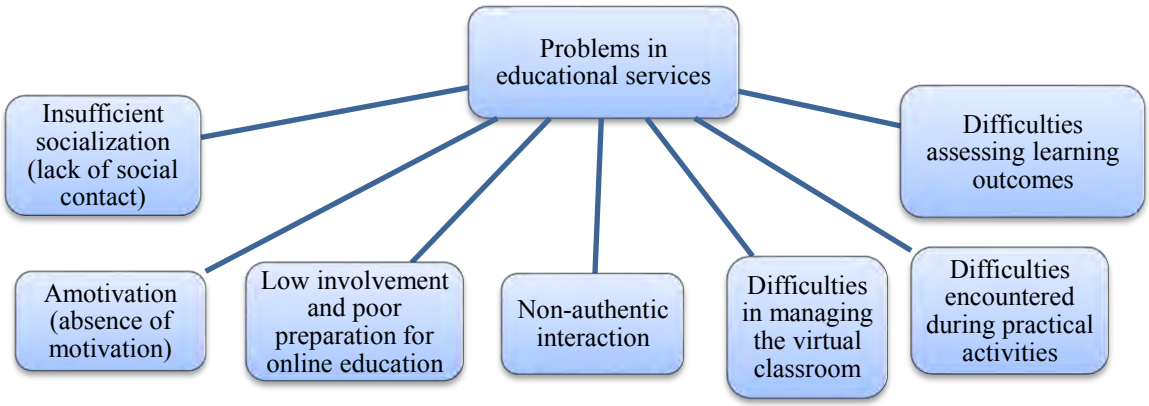

Figure 5: Codes referring to problems in educational services

Some teachers also stated that the most significant challenges in distance education were challenges in managing the virtual classroom, challenges encountered during practical activities, challenges assessing learning outcomes, and effective learning and retention problems. For instance, one teacher's (T-5) experience about problems in educational/teaching services reads:

> *The emotional bond and communication between the teacher and the student weakened. Class atmosphere and discipline disappeared. Children' attention were easily distracted on the screen during lessons. It became difficult to control the students. We also experienced audio and video issues related to internet speed and devices. We did not conduct cooperative learning workshops.*

Another teacher described the problems as follows (T-33):

> *We could not provide control as in the face-to-face education environment. I had challenges in assessing students.*

Health problems

Few teachers stated that distance education practices during the COVID-19 pandemic caused health problems. Figure 6 shows the codes for this category. One teacher explained their experience about the health problems as follows:

> *Six hours a day in front of a screen is too much for elementary schools. My eyes, my brain, I hurt all over (T-7).*

T-25 reflected on his experiences, stating:

> *In addition to the mental fatigue caused by being in front of the screen all the time, there have been serious health problems in my eyes.*

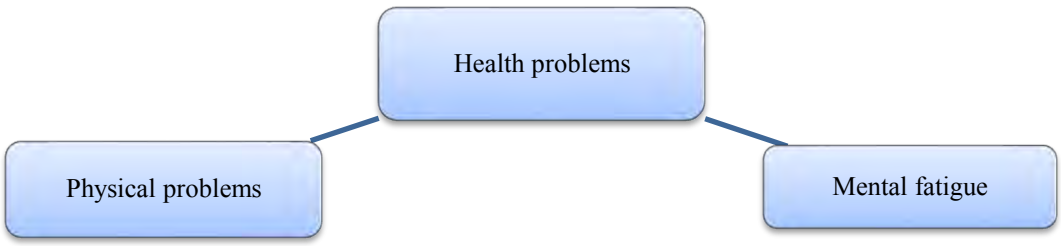

Figure 6: Codes referring to health problems

Disadvantages of Distance Education

Participants identified five main points with regard to disadvantages of distance education during the COVID-19 pandemic: (a) disadvantages in cognitive learning outcomes; (b) disadvantages in affective learning outcomes; (c) disadvantages in psychomotor learning outcomes; (d) disadvantages in pre-learning; and (e) disadvantages in curriculum content.

Disadvantages in cognitive learning outcomes

Many teachers stated that they experienced a decrease in their students' reading comprehension skills and failure to achieve high-level goals during the distance education. One of the teachers shared his thoughts in this regard as follows.

> *I observed difficulties in reading comprehension and declines in interpretation skills in my students (T-10).*

T-46 shared her opinion as follows*:*

> *Especially since I couldn't do the experiments and applications that I needed to do in the science lessons, the students' learning was incomplete. Since these subjects are abstract, I could not concretize the teaching.*

Figure 7 shows the codes for this category.

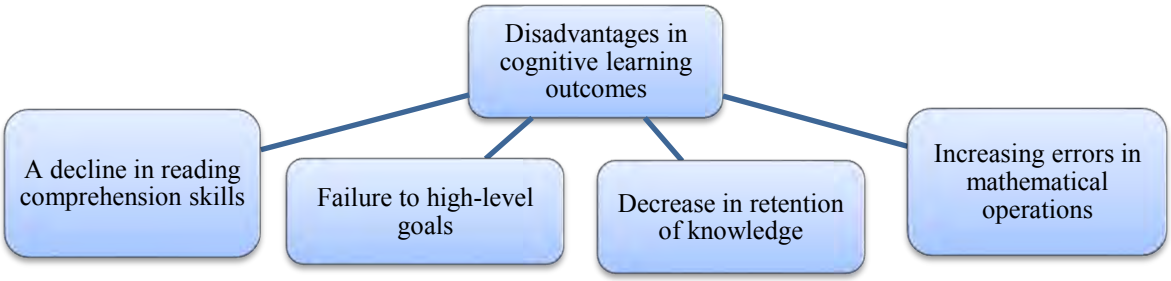

Figure 7: Codes referring to disadvantages in cognitive learning outcomes

Some teachers also drew attention to the decrease in retention of knowledge and the increasing errors in mathematical operations. For instance, two of the teachers' observations are as follows:

> *…errors and irregularities in mathematical operations are a situation that I often encounter (T-17).*

> *My students quickly forgot the achievements related to the course (T-23).*

T-12 expressed his thoughts as follows*:*

> *I could not repeat the subjects to my students in online education as I can in face-to-face education. Since I covered the subject content quickly, they were not able to remember some information or forgot content quickly.*

Disadvantages in affective learning outcomes

The majority of teachers stated that their students developed indifference and a negative attitude toward online lessons while enrolled in distance education. Some teachers reported that they observed decreases in their students' ability to fulfill their study responsibilities and listening skills. Figure 8 shows the codes for this category.

For example, T-9 expressed her own observations with the following sentences.

> *The responsibility of my students to study has decreased a lot. Indifference towards knowledge and learning, and amotivation increased. My students' ability to interpret and make inferences has weakened considerably. They make mistakes even in the easiest questions for reasons such as distraction.*

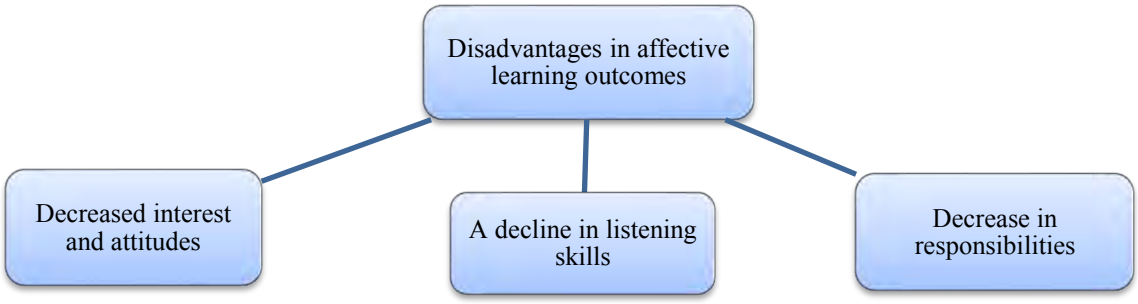

Figure 8: Codes referring to disadvantages in affective learning outcomes

Disadvantages in psychomotor learning outcomes

Some teachers reported that their students' writing skills had deteriorated during the distance education process. The following are some quotes from these teachers' observations:

> *Since it was not possible to be face to face with the students, there were deteriorations in the writing order of my students in distance education (T-8).*

> *I observed regression in reading and writing in my students. I observed a behavioral pattern of my students showing that they stayed away from the lessons in general and were indifferent to the lesson (T-31).*

> *My students are unwilling to write, and they write erroneously and slowly (T-49).*

Disadvantages in pre-learning

Some teachers drew the attention to the significant decreases in the readiness levels of their students during the distance education process. T-28 and T-57 explained their observations as follows:

> *My disadvantaged students forgot their previously gained knowledge because they did not regularly participate in distance education. (T-28).*

> *Some of the students, especially those who do not participate in distance education, have a lot of difficulty in learning new subjects because they have not learned the previous content (T-57).*

Disadvantages in covering curriculum content

Rather few teachers stated that they could not complete the content of the curriculum during the distance education process. For example, T-39 shared the following regarding this issue:

> *Meaningful learning could not be made, and I did not cover the curriculum effectively.*

A few teachers also drew attention to the incomplete learning of students who could not participate in distance education classes on a regular basis. Two teachers elaborated on this issue:

My students who attend classes regularly have achieved a great deal, but I can say that those students of mine who do not have family support and cannot attend classes regularly are in a year of loss (T-5).

Students who do not receive family support, who do not have a suitable working environment at home, who cannot participate in distance education, have even forgotten what they learned previous classes (T-56).

Discussion of the Findings and Conclusions

Data analysis revealed several interrelated categories that address advantages, challenges, and disadvantages of distance education at the elementary school level during the COVID-19 pandemic in Turkey. Several conclusions can be made based on the findings of this study.

First, the majority of teachers reported an increase in technological literacy, use of technological opportunities, and research-based skills. Similar studies in the literature have shown similar findings. These studies indicated that COVID-19 has had a positive impact on technology use and skill development, that it allows for self-learning, and that many educators have adapted to distance education (Akbana et al., 2021; Fırat & Güney, 2020; Karakaya et al., 2021; Trust & Whalen, 2020). Many of the teachers who participated in our study stated that COVID-19 allowed them to integrate technology into their curricula. As Bolat et al. (2020) stated, as teachers' use of information technology increases, their skillfulness at integrating technology into their curriculum lessons also increases. Previous research has shown that the COVID-19 crisis has disrupted education and has had a significant impact on young people's futures. Educational institutions must respond quickly to this global threat and ensure educational continuity (Bojovic et al., 2020).

Furthermore, UNICEF (2021) emphasizes that in order to avoid interruptions in education, children must have access to continuous and flexible distance education methods. Regarding this aspect of distant education, the teachers participating in our study pointed to the fact that the learners were able to continue their education irrespective of place or time and that the distance education contributed to educational sustainability.

Some participants in this study also reported that distance education benefits from a wide range of course materials, students' easy access to lessons, and less challenging classroom management, and that parental support as well as student motivation could be increased. In their study, Dushkevych et al. (2020) discovered that generation Z students can easily adapt to a new learning environment, quickly organize their learning process, and select their preferred online learning platforms. Despite difficult circumstances, Lee et al. (2021) found that many students valued online learning. When normal conditions are restored, these students intend to continue their education online. Another study that supported the findings of our study concluded that the COVID-19 pandemic process improved teacher-parent communication through increased mutual dialogue, enhanced cooperation, and empathic communication (Karakaya et al., 2021).

The challenges of distance education experienced by this study's participants included technology-based problems, problems in educational services, and health problems. In the category of technology-based problems, the majority of teachers stated that distance education cannot provide equal educational opportunities. Similarly, there is a wide range of experiences pointing to the existence of constraints related to infrastructure, internet connectivity, or other technological issues. COVID-19, as it is well known, has compelled teachers and students to leave their classrooms and move to distance education environments quickly. Therefore, there have been significant challenges in maintaining educational quality (Karataş & Tuncer, 2020).

According to UNESCO data, the complete or partial closure of schools during the COVID-19 pandemic harmed the majority of the world's students, and many students were unable to access distance education (UNESCO, 2021a). Many countries have begun to implement distance education methods via digital platforms as part of this process. However, many children, particularly those from low-income families, have been unable to access these applications (UNICEF, 2021). Learning inequality has increased because only students from wealthier and more educated families have access to support for learning at home (World Bank Group Education [WBGE], 2020). Aside from the current issues of access and affordability, financial stability has been jeopardized, resulting in lower participation in learning (Alvarez, 2020). Challenges such as technological issues, unreliability of internet connections, infrastructure

issues, a lack of technical support, and many students' inability to access the necessary electronic devices in this process have resulted in a negative evaluation of education via digital platforms (Alvarez, 2020; Devkota, 2021; Ferri et al., 2020; Vasiliki et al., 2021).

Problems with educational services were one of the reported challenges caused by distance education. The findings that were shared by most of the teachers in our study and should be taken into account were lack of social contact, lack of motivation to execute academic tasks, low participation, and inadequacy in lesson preparation, as well as unreal-unauthentic interaction, challenges in classroom management, challenges in evaluating learning outcomes, and challenges in practical activities. Karakaya et al. (2021) found that the pandemic process caused students to experience boredom, a decreased sense of school belonging, a lack of interaction, lack of motivation, and digital addiction. Alvarez (2020) investigated the experiences of five students who continued their education as a result of COVID-19 through distance education applications.

Concerns about emotional support were one of the four themes that emerged as a result of the research. Another study on students' learning during the COVID-19 process (Lee et al., 2021) discovered that the quality of student-student relationships and interactions decreased. A lack of face-to-face communication has a significant and negative impact on students' sense of community and overall satisfaction. In a study conducted by Vasiliki et al. (2021), one-third of students found the lack of visual contact with their teachers on digital platforms to be annoying.

While nearly half of the students were afraid to ask the teacher questions, some students reported that they did not receive immediate responses to questions they asked after the lesson. Another study identified a disadvantage of distance education as a lack of interaction and motivation (Ferri et al., 2020). In online teaching applications, the types of content and student-student interaction improve learning outcomes. As a result, both the content to be covered and types of interaction that are important for the learning process should be considered in the planning of teaching practices given the nature of learning as a social and cognitive process (Hodges et al., 2020).

Some teachers mentioned challenges with effective learning and retention, as well as a lack of parental support, in the study's category of problems in educational/teaching services. Schools are centers of social activity and human interaction. Many children and young people have been deprived of the social relationships required for learning and development as a result of school closures (UNESCO, 2021b). Social deficiencies are associated primarily with a lack of human interaction between teachers and students, a lack of physical learning spaces, and a lack of support from working parents (Ferri et al., 2020). Following the closure of schools, parents are frequently asked to assist their children with their home learning. However, this is especially difficult for parents with limited education and resources (UNESCO, 2021b). Neglecting the social dimension of learning has a negative impact on digital education (Vasiliki et al., 2021).

The health problems encountered in the analysis of teachers' experiences with the aspects of distance education included both physical ailments and mental exhaustion. Octaberlina and Muslimin (2020) reported that students were unfamiliar with e-learning and experienced physical problems such as eye strain while learning online. According to Kruszewska et al. (2020), participants experienced health issues such as back pain, spine pain, and eye pain during the distance education process. Another study revealed that participants felt bad and had an irregular diet (Sarı & Nayır, 2020). During the COVID-19 pandemic, students' mental and emotional health suffered. School closures, fear of COVID-19, and social and economic disruptions caused by the COVID-19 most likely increased stress and anxiety within the family (WBGE, 2020).

With regard to the disadvantages of distance education, the majority of the teachers who participated in our study stated that they observed many disadvantages in their students' learning outcomes during the distance education process. The difference between the expected learning levels of students in the curriculum and teaching and their actual learning levels is conceptualized as disadvantage in learning outcomes (Angrist et al., 2021). The decline in academic development that occurs during a period of absence from school without participating in an academic program has been reported as one of distance learning's disadvantages (Volley, 2020).

During the COVID-19 pandemic, schools in Turkey suspended face-to-face education and switched to distance education. In this study, we examined whether there were disadvantages in learning outcomes among students during the instructional processes, according to teachers' observations. The results showed that teachers stated that there are significant disadvantages of distance education for students, including a decrease in reading comprehension skills, an inability to achieve practical and high-level goals, an increase in mathematical operation errors, and a decrease in knowledge retention. These disadvantages in learning outcomes are more considerable in mathematics and reading skills, especially in first-grade students in elementary schools. In their study conducted with primary school students, Sabates et al. (2021) found that 66% of previous standards in the curriculum of an arithmetic course were lost.

Similarly, we found that disadvantages of distance learning were particularly evident in mathematics skills, reading comprehension, and writing skills. Research has emphasized that non-practice-based knowledge is the most vulnerable to forgetting (Cooper, 2003). When schools are closed, students' literacy skills deteriorate. This decrease is especially pronounced for low-income students. During the summer months, students with high poverty levels experience a decline in their average three-month academic learning (Volley, 2020). Therefore, during the ongoing COVID-19 pandemic, it can be predicted that learning will continue declining and school dropouts will rise, particularly among the most disadvantaged students. Furthermore, students will largely discontinue learning academic subjects (WBGE, 2020). To address this issue, UNESCO held a meeting with education ministers in order to ensure the continuity of education and reduce deficiencies in learning outcomes. At this meeting, decisions were taken to increase investments in equality and development and to strengthen social services (UNESCO, 2021a).

Many of the teachers who participated in our study emphasized that they experienced decline in learning outcomes in the field of affective learning. These teachers drew attention to the decrease in their students' interest and attitudes toward learning. Student achievement is directly related to issues such as interest, motivation, and participation (Hodges et al., 2020). Decline in learning outcomes in the socio-emotional domain are more difficult to detect than learning outcomes in cognitive domains (for example, literacy, arithmetic, and reasoning skills)

(WBGE, 2020). According to a study conducted by Karakaya et al. (2021), the deficiencies caused by distance education are mostly seen in the affective field. The authors point to learners' inability to gather with their friends and play games as well as their lack of access to activities that promote children's and adolescents' social development.

In Lee et al.'s (2021) study, a lack of interaction between students stands out in terms of social development. Again, some studies conducted during the COVID-19 pandemic concluded that student motivation was lacking in terms of affective aspects and that challenges were encountered in attracting students' attention and managing the classroom environment (Kurnaz et al., 2020). At this point, a lack of socialization (such as dialogue with students and educators in the same environment) is a significant detriment to delivering particularly enjoyable and interesting lessons (Vasiliki et al., 2021).

Many of the teachers who participated in our study drew attention to the decline in psychomotor learning outcomes during the distance education. Teachers stated that they observed deterioration in their students' writing skills. Sarıkaya (2021) found that writing tasks were not given sufficient importance during the COVID-19, necessary feedback was not given to students about their writing, and corrections were not made. However, another study concluded that the most advantageous learning area in distance education was writing skills, while speaking skills were the least advantageous as they were typically reduced and, instead, communication was generally established through writing (Karataş & Tuncer, 2020). At this point, written communication as a central teaching practice in distance education should be appreciated as an opportunity for students to develop their writing skills as long as feedback and correction are provided (Hodges et al., 2020). However, the larger the class size, the more difficult it is for teachers to implement quality feedback. Therefore, classroom size is also an important factor in the success of distance education practices.

School closures jeopardize access to other essential services such as school meals, recreational programs, extracurricular activities, and pedagogical support (UNICEF, 2021). This circumstance is likely to have a negative impact on preschool and primary school students. Outcomes made in this age group, such as literacy, foundational mathematics education, interest

in and attitude toward learning, and so on, will serve as the foundation for future learning. Students' learning is cumulative, and if they do not acquire basic skills in the early grades, it may be much more difficult for them to learn later (WBGE, 2020). Therefore, the determination of lack in learning outcomes in students is an important issue because it will serve as the foundation for future teaching activities.

To summarize, the world is changing, and the causes of disruptions in education are not limited to pandemics; wars, local conflicts, and natural disasters are all considered potential sources of disruption. Thus, collaborative studies in various fields need to be conducted in order to provide better and more timely solutions to ensure the sustainability of education through distance teaching and learning (Bozkurt & Sharma, 2020).

We would like to propose the following recommendations to educational professionals based on the findings of our study:

1. Future studies should be conducted in which advantageous components of distance education that consider the cognitive and social dimensions of learning are implemented, so that practices conducive to generating learning opportunities can be identified.
2. Financial assistance, particularly for students from low-income families, is required to ensure equal educational opportunities.
3. Measures need to be taken to eliminate shortcomings in infrastructure, connectivity, and other technological issues in order to ensure the sustainability of education in crisis situations.

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